Perceived Stress among Undergraduate Dental Students in Relation to Gender, Clinical Training and Academic Performance

Stress is defined as the body’s reaction to a change that entails a physical, mental or emotional response that may be positive, stimulating and motivating individuals to do the best, or be negative, depressing and reducing their performance (1, 2). The perception of stress differs greatly among people or be negative, depressing and reducing their performance (1, 2). The perception of stress differs greatly among people

Introduction

Stress is defined as the body’s reaction to a change that entails a physical, mental or emotional response that may be positive, stimulating and motivating individuals to do the best, or be negative, depressing and reducing their performance (1, 2). The perception of stress differs greatly among people and can be affected by, among others, the individual’s beliefs, attitudes and occupation. Higher education poses stress over the enrolled students, more specifically the education related to health sciences. Unfortunately, dental schools are considered highly stressful learning environments and stress levels among dental students have been revealed to be higher than stress levels in general population (3-8). Moreover, the perceived dental environmental stress can be greatly influenced during the undergraduate study program. Clinical training,
ničko osposobljavanje može utjecati na performanse tih studenata zbog izloženosti različitim stresorima poput onih s kojima se suočavaju doktori dentalne medicine (9, 10).

Ne poduzmu li se nužne mjere, stres izazvan okolinom u dentalnoj medicini može negativno utjecati na dobrobit studenata. Ako se ništa ne promijeni, studenti možda neće moći nastaviti učiti, mogu imati poteškoće u interakciji s pacijentima te patiti od depersonalizacije, što znači da će se psihološki udaljavati od ostalih ljudi. U konačnici tim će se studen		
tima pogoršati kvaliteta života i učinak na fakultetu (8, 11).

Zbog toga je vrlo važno odrediti čimbeniće koji izazivaju stres. To će kreatorima politike, akademskom osoblju i administratorima pružiti potrebne alate za promjenu nastavnog plana i/ili okoline tako da budu prilagođeniji studentima. Svrha ovoga rada bila je procijeniti percipirani stres i nje

gove izvore među studentima dentalne medicine na stomatološkim fakultetima u Arabiji.

Materijali i metode

Ova deskriptivna presječna studija temeljena je na upitniku i provedena je tijekom prvog semestra akademске godine 2106./2017. Ciljalo se na sve studente dentalne medicine na Stomatološkom fakultetu Sveučilišta Jazan u Saudijskoj Arabiji. Istraživački tim dobio je izravno odgovor od staštnih i administrativnih zaposlenika poslana i popratno pismo u kojemu su bili iznijetiti pomoci za prilagođenje i/ili okoline tako da budu prilagođeniji studentima. Svrha ovoga rada bila je procijeniti percipirani stres i nje

gove izvore među studentima dentalne medicine na stomatološkim fakultetima Sveučilištem Jazan u Saudijskoj Arabiji.

Zbog toga je vrlo važno odrediti čimbeniće koji izazivaju stres. To će kreatorima politike, akademskom osoblju i administratorima pružiti potrebne alate za promjenu nastavnog plana i/ili okoline tako da budu prilagođeniji studentima. Svrha ovoga rada bila je procijeniti percipirani stres i nje

gove izvore među studentima dentalne medicine na stomatološkim fakultetima u Arabiji.

Materijali i metode

Ova deskriptivna presječna studija temeljena je na upitniku i provedena je tijekom prvog semestra akademске godine 2106./2017. Ciljalo se na sve studente dentalne medicine na Stomatološkom fakultetu Sveučilišta Jazan u Saudijskoj Arabiji. Istraživački tim dobio je izravno odgovor od staštnih i administrativnih zaposlenika poslana i popratno pismo u kojemu su bili iznijetiti pomoci za prilagođenje i/ili okoline tako da budu prilagođeniji studentima. Svrha ovoga rada bila je procijeniti percipirani stres i nje

gove izvore među studentima dentalne medicine na stomatološkim fakultetima u Arabiji.

Ova deskriptivna presječna studija temeljena je na upitniku i provedena je tijekom prvog semestra akademске godine 2106./2017. Ciljalo se na sve studente dentalne medicine na Stomatološkom fakultetu Sveučilišta Jazan u Saudijskoj Arabiji. Istraživački tim dobio je izravno odgovor od staštnih i administrativnih zaposlenika poslana i popratno pismo u kojemu su bili iznijetiti pomoci za prilagođenje i/ili okoline tako da budu prilagođeniji studentima. Svrha ovoga rada bila je procijeniti percipirani stres i nje

gove izvore među studentima dentalne medicine na stomatološkim fakultetima u Arabiji.

Zbog toga je vrlo važno odrediti čimbeniće koji izazivaju stres. To će kreatorima politike, akademskom osoblju i administratorima pružiti potrebne alate za promjenu nastavnog plana i/ili okoline tako da budu prilagođeniji studentima. Svrha ovoga rada bila je procijeniti percipirani stres i nje

gove izvore među studentima dentalne medicine na stomatološkim fakultetima u Arabiji.
vim U test or independent t-test, while differences by study levels and by GPA categories were analyzed by Kruskal-Wallis or one-way ANOVA. Pairwise comparisons were followed whenever Kruskal-Wallis or one-way ANOVA revealed significant differences. The multiple linear regression analyses were performed to determine the independent determinants of the overall stress, and stress by individual domains. A P-value of less than 0.05 was considered significant.

Results

A total of 366 dental students, with a mean age of 21.8 ± 1.6 years, agreed to take part in this study. Up to 57% of the participants were females and 14% were married. The sample was equally distributed (approximately 20%) among different levels of study. Most of students (84%) obtained a GPA higher than 3.5 (Table 1).

Out of 3, the overall DES score was 1.67 ± 0.45. The highest fraction of this stress was attributed to “Workload” (2.21

| Varijable • Variables | N (%) |
|------------------------|-------|
| Muški • Male            | 157 (42.9%) |
| Ženski • Female         | 209 (57.1%) |
| Aritmetička sredina • Mean (+ S.D) | 21.78 (±1.59) |
| Median                  | 22.00 |
| Raspon • Range          | 7 (19-26) |
| U braku • Married       | 52 (14.4%) |
| Izvan braka • Unmarried | 309 (85.6%) |
| Godina studiranja • Study year (N=366) | |
| Druga godina • Second year | 74 (20.2%) |
| Treća godina • Third year | 73 (19.9%) |
| Četvrta godina • Fourth year | 76 (20.8%) |
| Peta godina • Fifth year | 76 (20.8%) |
| Šesta godina • Sixth year | 67 (18.3%) |
| Prosjek ocjena • GPA (N=351) | |
| <2.5                    | 5 (1.4%) |
| 2.5-3.5                 | 39 (10.7%) |
| >3.5-4.5                | 167 (45.6%) |
| >4.5                    | 140 (38.3%) |

Table 2. Level of significance of DES domains with gender

| Domene • Domains | Muški • Male | Ženski • Female | Ukupno • Total | P-Vrijednost* • P-Value* |
|------------------|--------------|-----------------|----------------|--------------------------|
| Mišljenja o samopouzdanju • Self-efficacy beliefs | 1.79 (0.49) | 1.85 (0.60) | 1.79 (0.55) | 0.029 |
| Nastavnici i administracija • Faculty and administration | 1.46 (0.51) | 1.61 (0.57) | 1.53 (0.54) | 0.01 |
| Radno opterećenje • Workload | 2.13 (0.48) | 2.27 (0.45) | 2.21 (0.47) | 0.004 |
| Terapija pacijenta • Patient treatment | 1.48 (0.90) | 1.73 (0.94) | 1.62 (0.93) | 0.003 |
| Kliničke vježbe • Clinical training | 1.49 (0.74) | 1.74 (0.82) | 1.62 (0.79) | 0.001 |
| Opterećenje zbog uspjeha • Performance pressure | 1.98 (0.60) | 2.14 (0.58) | 2.07 (0.59) | 0.012 |
| Socijalni stresori • Social stressors | 0.80 (0.41) | 0.87 (0.71) | 0.82 (0.58) | 0.33 |
| Ukupni DES • Total DES | 1.58 (0.41) | 1.75 (0.47) | 1.66 (0.44) | 0.001 |

*: Mann-Whitney U test – osim ako nije navedeno drukčije • Mann Whitney U unless otherwise indicated.
1*: Neovisni t-test • Independent t-test test.
Doživljaj stresa među dodiplomskim studentima dentalne medicine

Halboub i sur.

(2,21 ± 0.46) i Pritisak zbog učinka (2,07 ± 0.59). Uz iznimku domene Socijalni stresori, studentice su pokazale više stresa od studenata (tablica 2.). Slično tomu, oženjeni studionici bili su u većem stresu od neoženjenih, osim kad je bila riječ o domenama Samopouzdanje i Socijalni stresori (tablica 3.).

Ukupni stres ili stres po pojedinim područjima znatno je povećan na višim godinama studija (tablica 4.). Suprotno tomu, pokazani stres bio je niži kod studionika s visokim GPA-om, osim u domeni Socijalni stresor (tablica 5.).

Višestruke linearne regresijske analize pokazale su da su godina studija i pol važne neovisne determinante ukupnoga DES-a i većine stresnih domena. Obje odrednice objasnile su 41 posto varijabilnosti u ukupnim DES bodovima. Konkretnije, objasnile su 41 posto u Fakultetu i upravi, 13 posto u Radnom opterećenju, 46 posto u Liječenju pacijenata, 40 posto u Kliničkim vježbama i 26 posto u Pritisoku zbog izvedbe varijabilnosti. Iako nije bila važna, GPA je bila važna neovisna odrednica stresa vezana uz domene Samefikasnost i Socijalni stresori. Bračno stanje također se smatra važnom nezavisnom utjecajem.

**Table 3. Stupanj značajnosti domena DES-a i bračnog statusa**

| Domene • Domains | Bračni status • Marital Status |
|------------------|--------------------------------|
|                  | U braku • Married | Izvan braku • Unmarried | P-Vrijednost* • P-Value* |
| Mišljenja o samopouzdanju • Self-efficacy beliefs | 1.76 (0.63) | 1.80 (0.54) | 0.616 |
| Nastavnici i administracija • Faculty and administration | 1.70 (0.48) | 1.50 (0.55) | 0.011 |
| Radno opterećenje • Workload | 2.33 (0.44) | 2.19 (0.47) | 0.021 |
| Terapija pacijenta • Patient treatment | 2.08 (0.70) | 1.54 (0.94) | < 0.001 |
| Kliničke vježbe • Clinical training | 1.90 (0.68) | 1.57 (0.80) | 0.006 |
| Opterećenje zbog uspjeha • Performance pressure | 2.19 (0.62) | 2.05 (0.59) | 0.061 |
| Socijalni stresori • Social stressors | 1.15 (0.75) | 0.77 (0.53) | < 0.001 |
| Ukupni DES • Total DES | 1.83 (0.45) | 1.63 (0.43) | 0.011† |

*: Mann-Whitney U test – osim ako nije navedeno dručje • Mann Whitney U unless otherwise indicated.
†: Neovisni t-test • Independent t-test.

**Table 4. Domene DES-a prema godini studija**

| Domene • Domain | 2. • 2nd | 3. • 3rd | 4. • 4th | 5. • 5th | 6. • 6th |
|-----------------|--------|--------|--------|--------|--------|
| Mišljenja o samopouzdanju • Self-Efficacy | 1.70b (0.61) | 1.70a (0.55) | 1.78b (0.54) | 1.87b,c (0.48) | 1.98b (0.56) | 0.021 |
| Nastavnici i administracija • Faculty | 0.98a (0.42) | 1.25b (0.43) | 1.67 (0.43) | 1.81 (0.35) | 1.96 (0.47) | < 0.001 |
| Radno opterećenje • Workload | 1.99a (0.44) | 2.02b (0.53) | 2.37b (0.32) | 2.33b (0.42) | 2.36b (0.45) | < 0.001 |
| Terapija pacijenta • Patient treatment | 0.68a (0.78) | 0.83b (0.86) | 2.13b (0.44) | 2.25b (0.38) | 2.18b (0.48) | < 0.001 |
| Kliničke vježbe • Clinical training | 0.71b (0.72) | 1.31b (0.69) | 2.05b (0.43) | 2.03b (0.50) | 2.06b (0.54) | < 0.001 |
| Opterećenje zbog uspjeha • Performance | 1.63a (0.48) | 1.73b (0.58) | 2.37b (0.46) | 2.32b (0.45) | 2.31b (0.50) | < 0.001 |
| Socijalni stresori • Social stressors | 0.64a (0.45) | 0.72a (0.50) | 0.70b (0.47) | 0.82b (0.50) | 1.34b (0.78) | < 0.001 |
| Ukupni DES • Total DES | 1.24a (0.36) | 1.37a (0.35) | 1.80b (0.29) | 1.87b (0.28) | 2.00b (0.43) | < 0.001† |

*: Kruskal-Wallis test – osim ako nije navedeno dručje • Kruskal Wallis test unless otherwise indicated.
†: test ANOVA • ANOVA test.

Arithmetic means (a) with different superscript lowercase letter(s) are statistically different.
Perceived Stress among Undergraduate Dental Students

Halboub et al.

Table 5. Domene DES-a kroz stupnjeve kategorija prosjeka ocjena (GPA)

| Domene • Domains | GPA | P-Vrijednost* | P-Value* |
|------------------|-----|--------------|----------|
| Mišljenja o samopouzdanju • Self-efficacy beliefs | 2.08* (0.48) | 1.90* (0.51) | 1.88* (0.52) | 1.67* (0.59) | 0.005 |
| Nastavnici i administracija • Faculty and administration | 1.68* (0.29) | 1.72* (0.52) | 1.60* (0.52) | 1.41* (0.58) | 0.004 |
| Radno opterećenje • Workload | 2.20* (0.39) | 2.36* (0.47) | 2.22* (0.47) | 2.15* (0.45) | 0.028 |
| Terapija pacijenta • Patient treatment | 2.05* (0.51) | 1.85* (0.98) | 1.81* (0.81) | 1.30* (0.98) | < 0.001 |
| Kliničke vježbe • Clinical training | 1.80* (0.41) | 1.75* (0.69) | 1.79* (0.68) | 1.38* (0.90) | 0.001 |
| Opterećenje zbog uspjeha • Performance pressure | 2.40* (0.68) | 2.23* (0.54) | 2.15* (0.57) | 1.93* (0.59) | 0.001 |
| Socijalni stresori • Social stressors | 0.36* (0.35) | 0.85* (0.49) | 0.90 (0.63) | 0.79 (0.60) | 0.064 |
| Ukupni DES • Total DES | 1.78* (0.30) | 1.80* (0.39) | 1.74 (0.42) | 1.53 (0.47) | < 0.001 |

*: Kruskal-Wallis test, osim ako nije navedeno drukčije • Kruskal Wallis test unless otherwise indicated.
†: test ANOVA • ANOVA test.
Arithmetičke sredine (a) s različitim slovima u superskriptu statistički su značajne • Means with (a) different superscript lowercase letter(s) are statistically different.

Table 6. Analiza regresije između domena DES-a i neovisnih varijabli

Regression analysis between domains of DES and independent variables

| Neovisne varijable • Independent Variables | B | Granice pouzdanosti • Confidence Interval | Korigirani R-kvadrat • Adjusted R-Square | P-Vrijednost* | P-Value* |
|-------------------------------------------|---|------------------------------------------|------------------------------------------|--------------|----------|
| Mišljenja o samopouzdanju • Self – Efficacy | GPA | - 0.12 | - 0.21; - 0.03 | 0.052 | 0.009 |
| Godina učenja • Study level | 0.05 | 0.004; 0.095 | 0.12 | 0.003; 0.24 | 0.045 |
| Spol • Gender | 0.17 | 0.08; 0.27 | 0.11 | 0.07; 0.14 | < 0.001 |
| Nastavnici i administracija • Faculty and Administration | Godina učenja • Study level | 0.25 | 0.21; 0.28 | 0.408 | < 0.001 |
| Spol • Gender | 0.15 | 0.06; 0.25 | 0.29 | 0.145; 0.44 | < 0.001 |
| Radno opterećenje • Workload | Godina učenja • Study level | 0.46 | 0.4; 0.51 | 0.463 | < 0.001 |
| Spol • Gender | 0.26 | 0.128; 0.393 | 0.36 | 0.31; 0.40 | < 0.001 |
| Terapija pacijenta • Patient treatment | Godina učenja • Study level | 0.21 | 0.17; 0.25 | 0.256 | < 0.001 |
| Spol • Gender | 0.18 | 0.07; 0.29 | 0.14 | 0.099; 0.19 | < 0.001 |
| Kliničke vježbe Clinical training | Godina učenja • Study level | 0.14 | 0.136; 0.466 | 0.143 | < 0.001 |
| Spol • Gender | 0.09 | 0.003; 0.18 | 0.09 | 0.099; 0.19 | < 0.001 |
| Opterećenje zbog uspjeha • Performance pressure | Godina učenja • Study level | 0.20 | 0.17; 0.23 | 0.405 | < 0.001 |
| Spol • Gender | 0.17 | 0.095; 0.253 | 0.30 | 0.136; 0.466 | < 0.001 |

*: Stupnjevana multilinearna analiza regresije, uključene neovisne varijable su spol, bračno stanje, godina studija i prosječna vrijednost ocjena – GPA • Stepwise multi-linear regression analyses. The included independent variables were: Gender, Marital status, Study level and GPA.
Rasprava

Korištene su različite ljestvice za istraživanje stresa među studentima dentalne medicine kao što su stresna stanja dent-alnog okružja (DES) (13), Maslach burnout inventar (MBI) (14) i inventar psihosocijalnog stresa (PSSI). No znanstveni-ći se najčešće koriste DES-om (16). Najvažnije je znati raz-i nu stresa s kojom žive studenti dentalne medicine. To obično omogućuje kreatorima politike te administrativnom i aca-demskom osoblju da olakska takve stresore, prihvati strategije suočavanja sa stresom među studentima te prilagodi nastavni plan i program kako bi se ublažio percipirani stres. 

Kad je riječ o studentima, ako su svjesni okolnosti i po-našanja koja izaživaju stres, to im pomaže da usvoje više po-zitivnih strategija u suočavanju s tom tegobom. U ovom istraživanju ocijenili smo stresore i njihovu snagu te kako ih percipiraju studenti dentalne medicine na Sveučilištu Jazan u odnosu na mnoge važne čimbenike, kao što su spol, bračni status, godina studija i prosjek ocjena u semestru prije. Alat za mjerenje – DES, bio je donekle modificiran kako bi odgo-varao lokalnoj kulturi, dentalnom studiju te nastavnom planu i programu. Program dentalne medicine u Saudijskoj Arabi-jii traje dulje nego drugdje u svijetu jer, osim uobičajenog petogodišnjeg studija, postoji i pripremna godina te godina stazažiranja. Bez dvojbe, kad je riječ o tako jedinstvenom pro-gramu teško je procijeniti je li on uzrok dodatnoga stresa u usporedbi s dentalnim školovanjem negdje drugdje. Još jedna jedinstvena značajka visokog obrazovanja u Saudijskoj Arabiji je u svegas razdobljanje. Ipak, teško je ocijeniti može li to pri-donijeti trenutačnom stresu. 

Ukupna razina DES-a u ovoj studiji bila je umjerena do nešto viša (1,67 ± 0,45). Pri pregledavanju literature pronađeno je nekoliko studija u kojima je izračunata ukupna razina DES-a. Abu-Ghazaleh i suradnici (17) te Murphy i njegovi kolege (18) izvijestili su o ukupnom DES-u između jordan-skih (2,4 ± 0,50 boda) i američkih (2,39 ± 0,40 boda) studenata dentalne medicine. Maksimalna ljestvica ocjena koštariša u tim istraživanjima bila je 4 – u rasponu od 1 do 4 u jordanskom istraživanju te od 0 do 4 u američkoj. Naša maksimalna ljestvica bila je 3, u rasponu od 0 do 3. Ako se uzmu u obzir te razlike, može se uočiti da je ukupna razina DES-a približno jednaka ili nešto niža od one objavljene u većim studijama. No važno je da je ukupni DES u ovom istraživanju niži od onoga objavljene u istraživa-nju provenom u Saudijskoj Arabiji 2010. godine (19). Ta-da je ukupni stres iznosio 2,23 ± 0,31. Ova razlika u rezulta-tima može se pripisati razlici u nastavnom planu i/ili trajanju dentalnog programa. U našem, stres koji percipiraju studenti dentalne medicine varira od zemlje do zemlje, pa čak i unutar jedne od njih.

Kad je riječ o pojedinim domenama, najstresnije su bi-le Radno opterećenje i Pritiska tijekom izvedbe. Obje su ve-zane uglavnom za raspoloživost vremena, težinu dodijeljeno-gog rada te na dobivenе ocjene i ispite. Ove dvije domene također su bile istaknute kao najjači izaživači stresa u mno-gim drugim istraživanjima (20 – 26). U sklopu domene Radno opterećenje najbolje izvedena stavka stresa bila je premalo vremena za opuštanje, a u sklopu Pritiska tijekom izvedbe naj

Discussion

Various scales have been used to investigate the stress among dental students such as: Dental Environment Stress scale (DES) (13), Maslach Burnout Inventory (MBI) (14), and Psychosocial Stress Inventory (PSSI) (15). However, DES is the most frequently used scale (16). An understanding of stress levels is of paramount importance to provide professional bodies with relevant information on students’ well-being. Typically, it will enable the policy makers, and ad-ministrative and academic staff to reduce stressors, to adopt stress-coping strategies among students, and to modify teaching curriculum and teaching environment in order to allevi-ate perceived stresses. Regarding students, being aware of the stress-inducing circumstances and behaviors will motivate them to adopt more positive coping strategies. In the current study, we assessed the stressors and their levels as perceived by dental students at Jazan University with regard to many important factors such as gender, marital status, study level, and a GPA based on the grades they earned during the previ-ous semester. The measurement tool, DES, was slightly mod-ified to be suitable for the local culture, dental environment and curriculum. Dental program in Saudi Arabia takes lon-ger journey than elsewhere; in addition to ordinary five years, there is a preparatory year and an internship year. Without doubt, such a unique program adds extra stress compared to dental education elsewhere. Another unique feature of higher education in Saudi Arabia is a general policy of gender segre-gation. Nevertheless, it is difficult to judge whether the above mentioned facts might add to the current stress.

The overall DES level reported in this study was moderate to slightly elevated. (1.67±0.45). From the literature review, we have learned that few studies have been found calc-ulating the overall DES level. Abu-Ghazaleh et al. (17) and Murphy et al. (18) have reported the overall DES among Jordanian (2.4±0.50 point) and American (2.39±0.40 point) dental students, respectively. The maximum rating scale used in these studies was 4, ranging from 1 to 4 in the Jordanian study and from 0 to 4 in the American study. Our maximum rating scale was 3, ranging from 0 to 3. Taking these differences into consideration, it can be noted that our overall DES level is approximately the same, or slightly lower than that re-port ed in other two studies. Noteworthy, however, is that the overall DES in the current study is lower than that reported in a previous study conducted in Saudi Arabia in 2010 (19), where the overall stress was 2.23±0.31. These differences in results might be attributed to the difference in teaching cur-ricula and/or duration of dental program. In general, stress perceived by dental students is variable in different countries and even within a country.

Regarding individual domains, the most stressful ones were “workload” and “performance pressure.” Both are re-lated mostly to the availability of time, difficulty of assigned class work and to grades obtained and examinations. These two domains were also reported the most stress-provoking in many other studies (20-26). Regarding the “workload” do-main, the most individual stressor item was “lack of time for relaxation”. With the “performance pressure” domain, the
učinkovitija stavka stresora bila je *Ispitivanje i kvizovi*. Točnije, te dvije domene bile su znatno više kod žena negoli kod muškaraca. Razlika uočena za domenu *Radno opterećenje* također je znatno veća među studentima u braku. To se može pripisati dodatnim odgovornostima (neakademskim) koje imaju ti studenti. Slučajno, DES prijavljen po domeni bio je znatno različit između godina studija. To može biti zato što viša godina studija znači i veću odgovornost u učenju te kliničku odgovornost.

Općenito, studenti na kliničkim godinama (4., 5. i 6.)imali su veću razinu stresa u usporedbi s onima na pretkliničkim godinama (2. i 3.). Ovaj rezultat u skladu je s drugim presječnim istraživanjima provedenima među studentima na oralne medicinske medicine (17, 19, 21, 27). Većina frakcija ove razlike pripisuje logičnim razlikama u dvjema glavnim domenama — *Liječenje pacijenata* i *Kliničke vježbe*. Pretklinički studenti još nisu bili izloženi kliničkim vježbama ili liječenju bolesnika. Druge domene pokazale su veći stres među studentima na višim godinama studija, ali razlike nisu bile tako očite. Općenito, odgovornost prema pacijentima, blizina diplomle i razmišljanje o profesionalnoj budućnosti nameću studentima sve veću opterećenje i odgovornost.

Osim u domeni *Socijalni stresor* koja se prema spolu nije znatno razlikovala, studentice su pokazale više stresa od svojih kolega. To obuhvaća različite oblike suočavanja sa stresnim okolnostima i upućuje na to koliko se studenti pozitivno suočavaju s poteškoćama i koliko su izdržljivi. Najstresnija stavka za studentice bila je *Ispiti i kvizovi*, a slijedi *Nedostatak vremena za opuštanje*. Za studente je najveći stresor bio *Ispiti i kvizovi* i nakon toga *završetak studija*. Utvrđeno je da su ove stavke ocijenjene višom vrijednošću kod studentica u odnosu na studente. O sličnim rodnim varijacijama već su izvršili autor nekoliko istraživanja (17, 28 – 30). U skladu s navedenim, dosadašnja istraživanja u Sudačkoj Arabiji nisu otkrila znatniju razliku među spolovima u vezi s liječenjem bolesnika. Druge domene imale su veću razinu stresa u usporedbi s onima na pretkliničkim godinama (2. i 3.). Ovaj rezultat u skladu je s drugim presječnim istraživanjima provedenima među studentima (17, 19, 21, 27). Ovaj rezultat u skladu je s drugim presječnim istraživanjima provedenima među studentima (17, 19, 21, 27). Ovaj rezultat u skladu je s drugim presječnim istraživanjima provedenima među studentima (17, 19, 21, 27). Ovaj rezultat u skladu je s drugim presječnim istraživanjima provedenima među studentima (17, 19, 21, 27). Ovaj rezultat u skladu je s drugim presječnim istraživanjima provedenima među studentima (17, 19, 21, 27).

In general, responsibility toward their patients, proximity to graduation and thinking about their future plans and goals are the factors affecting work-life balance amongst male and female dental students. Apart from “Social stressor” domain which was not significantly different regarding genders, female students scored higher stress levels compared to their male counterparts. This implies different styles of coping with stressful circumstances and indicates the extent to which positive coping and endurance are exerted by male students. The most stressor items for females were as follows: “Examinations and quizzes” followed by “Lack of time for relaxation”. For male subjects, however, the most stressor items were: “Examinations and quizzes” followed by “Late ending day”. These items were found to be scored higher in female students compared to male students. Similar gender variations were also reported earlier by few studies (17, 28-30). In line with our results, a previous study conducted in Saudi Arabia didn’t reveal a significant gender difference regarding the “Social stressor” domain (12). To the contrary, Telang et al. in their study on Malaysian dental students found no significant differences between male and female students in most of DES domains (31). Similarly, married dental students in the current study perceived higher levels of stress when compared to their single colleagues regarding the total DES score and, also, regarding individual domains except for the “self-efficacy beliefs” domain. These findings are not similar to previous studies from Saudi Arabia, where they reported significant differences between married and single students for only few domains (12, 19). In fact, only 2.5% of male students reported to be married in contrast to 23.5% of females (Data not shown). Therefore, the role of marital status can be strongly attributed to gender difference instead, as highlighted above. However, we cannot overlook the fact that married persons have more responsibilities than single ones. Being married cannot be overlooked as a source of stress as reflected obviously by the significant difference in “Social stressors” domain in favor of married students. This result was supported by the multi-
Još jedan zanimljiv način bio je da su studenti, koji su u posljednjoj procjeni ocijenjeni visokim prosječkog GPA ocjena, pokazali nižu razinu stresa od svojih kolega. To upućuje na to da su izvrsni studenti sigurniji i učinkovitiji u ophodenju, suočavanju i prevladavanju različitih domena stresa. Ovaj način u skladu je s rezultatima drugih istraživanja koja su pokazala da su studenti s niskim prosječkom ocjena osjetljejši na izloženost stresu (19, 32, 33).

Važno ogranjenje ovog istraživanja jest njegova izvedba poprečnog presjeka. Zhog toga rezultati ne mogu pokazati uzročno-posljedični učinak procijenjenih nezavisnih varijabli i domene stresa DES-a. Drugo je ogranjenje da je provedeno na jednom fakultetu dentalne medicine, pa bi se rezultati možda razlikovali da su bili uključeni i drugi. Zato autorii sugeriraju da bi se trebalo provesti sveobuhvatnu longitudinalnu studiju kako bi dobili važniji rezultati.

**Zaključak**

DES je među studentima dentalne medicine Sveučilišta Jazan umjeren i neznatno povišen. Viši je među studentica - 1. Cohen, S; Kessler, R; Gordon, L. Strategies for measuring stress in studies of psychiatric and physical disorders. In: Cohen, S; Kessler, R; Gordon, L - editors Measuring stress: A guide for health and social scientists. NewYork; Oxford University Press: 1995.p.3-26.

2. Folkman, S. Stress: Appraisal and Coping. In: Gellman, MD; Turner, JR - editors. Encyclopedia of Behavioral Medicine. New York; Springer: 2013. p. 1913-15.

3. Almeida DM, Kessler RC. Everyday stressors and gender differences in daily distress. J Pers Soc Psychol. 1998 Sep;75(3):670-80.

4. Dyrbye LN, Thomas MR, Shanafelt TD. Systematic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students. Acad Med. 2006 Apr;81(4):354-73.

5. Li C, Liu JC, Xiao X, Chen X, Yue S, Yu H, et al: Psychological distress and type 2 diabetes mellitus: a 4-year policemen cohort study in China. BMJ Open. 2017 Jan 27;7(1):e014235.

6. Tosevski DL, Milovancevic MP, Gajic SD. Personality and psychopathology of university students. Curr Opin Psychiatry. 2010 Jan;23(1):48-52.
7. Lloyd C, Musser LA. Psychiatric symptoms in dental students. J Nerv Ment Dis. 1989 Feb;177(2):61-9.
8. Schmitter M, Liedl M, Beck J, Rammelsberg P. Chronic stress in medical and dental education. Med Teach. 2008 Feb;30(1):97-9.
9. Fredericks MA, Mundy P. Dental students: relationship between social class, stress, achievement, and attitudes. J Am Coll Dent. 1967 Oct;34(4):218-28.
10. Davis EL, Tedesco LA, Meier ST. Dental student stress, burnout, and memory. J Dent Educ. 1989 Mar;53(3):193-5.
11. Uraz A, Tocak YS, Yozgatligil C, Cetiner S, Bal B. Psychological well-being, health, and stress sources in Turkish dental students. J Dent Educ. 2013 Oct;77(10):1345-55.
12. Al-Sawygh ZH, Alfadley AA, Al-Saif MI. Perceived causes of stress among Saudi dental students. King Saud University Journal of Dental Sciences. 2013;4:7-15.
13. Garbee WH, Jr. Sources of stress in the dental school environment. LDA J. 1981 Winter;39(6):9-14.
14. Maslach C, Jackson SE, Leiter MP. MBI Maslach Burnout Inventory. CPP, Incorporated, 1996.
15. Pöhlmann K, Jonas I, Ruf S, Harzer W. Stress, burnout and health in the clinical period of dental education. Eur J Dent Educ. 2005 May;9(2):78-84.
16. Elani HW1, Allison PJ, Kumar RA, Mancini L, Lambrou A, Bedos C. A systematic review of stress in dental students. J Dent Educ. 2014 Feb;78(2):226-42.
17. Abu-Ghazaleh SB, Rajab LD, Sonbol HH. Psychological stress among dental students at the University of Jordan. J Dent Educ. 2011 Aug;75(8):1107-14.
18. Murphy RJ, Gray SA, Sterling G, Reeves K, DuCette J. A comparative study of professional student stress. J Dent Educ. 2009 Mar;73(3):328-37.
19. Al-Saleh SA1, Al-Madi EM, Al-Angari NS, Al-Shehri HA, Shukri MM. Survey of perceived stress-inducing problems among dental students, Saudi Arabia. Saudi Dent J. 2010 Apr;22(2):83-8.
20. Sedley NA. Perceived Sources of Stress among Junior & Mid-Senior Egyptian Dental Students. Int J Health Sci (Qassim). 2012 Jun;6(2):141-57.
21. Peker II, Alkurt MT, Usta MG, Turkbay T. The evaluation of perceived sources of stress and stress levels among Turkish dental students. Int Dent J. 2009 Apr;59(2):103-11.
22. Westerman GH1, Grady TG, Ocanto RA, Erskine CG. Perceived sources of stress in the dental school environment. J Dent Educ. 1993 Mar;57(3):225-31.
23. Rajab LD. Perceived sources of stress among dental students at the University of Jordan. J Dent Educ. 2001 Mar;65(3):232-41.
24. Polychronopoulou A, Divaris K. Dental students’ perceived sources of stress: a multi-country study. J Dent Educ. 2009 May;73(5):631-9.
25. Rosli TI1, Abdul Rahman R, Abdul Rahman SR, Ramli R. A survey of perceived stress among undergraduate dental students in Universiti Kebangsaan Malaysia. Singapore Dent J. 2005 Dec;27(1):17-22.
26. Mulrhead V, Locker D. Canadian dental students’ perceptions of stress. J Can Dent Assoc. 2007 May;73(4):323.
27. Wilson V, Rayner C, Gordon N. Perceived stress among dental students at the University of the Western Cape: research. SADJ. 2015;70:255-259.
28. Sanders AE. Sources of stress among Australian dental students. J Dent Educ. 1999;63:688-697.
29. Naidu RS, Adams JS, Simeon D, Persad S. Sources of stress and psychological disturbance among dental students in the West Indies. J Dent Educ. 2002 Sep;66(9):1021-30.
30. Kumar S, Dagli RJ, Mathur A, Jain M, Prabu D, Kulkarni S. Perceived sources of stress amongst Indian dental students. Eur J Dent Educ. 2009 Feb;13(1):39-45.
31. Telang LA, Nerali JT, Telang A. Perceived sources of stress among Malaysian dental students. Eur J Gen Dent. 2013;2:300-307.
32. Mayya S, Roff S. Students’ perceptions of educational environment: a comparison of academic achievers and under-achievers at kasturba medical college, India. Educ Health (Abingdon). 2004;17:280-291.
33. Pimparyon SMCSPPSRP. Educational environment, student approaches to learning and academic achievement in a Thai nursing school. Med Teach. 2000;22:359-364.