Level of Hopelessness and Related Factors in Upcoming Medical Work Force

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Abstract

Background and Purpose: *Students in medical schools are under a great personal distress during their education. Likewise, medical or surgical residency can be a stressful and overwhelming period during which residents work long hours. The aim of the study was to determine the level of hopelessness in the medical students and residents and to examine its relations with socio-demographic features and working conditions.*

Methods: *A cross-sectional survey was conducted among 203 medical students and 132 medical residents in Pamukkale University, Turkey. Beck Hopelessness Scale (BHS) was used to measure the level of hopelessness.*

Results: *Women constituted 49.3% of the participants. 20.3% of the participants were younger than 20. 35.2% of the participants were in the lowest SES. The mean BHS score was 5.76±4.5. The score in medical residents (7.29±5.1) was higher than in the 1st (4.48±3.6), 3rd (4.13±3.4) and 6th grade medical students (5.4±4.1), (P<0.001). SES did not change the score. The score in the residents who worked '≤40 hours' weekly was 5.18±3.5; 'between >40-≤60 hours', 6.1±4.4; 'between >60-≤100 hours', 7.97±5.6; and 'over 100 hours', 9.67±5.6, (P=0.028). Multivariate analysis showed that weekly working hours of the residents was the most important factor affecting the score (P<0.001).*

Conclusions: *The hopelessness level of the medical residents was the highest and weekly working hours was the main factor affecting the hopelessness levels in the medical residents.*

Keywords: *MEDICAL EDUCATION, HOPELESSNESS, DEPRESSION, STUDENTS, RESIDENTS*

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Introduction

Hope is typically defined as the degree to which an individual generally expects positive experiences in the future; conversely hopelessness represents the degree to which an individual generally expects negative experiences. Both are the possible reflection of the person's future opportunities to achieve real goals (1, 2). Kashani et al. suggested that hopelessness was not only increase the depression and suicide risks but also increase the risk for all kinds of psychopathologies in the young (3). Hopelessness was also defined as a situation that an individual has a limited or no alternatives or cannot find any personal option and is unable to provide the energy for their own benefit (4). According to the Beck's Cognitive Theory, people who are predisposed to depression negatively assess the outside world and their future. They see the life full of obstacles and challenging events and they are hopeless for their future (5). Beck and colleagues viewed hopelessness as a relatively stable set of expectancies that were activated by environmental stress (6). Most of those who usually work on depression have been in an agreement with the view that severity of hopelessness can increase the suicide risk (6).

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Students in medical schools are under a great personal distress during their education. Medical schooling currently is after from a high school in Turkey, meaning that most of the students enter medical faculties during their teenage years. Several studies have reported high rates of psychological morbidity among medical students using various instruments (7, 8). Distress among medical students has been summarized to be due to academic demands, work load, financial concerns, inability to cope, helplessness, increased psychological pressure, and student abuse in a meta-analysis. The Meta analysis was also reported these factors as the contributors to the decline in students' mental health (9). Knowing about psychiatric morbidity during medical education is important as it can help to plan preventive mental health programs for this group. In recognition of the importance of these issues, the Association of American Medical Colleges (AAMC) report from the Ad Hoc Committee of Deans called for the medical education system to take into account 'the health and well-being of the learners' as part of the vision for improving medical education (10).

Likewise, medical or surgical residency can be a stressful and overwhelming period during which residents work long hours. Resident physicians have tremendous responsibilities in the workplace however they may feel they have very little control over the environment (11). Discussion still exists about whether residents' psychosocial distress has immediate or long-term consequences for not only patients but the physicians themselves (12). Furthermore, recently, there are many changes in health care under the name of 'reforms' and many new pressures on health workers in Turkey (13). The purpose of this study was to determine the level of hopelessness in 1st, 3rd, and 6th grade medical students and residents, to compare the hopelessness levels between study groups and to examine its relations with socio-demographic features and working conditions.

Methods

This cross-sectional survey was conducted among 1st, 3rd and 6th grade medical students and medical residents in Faculty of Medicine (FoM) at Pamukkale University, Denizli, Turkey. The sampling frame consisted of all existing 1st, 3rd, and 6th year medical students and all existing medical residents in FoM. There was not any sample selection procedure. We intended to reach everybody in the sampling frame.

The study was conducted during 01 July-31 August, 2011. All necessary permissions from the University Management and written consents from all participants were obtained. Participants completed a questionnaire. There were 20 questions in order to assess socio-demographic characteristics in the questionnaire. The socio-economic status (SES) of the participant was determined by using the Family Affluence Scale (FAS) (14). The FAS score was determined by recoding the eight point scores (0 to 7) into three categories (low (0–3), middle (4–5) and high (6–7) FAS level) (14).

Level of hopelessness was measured by the means of the Beck Hopelessness Scale (BHS) (15). In 1974, Beck et al. developed the 'Hopelessness Scale' during their work named 'measurement of pessimism' which was a very common and serious psychopathological symptom of hopelessness. It is a 20-item self-assessment (self-report) type of scale. It aims to determine the degree of person's pessimism for the future. Answers to questions are given as true-false and it reflects the form of negative expectations. Parallel answers to the answer key get 1 point, otherwise gets 0 point. The total score is the sum of the points and it considered as the hopelessness score (BHS).

The BHS ranges between 0-20 (15). Translation into Turkish was made by Seber in 1991(16). All statistical analysis was performed with the SPSS 17 package program. Frequencies, percentages, and means (SD) of sociodemographic variables and work related factors were calculated.

Between-group comparisons for the hopelessness score were computed using one-way analysis of variance (ANOVA). Post-hoc adjustments for multiple comparisons were made using Bonferroni's test. Lineer regression was used to assess the relationship of sociodemographic variables and work related factors with hopelessness score. The linear regression model started with age, gender, marital status, fathers' education, weekly working hours, and the Specialty Entrance Examination (SEE). Weekly working hours and SEE were entered as continues variables into the model. P value <0.05 was considered statistically significant.

Results

One hundred and one (%72) 1st, 69 (90%) 3rd, and 33 (82.5%) 6th grade medical students and 132 (%42.5) medical residents in Faculty of Medicine (FoM) at Pamukkale University participated to the study.

Forty nine point three percent of the participants were women. 30.1% of them were in their 1st grade, 20.6% in their 3rd grade, 9.9% in their 6th grade and 39.4% in the medical residency program. 20.3% of the participants were under the age of 20; 37.1%, in the range of 20-25 years; and 42.6% greater than the age of 25. 35.2% of the participants were in low socioeconomic status (SES), 43% in medium, and 21.2% in high. 1.2% of the mothers were illiterate, 29.6% with a college-university degree. 0.6% of the fathers were illiterate, 51.6% with a college-university degree. None of the medical students were married. Forty eight point five of the medical residents were married (Table

Table 1. Socio-demographic characteristics of the participants

		Medical Students		Medical Residents	
Variables		**N**	**%**	**N**	**%**
Gender	Women	92	45.3	54	40.9
	Men	111	54.7	78	59.1
Class	1	101	49.8	-	-
	3	69	34.0	-	-
	6	33	16.3	-	-
	Residents	0	0	132	100
Age	<20	68	33.5	0	0
	20-<25	123	60.6	1	0.8
	≥25	12	5.9	131	99.2
SES	Low	70	34.5	48	36.4
	Middle	82	40.4	62	47.0
	High	49	24.1	22	16.7
Mothers' Education	Primary school or less	78	38.4	47	35.6
	Middle-High school	61	30.0	49	37.1
	University	63	31.0	36	27.3
Fathers' Education	Primary school or less	33	16.3	18	13.6
	Middle-High school	67	33.0	42	31.8
	University	101	49.8	72	54.5
Marital status	Married	0	0	64	48.5
	Single	203	100	68	51.5
Total		203	100	132	100

Table 2. Sociodemographic factors affecting the level of hopelessness of the participants

		Students' Beck Hopelessness Scores			Residents' Beck Hopelessness Scores		
		Mean	SD	p value	Mean	SD	p value
Gender	Women	4.48	3.8	0.4	7.38	5.3	0.8
	Men	4.95	3.5		7.31	5.0	
Class	1	4.89	3.6	<0.001*	-	-	-
	3	4.13	3.4		-	-	
	6	5.40	4.1		-	-	
	Residents	7.29	5.1		-	-	
SES	Low	4.75	3.9	0.9	7.68	4.9	0.7
	Middle	4.65	3.4		7.24	5.1	
	High	4.68	3.7		6.59	6.0	
Mothers' Education	Primary school or less	4.35	3.7	0.3	7.72	5.7	0.5
	Middle-High school	5.24	3.7		6.63	4.1	
	University	4.56	3.5		7.63	5.6	
Fathers' Education	Primary school or less	4.27	3.3	0.6	8.55	5.8	0.4
	Middle-High school	5.01	3.9		7.52	5.1	
	University	4.58	3.7		6.84	5.0	
Mothers' working status	No	4.62	3.8	0.7	7.38	4.9	0.3
	Yes	5.10	3.6		7.64	5.7	
	Retired	4.51	3.2		7.44	5.6	
	Dead	3.40	3.5		1.66	1.1	
Fathers' working status	No	4.33	6.6	0.8	6.75	5.2	0.9
	Yes	4,88	3.7		7.36	5.0	
	Retired	4.37	3.4		7.36	5.3	
	Dead	4.00	3.0		6.66	6.4	

*Post hoc tests: the mean hopelessness score of the medical residents was statistically different from each category of the mean score of the medical students.

1).

The mean BHS score of the participants varied between 2.7 and 10.5. The mean hopelessness level of medical residents (7.29±5.1) was higher than the levels of 1st grade (4.48±3.6), 3rd grade (4.13±3.4) and 6th grade medical students (5.4±4.1). These results were statistically significant (all P values <0.05). Gender, socio-economic status of the participants, and mother and father's educational status did not show any statistically significant effect on the level of hopelessness (all P values > 0.05) (Table 2).

The BHS score for the residents who had a weekly working hours ≤40 hours was 5.18±3.5; between >40-≤60 hours, 6.1±4.4; between >60-≤100 hours; 7.97±5.6; and over 100 hours, 9.67±5.6, (P<0.05).

The score was higher among the residents who could not enter in their first 5 choices in the National Specialty Exam after the medical school (6.69±5.1 versus 8.36±5.1, P=0.07) (Table 3).

Table 3. Work related factors affecting the level of hopelessness of medical residents

			Beck Hopelessness Scores		
		N (%)	**Mean**	**SD**	**P value**
Specialty	Medicine	39 (29.5)	6.8	5.2	0.3
	Surgery	79 (59.8)	7.79	5.3	
	Basic science	14 (10.6)	5.64	3.7	
Duration of being MD	<1 year	18 (13.5)	8.33	4.0	0.6
	≥1-<5 year	80 (60.6)	7.27	5.2	
	≥5 year	32 (24.2)	7.03	5.6	
Duration of residency	<1 year	45 (34.1)	8.22	5.0	0.5
	≥1-<2 year	38 (28.8)	6.52	5.6	
	≥2-<3 year	22 (16.7)	6.95	4.8	
	≥3 year	27 (20.5)	7.11	5.1	
SEE Placement *	≤5	78 (60)	6.69	5.1	0.07
	≥6	52 (40)	8.36	5.1	
Monthly income	1500-2000 TL	5 (3.8)	3.4	1.8	0.1**
	2000-2500 TL	20 (15.2)	7.55	4.3	
	2500-3000 TL	46 (34.8)	7.39	5.3	
	≥3000 TL	61(46.2)	7.45	5.47	
Weekly working hours	<40 hrs	16 (12.1)	5.18	3.5	0.007**
	≥40-<60 hrs	49 (37.1)	6.10	4.4	
	≥60-<100 hrs	39 (29.5)	7.94	5.6	
	≥100 hrs	28 (21.1)	9.67	5.6	
Marital status	Married	64 (48.5)	7.28	5.5	0.9
	Single	68 (51.5)	7.30	4.8	

*Specialty Entrance Examination placement.
**Post hoc tests: the mean hopelessness score of the residents who works more than 100 hours a week was statistically different from each other category resident working hours.

Multivariate analyses showed that weekly working hours of residents (P<0.001) was the most important factor affecting the BHS score of the participants. However, SEE placement (P=0.07) showed a borderline significance with the score (Table 4).

Discussion

This study aimed to investigate the level and the related factors with hopelessness in medical school students and medical residents. The level of hopelessness in the medical residents was higher than those in the medical students. The lowest level of hopelessness among medical students was in the third year students and this could be explained by a gradual adaptation of the students to the new living environment and the courses. Furthermore, the level of hopelessness in the 6th year medical students was the highest among the medical students despite the lack of statistical significance. Except the number of the study year, none of the socio-demographic factors of the medical students show any association with the level of hopelessness. On the other hand, weekly working hours was the main factor affecting the level of hopelessness of the residents. Plus, the score was higher among the residents who could not enter in their top 5-

Table 4. Multivariate analysis of factors affecting the level of hopelessness of medical residents

Variables*	β	Standard Error	95% CI	P value
Weekly working hours	0.052	0.014	0.026-0.079	<0.001
SEE placement*	0.213	0.120	-0.024-0.45	0.078

*The result was from a backward linear regression model. The model started with age, gender, marital status, fathers' education, weekly working hours, and the Specialty Entrance Examination (SEE). Weekly working hours and SEE were entered as continues variables into the model.

choice specialty in the National Specialty Examination.

No research has previously investigated the level of hopelessness among medical students and residents in Turkey. However, there have been several studies reporting the level and affecting factors of hopelessness among young people in Turkey. One study investigating the relationship between the level of hopelessness and socio-demographic variables in adolescents reported the mean of BHS as 6.18±4.08. The score was significantly higher in boys than that in girls (17). The study was found that adolescents living the low SES families were more hopeless than that with high SES families (17).

Another study reported that the average BHS for students in the Department of Sociology was 5.61; it was 4.46 and 3.47 in the Seminary and the Elementary Education students, respectively. The average score of the BHS was not affected by age, gender and economic status of the students. The authors speculated about the difference as "Education students were more fortunate in finding work after graduation compared to other school students" (18). The mean levels of BHS from these studies are comparable with the findings from our study.

Even though not directly comparable due to lack of any study on the medical student and resident hopelessness, many studies reported high rates of psychological morbidity among medical students and residents. A sample of students from different faculties in the same University was studied and the prevalence of depressive symptoms was reported as 26.2% in 2005 (19). In 2001, Aktekin et al. reported a worsening global mental health, depression, and anxiety between the first-year orientation and the beginning of the second year among Turkish medical students (20).

In a longitudinal study from the United Kingdom, 63 (37%) of students had poor mental health by the middle of the first year, and 31% and 22% had poor mental health in the fourth year and fifth year, respectively (21, 22). Another U.K. study of first year medical students found the incidence of poor mental health doubled over the course of the first year, increasing from 25% to 52% (23). Dahlin et al. reported 13% Swedish medical students were depressed in comparison to 7.8% in an age and gender-matched population sample ($p<0.05$), with approximately one third of the students reporting thoughts of suicide during the course of training (24). Tyssen et al. also reported a high prevalence of suicidal thoughts among senior Norwegian medical students, with a 6% having made a plan to commit suicide during medical school (25).

This study indicated that higher working hours of the residents gave way to the higher level of hopelessness. The working hours in this study can be seen as a proxy to the work load of the residents. Our findings were supported by the studies from different medical residency training systems that identified a high frequency of burnout among medical residents, as a result a high frequency of environmental stresses (26, 27). Residents' perceptions to the stress produced by work environment varied. One study explored the relationship between emotional exhaustion

and depersonalization and residents' assessment of the relative importance of work stressors and resources. One third of the medical residents felt overburdened by the workload often or most of the time and 69% rated their work intensity as "high" (26). Another study found that medical residents with burnout were more likely indicate their uncertainty about their future and their feeling that personal needs were insignificant (27).

Turkey currently does not enforce any time restriction on medical residents' duty hours. The current study showed that a significant number of residents are working more than 100 hours a week. However, there are other countries imposing of working hours' restrictions on residency training. For example, a national debate in the US started when the Grand jury held liable the system of residency training and physician staffing due to the death of Libby Zion in March 1984. In July 2003, the Accreditation Council for Graduate Medical Education (ACGME) mandated that residents work no more than 24 consecutive hours with an additional 6 hours for educational and administrative activities. The ACGME began to enforce the 80-hour work week. The ACGME revised its ruling in 2011 mandating rest periods between duty periods, increased supervision for junior trainees, and a 16-hour limit on continuous duty hours for postgraduate year 1 (PGY-1) trainees. Several studies examined the effects of these working time limitations on the residents' wellbeing and quality of care. Some of them reported very favorable outcomes (28, 29) but some implicated more handoffs, decreasing time for education, and dropping in the quality of care (30).

There are several limitations in this study. Despite good response rate, nonresponse bias may exist in this study. Interviewing a sample of non-respondents to assess their experiences and psychological status would have been advantageous. However, anonymity and confidentiality of the respondents precluded us to interview the non-responders on a separate occasion. Another limitation would be the cross sectional design of the study. This make difficult to infer the associations as casual.

Conclusion

This study suggested that the hopelessness level of medical residents was higher than the hopelessness level of medical students and weekly working hours was the main factor contributing the hopelessness levels of the medical residents. The wellbeing of future medical force may depend on the sensible time limitations on duty hours of the residents.

Conflict of Interest

The authors declare that they have no competing interests.

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