

# Emotional Intelligence Among Medical Students and Residents in Palestine: A Cross-sectional Study

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## Abstract

**Objective:** In medical education and clinical practice, emotional intelligence (EI) has been related to improved doctor-patient relationships. Here, EI was measured among Palestinian medical students in two stages of their studies, clinical and basic sciences, and factors that may affect it were assessed. Moreover, EI scores were compared between participating universities to detect possible differences. **Methods:** A quantitative, cross-sectional, questionnaire-based, online survey was conducted on 692 medical students attending Al-Quds and Al-Najah Universities in Palestine. Emotional intelligence was evaluated using the 33-item scale introduced by Schutte et al. (1998). Data was analyzed in a quantitative manner using the Statistical Package for Social Sciences (Ver. 20.0). **Results:** The mean EI was 3.83 (SD=0.41) out of maximum possible score of 5, with 69.1% having high EI (>3.68). EI decreased significantly at  $\alpha[?]0.05$  across basic and clinical stages of study, with a negative correlation between EI and academic year (PCC= -0.086). This indicates that as academic year increases, EI decreases (p=0.023). Moreover, EI is affected positively and significantly at  $\alpha[?]0.05$  by having a hobby or doing extracurricular activities. In addition, students who indicate continual regret for studying medicine tend to have lower EI, which may reflect a lack of interest in studying this field. **Conclusion:** The study found no significant differences in mean EI at  $\alpha [?]0.05$  between the students of Al-Quds (mean=3.83) and Al-Najah universities (mean=3.84). At these universities, participating medical students, both male and female, had relatively high levels of emotional intelligence. Students in the clinical stage had lower EI than those in the basic sciences stage, which indicates a conflict between objectivity and humanity while training clinically. Therefore, emotional support during clinical years would aid in improving EI. Moreover, EI being affected by hobbies or extracurricular activities indicates that EI can be modulated through encouragement of such activities.

## WHAT'S KNOWN? (what is already known about this subject?)

EI is a very important parameter in doctor's life, it is associated with improved physical and psychological health, leads to better stress coping, lowers burnout, creates effective teamwork between medical staff. Higher EI also enhances leadership and improves doctor-patient relationship. Specifically, EI among medical students was previously studied and was shown to be affected by their stage of study.

## WHAT'S NEW? (what does this study contribute to the literature?)

This study shows that EI among medical students in the sample tested declines as medical students progress from basic to clinical stage; the study finds relationship between EI and hobbies, extracurricular activities and satisfaction in studying medicine. The study indicates that EI can be modulated through encouragement of such activities.

## Keywords :

Emotional intelligence (EI), Doctor-patient relationship, Medical students, Basic sciences

## Introduction:

Intelligence has always been a puzzling word and, as a distinct feature of humans, the highest creatures, an extensive range of studies has tried to solve this cipher. Gardner, in his theory of multiple intelligences, highlights taking a broad perspective of intelligence. Emphasizing that traditional definitions of intelligence, such as IQ, are far too limited, he describes eight types of intelligence. (1) One of these types is the emotional, which struggles against the intellectual. This definition captures the conflict between the mind's thoughts and the heart's emotions. Who is better? Who is more important? When should we use each, or both?

Undoubtedly, we all need both emotions and mind to succeed. One of them cannot substitute for the other; we need to reach a state of balance between both. Similarly, it is best to ensure that those having book smarts (i.e. people with higher cognitive abilities-intellectual intelligence) are not more successful than those with street smarts (i.e. people with higher non-cognitive abilities-emotional intelligence) and vice versa, as each completes the other. As David Caruso said, "It is very important to understand that emotional intelligence is not the opposite of intelligence, it is not the triumph of heart over head—it is the unique intersection of both." (2)

This struggle is also prominent in the medical field. Health care professionals, especially doctors, are always caught in the middle of this conflict between humanity and objectivity. Most medical curricula emphasize the importance of intellectual abilities (knowledge and skills), while very scant attention is given to the improvement of doctors' EI. This imbalance could lead to increases in malpractice claims against doctors (3) (4), high levels of burnout and depression (5) (3) (6), and deterioration of the doctor-patient relationship. (5) (7) (4) As Goleman has pointed out, at times of heightened competition for patient loyalty, those physicians who are more aware of their patients' emotions are more successful in treating patients than their less-perceptive colleagues. (8) (9) The improved doctor-patient relationship leads to patient satisfaction, and thereby helps increase diagnosis accuracy and patient compliance, making them more adherent to treatment protocols. (9) (7) Furthermore, emotional intelligence is supposed to improve physical and psychological health, lead to better stress coping, and promote effective teamwork and enhanced leadership among medical staff.

Due to increasing awareness of the importance of EI, emotional intelligence has become a concept of great interest in the field of medical education. It was introduced by Salovey and Mayer as a form of social intelligence that involves the ability to monitor the feelings and emotions of oneself and others, to discriminate among them, and to use this information to guide one's thinking and actions. (10) As defined by Goleman, EI has five components: knowing one's emotions (self-awareness), managing emotions, motivating oneself, recognizing emotions in others (empathy), and handling relationships. (11)

There is scant knowledge, organized data, and statistics about the EI of medical students in Palestine, its relationship with medical aspects, and its effect on medical students at Al-Quds and Al-Najah Universities. Such information is needed in order to improve students' achievements, quality of life, and professional success. Therefore, our study examined the emotional intelligence scores of Al-Quds and Al-Najah University medical students according to their stage of study (basic vs. clinical) and in the context of potential contributing factors.

### *Methodology:*

A quantitative, descriptive, cross-sectional, questionnaire-based survey to measure the emotional intelligence of medical students was conducted in the faculties of medicine of Al-Quds and Al-Najah Universities in Palestine from 25<sup>th</sup> April 2019 to 28<sup>th</sup> May 2019. The study protocol was approved by the Research Ethics Committee of Al-Quds University (79/REC/2019). Data was collected using the standardized, structured, validated, and reliable questionnaire of Schutte et al. (1998) presented in a nonprobability pattern via online Google Forms. The use of Google Forms provided several potential benefits, including speed and ease of data collection and allowing students to complete the test at a time and place convenient to them. The survey was shared via social media. The target population included undergraduate medical students and clinical residency students at the faculties of medicine in both mentioned universities. Reasons for exclusion

were: being from a different university (other than Al-Quds and Al-Najah) and not having completed the form. The appropriate sample size for a population of  $4620 \pm 5$  students was calculated using an online tool (<http://www.surveysystem.com/sscalc.htm>) with a margin error of 0.05 and confidence interval of 95%.

The questionnaire consisted of two parts. The first part contained questions about the sociodemographic characteristics of the student, including gender, marital and financial status, year of study in medical school, siblings studying medicine, place of residency, living with family, academic performance, and regret for studying medicine. The second part consisted of the 33-item scale introduced by Schutte et al. (1998), the Schutte Self-Report Emotional Intelligence Test (SSEIT), in which responses are measured via a 5-Likert scale ranging between strongly disagree and strongly agree, scored from 1-5 respectively (except for three questions that were reverse-scored). The SSEIT is the standard method used for measuring emotional intelligence (EI), and consists of four sub-scales: emotion perception, utilizing emotions, managing self-relevant emotions, and managing others' emotions. (12) (13) (14). The test has a reliability rating of 0.90 for the overall emotional intelligence scale, which is reliable for both adults and adolescents; utilizing the emotions sub-scale alone has shown poor reliability. (15) (16) The questionnaire used was in the Arabic language, and its validity and reliability was confirmed through a previous study held in Al-Quds University and using exploratory factor analysis; the factor loading for all items exceeded 0.55 (0.59 to 0.78), and the Cronbach's Alpha and Guttman split-half coefficients were 0.81 and 0.80, respectively. (17) The EI score for each individual was calculated by adding the score obtained from each answer in the questionnaire and dividing by 33, giving a summary value with minimum of 1 and maximum of 5. Based on this score, the respondents were ranked into three categories (low EI, moderate EI, high EI), shown in Table 2. (17)

Students were additionally categorized into levels defined according to their academic year:

- Basic students: first- to third-year students (studying basic medical sciences).
- Clinical students: fourth- to sixth-year, internship, and residency students (different specialties and years)

Collected data were entered into Microsoft Excel 2013. Analysis was performed using the Statistical Package for Social Sciences (SPSS), version 20.0. Analyses used in the study are as follows:

1. Descriptive statistics (frequency and percentage) for demographic data.
2. Means and standard deviations to answer the questions of the study.
3. Comparison of means with *t*-test and one-way ANOVA.
4. Pearson's correlation to check validity.
5. Cronbach's alpha to confirm reliability of the questionnaire.

### *Results:*

Out of 745 medical students, 692 students completed the questionnaire, giving a response rate of 92.88%. The demographic characteristics of the participants are described in Table 1.

Participants showed a high mean EI score (3.83) (the distribution is summarized in Table 2) with a standard deviation (SD) of 0.41. Analysis of individual questions revealed high mean values for some, like: "I motivate myself by imagining a good outcome to tasks I take" (mean 4.35) and "I compliment others when they've done something well" (mean 4.31). In contrast, the question with the lowest individual mean score was: "I like to share my emotions with others" (mean 3.00).

As seen in Table 3, the present study found that emotional intelligence is significantly higher in basic medical sciences students (mean = 3.89) than clinical medical students (mean=3.78). In addition, those students participating in extracurricular activities or having a hobby demonstrated significantly higher emotional intelligence scores (mean=3.92) than those who do not (mean=3.76). Student hobbies and extracurricular activities are summarized in Figure 1. Another significant finding is that students who always regret studying medicine have significantly lower mean EI score (3.37) than those with less-frequent or no regret (usually=3.66, sometimes=3.82, rare=3.87, never=4.02).

Increasing academic year had a negative correlation with 11 of the 33 individual items asked (Table 4). However, other variables considered in the study (gender, university, social status, marital status, place of residency, family income, siblings studying medicine, living with family, and GPA) showed no significant effects on EI score. Therefore, at  $\alpha [?]0.05$ , there is no significant difference in the mean emotional intelligence score between medical students of Al-Quds University (mean=3.83) and Al-Najah University (mean= 3.84) ( $p = 0.622$ ).

#### *Discussion:*

Today's medical students are tomorrow's doctors, and strong foundations in both intellectual and emotional intelligence are paramount for fostering a skillful doctor who is capable of maintaining efficacious doctor-patient relationships, which would improve therapy by increasing trust and satisfaction on both sides. (7) (18) Intellectual and emotional intelligence can both be improved throughout the educational stages of university life. High EI is believed to be of importance to the doctor's practical life, enabling them to better deal with patients by using emotions to investigate and reach a correct diagnosis. EI may also enable doctors to understand different points of view concurrently, understand their own reactions, and handle stress in an appropriate manner; newer research additionally focuses on EI as an indicator of a doctor's academic and professional success. (7) (19) (20) (21)

This study assessed emotional intelligence among medical students and identified some factors that affect it. Changes and interventions with which to improve EI were considered. Finally, we established a base for further studies, e.g. measuring methods to improve EI, identifying its relationship with physical and mental health, and determining if it is connected to career success. Moreover, the findings may direct medical education to emphasize EI learning and to incorporate special technical courses for improving EI in medical students and doctors.

The results showed a significant difference in EI between basic and clinical medical students, with EI declining significantly in the second period. This indicates that as medical students progress from basic to clinical stage, their awareness of their own feelings and emotions decreases. This is consistent with the results established in an exploratory study conducted by the University of Kentucky College of Medicine, which also found that some subscales of emotional intelligence (empathic concern and attention to feelings) decreased as students proceeded through their study. (4) This decline may be attributed to many factors, including:

1. **High expectations** : In medical training, the divide between reality and prior expectations of the student is sometimes profound and disappointing. (22) During their basic years, many students have high expectations of clinical training that stem from movies or medical series (such as *The Good Doctor* and *House* ). However, as soon as they start their clinical period, they realize the difference between what they expected and what is practically applied in hospitals. For example: The unethical behaviors of some doctors are a huge letdown for students. One study of 3<sup>rd</sup> and 4<sup>th</sup> years found that 61% of students observed unethical behaviors toward patients, and 40% of students reported feeling guilty for participating in that behavior in order to please their doctors and get good evaluations. (4)
2. **Low self-esteem** : Decreased self-esteem among clinical-stage medical students in clinical stage stems from embarrassment and self-doubt caused by some of their doctors, including occasional gender discrimination and disrespectful treatment, which could be exaggerated and augmented when students realize that there is a deficit in the rights that protect students and health care professionals against violence. (4) Moreover, students may encounter differences between what they learned about the signs and symptoms of diseases from books during their basic years and how patients present in the hospital; many times, not all symptoms can be seen on a patient. This difference may weaken student self-confidence and their confidence in what they learned, which may affect their EI. (23)
3. **Social environment** : As EI is associated with pro-social behavior, the change in a student's social environment between basic and clinical periods is a potential cause for the decline in their emotional intelligence. Clinical training includes several rotations, each one in a different hospital, which usually separates students from their families and peers. This may create a feeling of loneliness, which may affect their empathy. The need to adapt at every rotation to a new environment with different

requirements also causes immense stress. (4)

4. **Medical challenges** : Medical studies are hard, and the medical environment is a stressful one. The medical world is rapidly changing, with more demanding patients and families and increased workloads on doctors (24) (9) In addition, the number of students entering medical school increases every year, which means that getting a satisfying job or residency program is becoming harder. This puts medical students in a constant state of fear for their future, especially when they see that the highly competitive nature of medicine leads many graduates to end up receiving unpaid residency programs. This constant fear of the future combines with immense responsibilities and the high expectations of family members to create a very stressful circumstance for the student. (4) In addition, the challenge of balancing medical life, social life, responsibilities, and personal happiness causes some stress to medical students, which would potentially decrease their EI. Finally, fear of catching illness or of facing people in suffering is also overwhelming to some medical students. (9)
5. **Humanity vs objectivity** : The conflict between humanity and objectivity that occurs inside medical students throughout their clinical training would decrease their productivity. These students encounter patients, witness them suffering, and may see some die. As they progress through medical school and continue to face these scenarios, they may become more cynical and desensitized, potentially starting to see patients as objects rather than people. This decrease in humanism may be an important factor in decreasing EI, especially through its effect on empathy. (4) (25)

There could be additional factors that might explain the observed results, which is why we recommend more research be carried out to address these factors. It is also relevant to note that some studies have showed that EI does not change throughout the course of medical studies. (9)

One of the interesting results in the present study is that among medical students who regret studying medicine, EI scores were lower than for their peers who do not. This may be attributed to the following:

1. Some medical students are forced to study medicine by the desire of their parents, making them less interested, confident, and productive and more depressed. Even without that, studying medicine is a hard decision on its own, and pre-college students are not prepared to choose properly. (7)
2. Generally, medical students initially enjoy studying medicine due to the similarity of early years with school subjects and to enthusiasm for college life. As they advance, radical changes in the educational system make it harder and more difficult to tolerate— i.e. self-study, the enormous amount of subjects and material, and increased difficulty. (22)
3. From a social point of view, a medical student's time is fully consumed by their studies; their social life, time with friends, and even favorite hobbies become sharply limited, affecting the student's emotions. These feelings become exaggerated and augmented when they realize that they are still stuck in the educational phase of life while their peers move on to new experiences, such as getting married and becoming independent and financially autonomous through gaining access to the labor market. (4) (22)
4. Students may feel guilty about the high installments their parents pay yearly to fund their education, which may forbid other family members from pursuing college education or require their parents to hold two or three jobs.
5. Students who are satisfied in studying medicine have higher EI. (26) Moreover, studies emphasize that students who enjoy studying medicine have higher EI scores. (27)

We also observed that the mean EI score for students having hobbies and extracurricular activities is higher than that for students who do not. A similar finding was reported in another study, demonstrating that emotional intelligence is influenced positively by performing leisure activities. (24) Generally speaking, medical students who have hobbies would also have outstanding skill in time management. Furthermore, the social interactions they take part in while performing these hobbies and extracurricular activities enable these students to better deal with patients in their professional career. (28) (29)

Our finding that the overall emotional intelligence scores of men and women were almost equal is consistent with the literature. (30) (5) This would rebut the idea that women are more emotional. However, another

study stated that “women may be better at translating their EI into clinical care delivery compared to men,” in which light this finding could be interpreted as women being better in specific aspects of emotional intelligence and men in other aspects, with the overall scores being equal. (5) Some literature has reported that females have higher EI scores than males (6) (24) (26) (18) (7) (27) (31); to the best of our knowledge, none has found that males have higher EI.

Our observations that financial and marital status, birth order, place of residency, hometown, and university attended do not affect student EI are consistent with the literature. (24) (5) (27) Notably, the two universities that participated in the study have different educational systems. For instance, Al-Quds University follows the integrated medical curriculum, while Al-Najah University follows the regional approach. In addition, third-year basic students in Al-Najah University have a weekly clinical rotation, which is not applied in Al-Quds University. Nonetheless, students’ EI scores were not significantly different.

Unexpectedly, having an older brother or sister who is studying medicine appears not to significantly influence the EI of students. The expectation was that having an older family member studying medicine—i.e. one with similar experience—may prepare the student for the reality of medical school by managing expectations and providing hints and advice based on experience. (6) Also surprising was that living with the family and not in student housing had no significant effect. (7) Both of these factors were expected to improve EI and prevent its deterioration during medical studies by providing a supportive environment to the student both physically and mentally, thereby helping tolerance of the stressful medical environment. (27)

In addition, academic performance appears to have no significant correlation with EI. This may be interpreted as the students being more aware of the fact that their performance is not necessarily representative of their capacities. This result supports that having high IQ does not necessarily go hand in hand with having high EQ. (17) (18) However, some studies have reported that academic performance is significantly affected by EI. (32) (24) (18) (7); furthermore, since studying is the only parameter for success in their schools, concentration on studies causes students to neglect their social lives. (9) Hopefully, medical students still have opportunity to improve their EI; it has been pointed out that physicians achieve higher EI as they age and gain experience. (6)

Despite the interesting results of this study, it has some limitations. First, the study is restricted to the West Bank. Second, it is cross-sectional and not a cohort study due to limitations of time and financial support. Our cross-sectional design limits studying causality of the factors identified as affecting EI, thus prospective follow-up studies are needed to investigate this causality. Third, the sample was collected online and consisted of self-reports over a limited duration of time. Self-ratings of EI may provide an indication of the respondent’s beliefs about their EI (perceived EI) rather than reflecting their actual capacity, and tend to be positively biased. (33) Fourth, the sample size within each academic year was small, especially for residency (n=18) and internship (n=35). Fifth is common method variance, which is attributable to the measurement method rather than to the constructs the measures represent; this is especially encountered in questionnaire-based cross-sectional studies on attitude/behavioral constructs, such as the present study. (34)

#### *Recommendations:*

This study emphasizes the need for integration of EI training into medical education, especially in the clinical stage. (8) (21) Integration of cognition and emotion in medical studies is critical, and the learning of EI through training programs would promote outstanding medical care for the coming years. (9) Some have suggested incorporating community-oriented medical education (COME) into medical studies because it has been demonstrated an effective strategy to create socially conscious doctors worldwide. (5) Furthermore, students may need continuous emotional support and extracurricular activities each period to improve their EI, or at least prevent its deterioration. Studies have emphasized that increasing extracurricular activities would increase EI significantly (24); integration of medical students into organizational work would also increase EI. (35) Moreover, students’ hobbies should be supported and encouraged, as these activities are critical in providing students an outlet from the stressful medical environment, thereby helping to decrease

the incidence of burnout and psychological disorders among medical students. (36)

As the difference between student knowledge of the signs and symptoms of diseases and the clinical presentation of patients may affect EI, we recommend the use of simulated patients during the beginning of clinical training as a transition into dealing with real patients. This may decrease that discordance and improve student EI. Similarly, because student regret at studying medicine negatively impacts EI, meetings should be held with pre-college and first-year students to explain to them the reality of medical education (both positive and negative aspects) and to emphasize that studying medicine should be their own decision; this would help the discipline. (5)

From the research standpoint, factors that affect EI remain unclear and further studies are needed to assess those factors. This study is precedent-setting in Palestine, but was applied to students of only two universities. Therefore, further studies should be started that involve all universities in Palestine with medical programs.

#### *Conclusion:*

This study showed that EI score differences among medical students in Al-Quds and Al-Najah Universities related to their academic stage (basic vs. clinical). Basic medical students had higher EI scores compared to clinical students. Furthermore, EI scores were enhanced by feeling satisfied and having no regrets about studying medicine and by participation in extracurricular activities or hobbies. The key finding of this study is to direct medical schools toward furnishing the emotional skill development of medical students in order to enhance the student and doctor-patient relationships.

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Table 1: Demographic characteristics	Table 1: Demographic characteristics	Table 1: Demographic characteristics	Table 1: Demographic characteristics	Table 1: Demographic characteristics
	<b>Characteristic</b>	<b>Category</b>	<b>Category</b>	<b>Percentage (%)</b>
1	Gender	Male Female	34.7 65.3	34.7 65.3
2	University	Al-Quds Al-Najah	49.1 50.9	49.1 50.9
3	Level in medical school	1 <sup>st</sup> -3 <sup>rd</sup> year 4 <sup>th</sup> -6 <sup>th</sup> year Internship	49.6 42.7 5.1 2.6	49.6 42.7 5.1 2.6
4	Social status	Residency Single Married/Divorced	96.5 3.5	96.5 3.5

Table 2: Categorization of EI by level in collected sample	Table 2: Categorization of EI by level in collected sample	Table 2: Categorization of EI by level in collected sample	Table 2: Categorization of EI by level in collected sample	Table 2: Categorization of EI by level in collected sample
<b>Degree</b>	<b>EI Mean Score</b>	<b>EI Mean Score</b>	<b>Frequency</b>	<b>Percent</b>
Low	Low	1-2.33	2	0.3%
Moderate	Moderate	2.34-3.67	212	30.6%
High	High	3.68-5	478	69.1%
Total	Total	-	692	100.0%

Table 3: Significance of study variables	Table 3: Significance of study variables	Table 3: Significance of study variables
<b>Variable</b>	<b>Category (%)</b>	<b>Sig.</b>
1. Gender	Male (34.7%) Female (65.3%)	.352
2. Marital status	Single (96.5%) Married/Divorced (3.5%)	.678
3. Place of residency	City (50%) Village (46.5%) Camp (3.5%)	.913

Table 3: Significance of study variables	Table 3: Significance of study variables	Table 3: Significance of study variables
4. Level of study in medical school	1 <sup>st</sup> - 3 <sup>rd</sup> year (49.6%) 4 <sup>th</sup> -6 <sup>th</sup> year (42.7%) Internship students (5.1%) Residents (2.6%)	.000*
5. Average family income in shekel (NS)	0-1000 (0.7%) 1000-3000 (19.2%) 3000-6000 (35.5%) 6000-9000 (21.2%) >9000 (23.3%)	.253
6. University	Al-Najah (50.9%) Al-Quds (49.1%)	.622
7. Siblings studying medicine	Yes (21%) No (79%)	.683
8. Living with or without family	With (47.7%) Without (51.3%) Others (1%)	.909
9. Grade point average (GPA)	Excellent (13.4%) Very good (52.9%) Good (30.9%) Accepted (2.7%)	.902
10. Regret studying medicine	Always (3.5%) Usually (13.2%) Sometimes (37.9%) Rare (26.2%) Never (19.4%)	.000*
11. Hobbies and extracurricular activities	Yes ** (45.2%) No (54.8%)	.000*

**\*Statistically significant ( $p < 0.05$ )**

Table 4: Questions having negative correlation with EI	Table 4: Questions having negative correlation with EI	Table 4: Questions having negative correlation with EI	Table 4: Questions having negative correlation with EI
No.	Item	Spearman factor	$p$ -value
Q10	I expect good things to happen	-0.076	0.046
Q12	When I experience positive emotions, I know how to make it last	-0.084	0.027
Q14	I seek out activities that make me happy	-0.122	0.001
Q16	I present myself in a way that makes a good impression on others	-0.075	0.047
Q18	By looking at their facial expression, I recognize the emotions people are experiencing	-0.097	0.011
Q20	When I am in a positive mood, I am able to come up with new ideas	-0.085	0.026

Table 4: Questions having negative correlation with EI	Table 4: Questions having negative correlation with EI	Table 4: Questions having negative correlation with EI	Table 4: Questions having negative correlation with EI
Q23	I motivate others by imagining a good outcome to tasks I take on	-0.099	0.009
Q24	I compliment others when they have done something well	-0.113	0.003
Q26	When another person tells me about an important event in his or her life, I almost feel as though I have experienced this event myself	-0.075	0.049
Q27	When I feel a change in emotions, I tend to come up with new ideas	-0.075	0.048
Q29	It is difficult for me to understand why people feel the way they do	-0.089	0.019

**Figure 1 .** Students with hobbies and extracurricular activities and their classification by type.

