

## Original Article

## The Resilience Levels Of First-Year Medical, Dentistry, Pharmacy and Health Sciences Students

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### Abstract

**Background:** Health professionals are always at risk of periods in which workload, adverse events, bullying, abuse and violence, imposed organizational change, emotional demands and the lack of supportive relationships. These problems affect on their psychological health negatively. Therefore resiliency programmes are needed during university education.

**Aim:** To determine the resilience levels of first-year medical, dentistry, pharmacy and health sciences students.

**Methodology:** The universe of study included 429 students starting an education at Dentistry, Pharmacy, Health Sciences and Medicine Faculties of Hacettepe University in 2008-2009 Academic Year. The sample for study wasn't selected, all students who constituted the universe were tried to be reached and 342 students (80%) were reached. Data were collected by Questionnaire Form and Resilience Scale. One way variance analysis, Mann Whitney U Test and Kruskal Wallis Test were used in statistical assessment.

**Results:** The resilience average scores of all students were found as 143.00 (101.00-233.00). Being high of the resilience average scores of students who were male and had low parental education ( $p < 0.05$ ), being low of its of students who had illness, thus had been treated and lied at hospital ( $p < 0.05$ ) was determined. On the other hand, other descriptive characteristics of students didn't affect on the averages of students' resilience average scores ( $p > 0.05$ ).

**Conclusion:** Students studying in health sciences are strengthened through strategies and mentorship programmes. These programmes should include positive and nurturing Professional relationships, positivity, emotional insight, life balance, spirituality and personal reflection. In this sense resilience can be strengthened and developed in students.

**Key words:** Resilience, students, medical, dentistry, pharmacy, health sciences.

### Introduction

The core purpose of health professional education is to develop professionalism. Health professionals are always at risk of periods in which workload, adverse events, bullying, abuse and violence, imposed organizational change, emotional demands and the lack of supportive relationships may act as stressors that can undermine professional practice (Jackson et al., 2007; Howe et al., 2012). These stressors can impact on the physical and mental wellbeing of health professionals and their ability to care effectively for others. Also this negative impact result in burnout (McCann et al., 2013).

There has been a recent explosion of interest in resilience strategies in medical education. Educators consider effective and innovative methods to develop resilience (Passi, 2014). Thomas et al. (2011) developed a program to promote stress resilience and self-care in first-year medical students. The results indicated that educational program enhanced students' stress resilience. Dunn et al. (2008) proposed a conceptual model for medical student well-being. The conceptual model aimed to promote resilience and prevent burnout. Also students are strengthened through strategies and mentorship programmes. These programmes should include positive and nurturing professional relationships,

positivity, emotional insight, life balance, spirituality and personal reflection (Jackson et al., 2007; McCann et al., 2013). In this sense resilience can be strengthened in students. Chen (2011) suggested problem-based learning to develop resilience.

Resilience can be considered as a process of adaptation to adversity and stress. It is a key component of well being. Resilient individuals drive healthy coping styles and are better equipped to meet challenges (Eley et al., 2013). They recover easier from illness, trauma, burnout and adverse events. Also they have high levels of self-esteem, self efficacy and problem solving skills (Oz and Bahadır-Yılmaz, 2009). According to a study, resilient medical students were less likely to experience depression, had a higher quality of life, were less likely to be employed, had experienced fewer stressful life events, reported higher levels of social support, perceived their learning climate more positively and experienced less stress and fatigue than vulnerable students (Dyrbye et al., 2010).

Previous studies showed that medical and nursing students were vulnerable. A study of medical students in Canada found that they had higher perceived stress, negative coping, and lower resilience than age and gender-matched peers in the general population (Rahimi et al., 2014). According to a study in Turkey, resilience levels of nursing students were low (Oz et al., 2012). Dyrbye et al. (2010) studied factors associated with resilience to and recovery from burnout. They found that 290 of 792 medical students (36.6%) were resilient. Resilience is a quality necessary to succeed in medical and health sciences students. Therefore this study aimed to determine resilience levels of first-year medical, dentistry, pharmacy and health sciences students.

## Material and Methods

### Participants

This descriptive study was produced from a thesis study (Bahadır-Yılmaz, 2009).

The study consisted of 429 students who were in the Dentistry, Pharmacy, Medicine and Health Sciences Departments of Hacettepe University in Ankara during 2008-2009 academic years. There was no sample in the research; the study was designed to reach all the students in the aforementioned departments at Hacettepe University in Ankara. After elimination of certain students, the data for 342 students was assessed. Fifty-six of the eliminated

students did not want to participate in the study, 24 students did not continue their studies, and 7 students left some parts of the questionnaire unanswered.

### Data collection instrument

The data of the research were collected using a questionnaire and Resiliency Scale. Questionnaire was designed by the researchers and included sociodemographic features of the students. Resiliency Scale was developed by Gurgan (2006). The scale which doesn't have subscales, has 50 items that measure resilience levels, and the scale is scored according to the answers to each item as follows: the answer "strongly disagree" scored 1 point; the answer "disagree" scored 2 points, the answer "slightly agree" scored 3 points, the answer "agree" scored 4 points, and the answer "strongly agree" scored 5 points. Items 1, 4, 5, 9, 10, 14, 16, 17, 20, 26, 27, 32, 33, 35, 38, 39, 41, 42, 43, 44, 47, 49 and 50 are scored differently. The higher the score, the higher the level of the student's psychological health is. The highest score that could be obtained from the scale was 250 and the lowest was 50 points. The Cronbach alpha value of the scale was calculated as 0.87.

### Ethical considerations

This study was approved by the ethics committee of Hacettepe University School of Medicine and conducted according to the ethical standards of the Helsinki Declaration. All subjects signed a written informed consent. The research was conducted after written official permissions from medicine, dentistry, pharmacy and health sciences faculties of Hacettepe University.

### Statistical analysis

After the data was collected, it was saved to computer by SPSS 11.0 statistics software and analyzed. Because the sample didn't scatter normally, median values were used. Furthermore, to make the scatter clear, arithmetic average and standard deviation values were given. By means of Analysis of Variance (ANOVA) or depending on variables Mann-Whitney U and Kruskal Wallis tests, it was determined whether there was a difference between students' resilience levels depending on their departments.

### Results

The average age of first-year medical, dentistry, pharmacy and health sciences students was identified as  $19.22 \pm 1.393$  with representation from the various

fields of health as follows: 22.8% from the Department of Dentistry; 23.1% in the Department of Pharmacy; and 35.7% of students in the Department of Health Sciences. The Department of Medicine had 18.4% of students, and 18 of the 122 students in the Faculty of Health Sciences were from the Department of Nutrition and Dietetics; 32 students were from the Child Development Department, 50

were from the Nursing Department and 22 students were from the Department of Physiotherapy and Rehabilitation.

The socio-demographic data are shown in Table 1. Questionnaire answers indicated that 67.0% of all the students were female; 92.7% lived in a nuclear family; 43.3% had one sibling and 42.4% were the first child of the family.

**Table 1. Socio-demographic Characteristics of Students (n=342)**

Descriptive Characteristics		n	%
<b>Gender</b>	Male	113	33.0
	Female	229	67.0
<b>Number of Siblings</b>	Single child	11	3.2
	1 sibling	148	43.3
	2 siblings	106	31.0
	3 siblings	36	10.5
	4 siblings and above	40	11.7
	Not answered	1	0.3
<b>Birth Order of Student</b>	First-born	145	42.4
	Middle child	92	26.9
	Last-born	102	29.8
	Not answered	3	0.9
<b>Family Structure</b>	Nuclear	317	92.7
	Large	25	7.3
<b>Number of Family Members</b>	1-3	60	17.5
	4-6	254	74.3
	7 and above	27	7.9
	Not answered	1	0.3
<b>Place Living Before Entering University</b>	Village	22	6.4
	Town	95	27.8
	Country	225	65.8
<b>Mother Alive or Deceased</b>	Alive	338	98.8
	Deceased	4	1.2
<b>Father Alive or Deceased</b>	Alive	329	96.2
	Deceased	13	3.8
<b>Parents' Marital Status</b>	Together	314	91.8
	Separated	3	0.9
	Divorced	9	2.6
	Mother /father Deceased	16	4.7

**Table 2. Resilience Scores of Students According to Faculties**

Faculty	n	Average Resilience Scores		Statistical Analysis
		$\bar{X} \pm SD$	Median (Min-Max)	
Dentistry Faculty	78	136.97±11.0	138.00 (101.00-158.00)	F=33.298 P<0.05
Pharmacy Faculty	79	139.37±11.6	141.00 (108.00-170.00)	
Health Sciences Faculty	122	166.31±33.3	154.00 (107.00-228.00)	
Medical Faculty	63	167.44±36.0	152.00 (121.00-233.00)	
<b>Total</b>	342	153.61±29.8	143.00 (101.00-233.00)	

Furthermore, 65.8% of all the students had lived in a city before entering university; 74.3% lived with between 4-6 people at home. A great majority of the students' mothers (98.8%) and fathers (96.2%) were alive, and 91.8% of the students' parents were still living together. While most of the mothers had graduated from middle school (n:122), very few of their mothers had graduated from university (n:83). However, because most of their fathers had graduated from university (n:142) (Table 3), their fathers' education level was higher than that of their mothers.

Table 2 shows the average resilience scores range for all students and faculties. Results indicate that the median value of all the students' resilience scores was 143.00 (101.00-233.00). Furthermore, the median value for students in the Faculty of Health Sciences and the median value for students in the Faculty of Medicine were higher than those for students in the Faculties of Pharmacy and Dentistry. As a result of the statistical analysis, the difference among the students' average resilience scores, according to the represented faculties, was found to be statistically significant ( $p < 0.05$ ). Further analysis to understand the difference between faculties determined that there was a statistically significant difference between the students of the Faculty of Pharmacy and the Faculty of Medicine; the Faculty of Pharmacy and Faculty of Medical Sciences; the Faculty of Dentistry and the Faculty of Medicine;

and the Faculty of Dentistry and the Faculty of Medical Sciences ( $p < 0.05$ ). Table 3 shows their resilience levels according to students' descriptive characteristics. The statistical analysis determined that male students' average resilience scores were higher than those of female students ( $p < 0.05$ ). Furthermore, the average resilience scores of the students whose parents' educational level was low were statistically significantly higher than the scores of the students whose parents' educational level was high ( $p < 0.05$ ). It was also concluded that average resilience scores of the students who had an illness for which they had to receive treatment were statistically significantly lower than the students who did not have an illness ( $p < 0.05$ ). In addition, questionnaire results showed no statistically significant difference between the students' average resilience scores. Variables assessed included the following: number of siblings the student has and student's place in the birth order of the children; family structure; number of family members; where the student lived before entering university; perceived socioeconomic status; if the mother and the father were alive or still together and their working status; parents' substance use; the student's substance use; having a stressful life event; parents' style of parenting as perceived by student; if the student shares emotions with others; and if there was a sick member in the family ( $p > 0.05$ ).

**Table 3. Resilience Levels of Students According to Descriptive Characteristics**

	n	Average Resilience Scores		Statistical Analysis
		$\bar{X} \pm SD$	Median (Min-Max)	
<b>Gender</b>				
Male	113	158.26±31.4	146.00(120.00-233.00)	U=11075.50 <b>P&lt;0.05</b>
Female	229	151.31±28.8	142.00 (101.00-228.00)	
<b>Mother's Education Level</b>				
Illiterate	24	157.37±29.1	151.00 (120.00-229.00)	X <sup>2</sup> =14.299 <b>P&lt;0.05</b>
Literate	8	174.00±42.6	164.50 (122.00-223.00)	
Graduated from primary school	122	158.64±30.4	148.00 (101.00-232.00)	
Graduated from middle school	27	144.96±20.7	139.00 (121.00-205.00)	
Graduated from high school	78	151.69±31.1	141.50 (108.00-228.00)	
Graduated from university	83	147.77±27.4	141.00 (107.00-233.00)	
<b>Father's Education Level</b>				
Illiterate	7	150.42±25.5	151.00 (120.00-229.00)	X <sup>2</sup> =13.915 <b>P&lt;0.05</b>
Literate	3	177.00±46.7	164.50 (122.00-223.00)	
Graduated from primary school	68	161.44±30.8	148.00 (101.00-232.00)	
Graduated from middle school	35	161.57±32.5	139.00 (121.00-205.00)	
Graduated from high school	87	149.08±26.5	141.50 (108.00-228.00)	
Graduated from university	142	150.33±29.6	141.00 (107.00-233.00)	
<b>Having an Illness Which Required Treatment</b>				
Yes	60	146.16±26.9	140.00 (101.00-229.00)	U=6910.00 <b>P&lt;0.05</b>
No	282	155.19±30.2	144.50 (107.00-233.00)	
<b>Hospitalization Because of Illness</b>				
Yes	26	143.15±24.3	138.50 (108.00-222.00)	U=3137.50 <b>P&lt;0.05</b>
No	316	154.47±30.1	144.00 (101.00-233.00)	

## Discussion

The first finding of present study revealed that although the highest score that can be obtained from the scale is 250.00, the average resilience score of all students beginning their education in faculties related to health sciences was not in high levels (143.00). But in another study, it was founded that resilience levels of first year nursing students were 186.43 and resilience levels of senior students were 195.88 (Oz et al., 2012). This findings confirmed that resilience levels of students beginning their university education in health-related fields were low and these students were supported through resiliency and academic support programmes during university education. Because resilience and academic support decreases students' isolation, fosters students' sense of belonging and increases the self-esteem, motivation, confidence of students (Williamson et al., 2013).

A second prominent finding of the present study pointed out that there were the effections of gender on resiliency. The resilience levels of male students were higher than for female students. This finding is in accordance with earlier reported findings on resilience (Rodgers and Rose, 2002; Voges and Romney, 2003; Skinner et al., 2009). Being female is accepted as a risk factor for low resilience level. But in contrast to our study, there are studies in the literature showing that the resilience levels of females are higher than males (Wasonga, 2002; Daining and DePanfilis, 2007). Even Kjeldstadli et al. (2006) found no gender differences in resilience levels of medical school students. Obtaining different results from the resiliency studies is thought to be a cultural dimension of resilience concept. Because culture effects on people's ideologies and beliefs such as gender roles, and individual characteristics such as perceived social support, positive outlook, having goals, insight (Ungar, 2008). For this reason, gender differences in resilience levels of students should be investigated in different samples.

The third prominent finding of the present study indicates that as parents' educational level decreases, the resilience levels of students increase. This finding is in accordance with earlier reported findings on resilience. For example Rodgers and Rose (2002) showed that students who had mothers with lower education had higher resilience scores than their peers with more highly educated mothers. There are

also some studies supporting present research in the same line conducted in Turkey. In the studies by Coskun et al. (2014) and Arastaman and Balci (2013), it was found that a significant difference was in resilience level of students in father's education level. However, our finding that students' resilience levels increase as parents' educational levels decrease, could be thought to derive from the fact that a majority of the students (76.6%) perceived their parents' style of parenting as positive. Because according to Arastaman and Balci (2013) family support was an important factor in the development of student resiliency. If parents are consistent and moderate in their parenting style with their children, if they make them feel important, care about them and help them learn to cope with problems, their resilience levels are positively affected (Murry et al., 2001; Mutimer et al., 2007).

Finally, in the present study the resilience levels of students who had an illness for which they had to have a treatment was lower than the students who did not have an illness. Moreover, our study found that the resilience level of the students who had to be hospitalized for treatment because of their illnesses was lower than the students who did not experience a hospital stay. In the study by Fung et al. (2008), it was found that as resilience was demonstrated in a proportion of children and adolescents with thalassaemia major, some of them weren't resilient because experiencing mental exhaustion in coping with illness. Having a chronic illness can mean feeling different from others and physical, psychological and social losses. It decreases self-esteem and contributes feeling of vulnerability and helplessness (Kralik et al., 2007). Hospitalization was indicated by children and adolescents with thalassaemia major as one of illness stresses because of limiting life and leisure activities and relationships with others and disrupted school performance (Fung et al., 2008). For all that, Woodgate (1999) asserted that some adolescents with cancer remained resilient even when faced with multiple challenges. For this, protective and vulnerability factors affecting adolescents responses to illness should be identified and their coping skills and resources of support should be increased.

## Conclusion and Proposals

This study showed that the resilience level of students beginning an education in faculties related

to health sciences were not so high. In addition, resilience levels of both the students whose parents' educational levels were low and of the male students were higher. However, the resilience levels were lower for students who had been hospitalized and treated for a serious illness. These students meet to various crisis situations, help them solve and cope with health problems and therefore are expected to have high resilience levels in order to manage many problems they face as they work together with their patients. For these reasons it is very important to support the students psychologically with guidance and counseling services geared toward improving their resilience levels. This type of support should be offered students throughout their education process. Furthermore, considering these factors that affect development of students' resilience levels, it is suggested that there should be qualitative studies on the following areas of concern:

- Determine factors that cause low resilience levels in female students and in students whose parents' educational level is high.
- Studies should also be conducted on students who have been treated for a serious illness with suggestions to improve these students' resilience levels.
- Analyze resilience levels of the students whose parents have died or who have separated or divorced.
- Analyze resilience levels of the students according to their family structure and identify the family features, family dynamics and the factors that influence resilience.
- Determine whether or not the risk and protective factors that have been analyzed in the research influence resilience levels.

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