

Stress and associated socioeconomic factors in dental students

Jéssica Evans Ferraz Soares Brito*, Cláudia de Jesus Pinheiro**, Tamara Marques Ramos***, Taiomara Vieira Mania****

* Student of Dentistry, Faculdade Independente do Nordeste
** Psychologist
*** Professor, Dental Course, Faculdade Independente do Nordeste

Received: 07/17/2020. Approved: 12/21/2020.

ABSTRACT

Upon entering the higher education environment, a new concept of living emerges and students begin to experience responsibilities and commitments that they did not previously have. This change in routine can generate feelings of anxiety and stress, which exert an influence on one's academic performance. The aim of the present study was to evaluate the level of stress and associated socioeconomic factors among dental students. An observational, cross-sectional study with a quantitative approach was conducted with dental students at a private higher education institution (n = 135), who answered a questionnaire addressing sociodemographic characteristics and Lipp's Stress Symptoms Inventory for Adults. Data analysis involved descriptive statistics and associations were investigated using the chi-squared test. Students in the tenth semester predominated in the sample (29.63%) and mean age was 23.03 ± 3.50 years. The majority was female (68.15%), single (88.89%), without children (90.37%), and exhibited stress (62.22%). Most of those with stress were in the resistance phase (86.90%). Moreover, 48.81% had psychological symptoms. Stress was significantly greater among women (50.37%; $\chi^2 = 16.79$; $p = 0.000$) and students who were paying the cost of their studies through the financing modality (34.81%; $\chi^2 = 8.22$; $p = 0.042$). In conclusion, stress, especially the resistance phase, was found among the dental students analyzed. The female sex and the financing modality of covering the cost of studies were the socioeconomic variables associated with this condition.

Descriptors: Students, Dental. Education, Higher. Stress, Psychological. Mental Health.

1 INTRODUCTION

The term stress regards external agents that cause physical and psychological changes in an individual. These agents may be related to personal or environmental changes, such as the

challenge of entering the university setting.¹ The perception of stress varies from person to person and is affected by one's beliefs, attitudes, and occupation.^{2,3}

Stress is a state of tension that disrupts the

balance of the organism. Physiological reactions to this state of tension are denominated “general adaptation syndrome.”⁴ Selye divides this adaptation into three phases: alarm, resistance, and exhaustion.⁴ Lipp divides the state into four phases, including quasi-exhaustion.⁵

Alarm can be considered the positive phase of this psychological state, in which the production of adrenaline provides energy and motivation, with a constant feeling of plenitude. In the second phase, the individual attempts to cope with the stressful factors in order to maintain internal homeostasis. If the factors persist frequently, exceeding the limit of tension and producing moments of complete discomfort intercalated with episodes of lucidity, the individual is in the quasi-exhaustion phase. In the pathological stage known as exhaustion, severe illness can emerge, such as a heart attack and depression.⁴

The scientific literature reports that the level of stress is higher in dental students compared to the general population.^{2,6} From the beginning of their academic activities, dental students are subjected to considerable levels of anxiety or stress, as they are expected to acquire a large amount of knowledge and skills that will help them in their studies, clinical activities, and profession.¹ Stress may also be related to socioeconomic factors, such as sex, marital status, family environment, and living conditions.³

Upon entering the higher education environment, a new concept of living forms for students, who begin to experience responsibilities and commitments that they did not previously have. This different lifestyle brings both negative and positive changes in habits and emotional stimuli.⁷ Stress may be positive, motivating the student to achieve an excellent performance, but when excessive, it can exert a negative impact on one’s academic performance.³

There is evidence linking stress in students to a future risk of depression.⁸ Thus, the investigation of this issue is important and can offer information that can assist in the establishment of strategies and interventions to help improve academic performance and quality of life.⁹ Therefore, the aim of the present study was to evaluate levels of stress and associated socioeconomic factors in dental students. The hypothesis tested was that dental students have some level of stress.

2 METHODS

Study design and context

An observational, cross-sectional study with a quantitative approach was conducted with dental students at *Faculdade Independente do Nordeste* (FAINOR [Northeast Independent College]), a private higher education institution located in Vitória da Conquista in the state of Bahia (northeastern Brazil). The dentistry course began its activities in 2001 with the purposes of “giving general dentists a solid, technical, scientific, humanistic, ethical education directed at health promotion with an emphasis on the prevention of prevalent oral diseases; and aware of the need for continual education, interacting with the population, capable of altering the epidemiological oral health profile of the region, participating in the healthcare system with the capacity for leadership and social sensitivity.” For a complete education, a minimum of five years is required, the curricular components of which are offered in morning and afternoon.

As stress can vary throughout the educational process, students distributed among the even semesters of the dental course were selected through a simple drawing with the aid of a computer program. These semesters were chosen because the students are immersed in the reality of academic life in the second semester and are experiencing changes in their social routines. In the fourth semester, they initiate their

practical activities, which places them into contact with patients and all the subjectivity that patients bring. In the sixth semester, the students are in the supervised internship modality. In the tenth semester, they are finishing their education, often coping with the fears and anxieties of entering the job market and aware of the upcoming changes in their social routine as professional dentists. Participants were randomly selected from each class.

Sample calculation

The sample size was calculated based on the number of students enrolled in the even semesters of the course in the second half of 2019, totaling 206 students. Using the EpiInfo program, the calculation of samples for a finite population was performed considering a 95% confidence level, 5% margin of error, and estimated proportion of 50% (due to the unknown prevalence), leading to a sample of 135 students to meet the statistical requirement of validity.

Eligibility criteria

Students enrolled in the even semesters of the course and who were present at the time of data collection were included. Each student received a number. All numbers were placed in an opaque recipient and then selected at random. Incomplete questionnaires (more than two missing answers) were excluded.

Ethical aspects

This study received approval from the local institutional review board (certificate number: 3.310.297). All participants agreed to participate by signing a statement of informed consent.

Data collection instruments

The research instrument was a self-administered questionnaire with two sections. The first section was drafted by the authors and addressed general sociodemographic

characteristics (semester of the course, age, sex, marital status, children, exercise of paid activity, how the cost of studies was covered, sharing of residence/housing, place of residence, frequency of visits to parents/relatives, time per day dedicated to study outside of the classroom, and time per day dedicated to leisure) to determine possible associations with stress.

The second section was composed of the Inventory of Stress Symptoms (ISS) for Adults developed by Lipp,⁵ which is a validated, easy-to-administer instrument for the assessment of stress that indicates the phase (alarm, resistance, quasi-exhaustion, or exhaustion) as well as the most prevalent type of symptoms (physical or psychological). The ISS has 52 closed-ended questions divided into three parts. Some symptoms are repeated but differ in intensity or seriousness.

The questionnaire was pre-tested with 10 students who were not part of the main sample to determine the clarity of the terms used. The pre-test revealed a need to adjust the language. The adjusted version was administered to another 10 students who were also not part of the main sample, after which the instrument was considered adequate for the target population.

One researcher was in charge of the data collection. All questionnaires were answered in the classroom with a maximum of 20 students after regular class in October of 2019 (not during a test period). The ISS section was evaluated by a psychologist. Individuals who answered affirmatively to at least six symptoms on the first part or three on the second part or eight symptoms on the third part were considered to have stress. After the determination of stress based on the sum of affirmative items on each part of the questionnaire, it was possible to evaluate the phase in which the individual was found (alarm, resistance, quasi-exhaustion, or exhaustion) and identify the predominance of physical or psychological symptoms or a mixture

of the two.⁵

Outcome variables

The following outcome variables were evaluated: stress (yes/no), phase of stress (alarm, resistance, quasi-exhaustion, or exhaustion) and prevalence of symptoms (physical, psychological, or physical/psychological) collected through specific psychological tests and analyzed by a professional psychologist.

Predictor variables

The following predictor variables were considered: semester of course (second/fourth/sixth/eighth/tenth), sex (male/female), marital status (single/married or stable union/divorced), children (yes/no), exercise of paid activity (yes/no), way of covering the cost of education (own resources/family resources/partial or complete financing/other), sharing of residence/housing (alone/relatives [parents, family members, or spouse]/schoolmates or friends/others), place of residence (same city as college/within 50 km of college/more than 50 km from college), frequency of visits to parents/relatives (daily/one to four times per month/only on holidays or during vacation), mean time spent per day on studies outside the classroom (up to one hour/one to three hours/more than three hours/does not study daily), time dedicated to leisure (up to one hour/one to three hours/more than three hours/without time for leisure daily).

Data analysis

Data analysis was performed with the aid of the *Statistical Package for the Social Sciences*, version 23 (IBM, Armonk, NY, USA). Descriptive analysis was performed to determine proportions, mean and standard deviation values. The prevalence of stress and different phases was compared between categories of the sociodemographic variables using the chi-

squared test, with the level of significance set to 5% ($p < 0.05$).

3 RESULTS

One hundred thirty-five questionnaires were answered, corresponding to a response rate of 100%. Students in the tenth semester predominated in the sample (29.63%) and mean age was 23.03 ± 3.50 years. The majority was female (68.15%), single (88.89%), and without children (90.37%) (table 1).

Most students did not exercise a paid activity (88.89%), lived with their parents or relatives (56.30%), and resided in the same city as the college (87.41%). A large portion depended on financing to cover the cost of studies (48.15%) and visited parents or relatives only on holidays and during vacation periods (44.44%). Part of the students reported dedicating up to one hour to study outside the classroom (34.81%) and more than three hours of leisure activities (33.33%) (table 1).

Stress was found in the majority of the students (62.22%). The occurrence of stress was associated with gender [significantly more frequent in the female sex (50.37%; $\chi^2 = 16.79$; $p = 0.000$)] and form of covering the cost of education [significantly more frequent among students who used the financing modality (34.81%; $\chi^2 = 8.22$; $p = 0.042$)] (table 1).

Tables 2 and 3 show the distribution of the phases and symptoms of stress according to gender and form of covering the cost of education. The resistance phase was the most frequent (86.90%) and psychological symptoms were more prevalent (48.81%).

Statistically significant differences between the sexes were found regarding the phases and symptoms of stress ($p = 0.001$) (Table 2). No significant associations were found between the form of covering the cost of education and either the phases or symptoms of stress (table 3).

Table 1. Characteristics of sample of students (n = 135) and associations with stress

Variable	Stress		Total n (%)	p-value*
	No n (%)	Yes n (%)		
<i>Semester of course</i>				
Second	6 (8.89)	12 (8.89)	18 (13.33)	0.769
Fourth	9 (6.67)	19 (14.07)	28 (20.74)	
Sixth	8 (5.93)	11 (8.15)	19 (14.07)	
Eighth	14 (10.37)	16 (11.85)	30 (22.22)	
Tenth	14 (10.37)	26 (19.26)	40 (29.63)	
<i>Sex</i>				
Female	24 (17.78)	68 (50.37)	92 (68.15)	0.000**
Male	27 (20.00)	16 (11.85)	43 (31.85)	
<i>Marital status</i>				
Single	49 (36.30)	71 (52.59)	120 (88.89)	0.112
Married or stable union	2 (1.48)	12 (8.89)	14 (10.37)	
Divorced	0	1 (0.74)	1 (0.74)	
<i>Children</i>				
No	47 (34.81)	75 (55.56)	122 (90.37)	0.584
Yes	4 (2.96)	9 (6.67)	13 (9.63)	
<i>Paid activity</i>				
No	48 (35.56)	72 (53.33)	120 (88.89)	0.132
Yes	3 (2.22)	12 (8.89)	15 (11.11)	
<i>Form of covering cost of education</i>				
Partial or complete financing	18 (13.33)	47 (34.81)	65 (48.15)	0.042**
Family resources	31 (22.96)	33 (24.44)	64 (47.41)	
Own resources	1 (0.74)	4 (2.96)	5 (3.70)	
Other	1 (0.74)	0	1 (0.74)	
<i>Sharing residence/housing</i>				
With parents or relatives/spouse	25 (18.52)	51 (37.78)	76 (56.30)	0.111
Schoolmates or friends	12 (8.89)	22 (16.30)	34 (25.19)	
Alone	14 (10.37)	11 (8.15)	25 (18.52)	
<i>Place of residence</i>				
Same city as college	42 (31.11)	76 (56.30)	118 (87.41)	0.385
More than 50 km from college	8 (5.93)	7 (5.19)	15 (11.11)	
Within 50 km of college	1 (0.74)	1 (0.74)	2 (1.48)	
<i>Frequency of visiting parents/relatives</i>				
Only on holidays and during vacation	23 (31.11)	37 (27.41)	60 (44.44)	0.677
Daily	17 (12.59)	30 (22.22)	49 (36.30)	
One to four times per month	10 (7.41)	16 (11.85)	26 (19.26)	
<i>Time daily dedicated to studies outside class</i>				
Up to 1 hour	19 (14.07)	28 (20.74)	47 (34.81)	0.773
Does not study daily	13 (9.63)	23 (17.04)	36 (26.67)	
One to three hours	14 (10.37)	20 (14.81)	34 (25.19)	
More than three hours	5 (3.70)	13 (9.63)	18 (13.33)	
<i>Time daily dedicated to leisure</i>				
More than three hours	21 (15.56)	24 (17.78)	45 (33.33)	0.169
One to three hours	12 (8.89)	31 (22.96)	43 (31.85)	
Does not have leisure daily	7 (5.19)	17 (12.59)	24 (17.78)	
Up to 1 hour	11 (8.15)	12 (8.89)	23 (17.04)	
Total	51 (37.78)	84 (62.22)	135 (100.00)	

*chi-squared test ** p <0.05

Table 2. Distribution of phases and symptoms of stress among students according to gender

Stress	Female n (%)	Male n (%)	Total n (%)	p-value*
<i>Phase of stress</i>				
Resistance	58 (85.29)	15 (93.75)	73 (86.90)	0.001**
Quasi-exhaustion	9 (13.24)	1(6.25)	10 (11.90)	
Exhaustion	1 (1.47)	0	1 (1.19)	
<i>Symptoms</i>				
Psychological	34 (40.34)	7 (8.33)	41 (48.81)	0.001**
Physical	24 (28.57)	7 (8.33)	31 (36.90)	
Physical and psychological	10 (11.90)	2 (2.38)	12 (14.29)	
Total	68 (80.95)	16 (19.05)	84 (100.00)	

*chi-squared test ** p <0.05

Table 3. Distribution of phases and symptoms of stress among students according to form of covering cost of studies (n = 84)

Stress	Financing n (%)	Family resources n (%)	Own resources n (%)	Total n (%)	p-value*
<i>Phase of stress</i>					
Resistance	42 (50.00)	28 (33.33)	3 (3.57)	73 (86.90)	0.299
Quasi-exhaustion	5 (5.95)	4 (4.76)	1(1.19)	10 (11.90)	
Exhaustion	0	1 (1.19)	0	1 (1.19)	
<i>Symptoms</i>					
Psychological	21 (25.00)	18 (21.43)	2 (2.38)	41 (48.81)	0.344
Physical	18 (21.43)	11 (13.10)	2 (2.38)	31 (36.90)	
Physical and psychological	8 (9.52)	4 (4.76)	0	12 (14.29)	
Total	47 (55.95)	33 (39.29)	4 (4.76)	84 (100.00)	

*chi-squared test

No associations were found between stress and semester of the course, marital status, having children, exercising paid activity, sharing residence/housing, frequency of visiting parents/relatives, place of residence, time daily dedicated to study outside class, or time daily dedicated to leisure.

4 DISCUSSION

Stress among students in the health field is a reason for concern, as it can affect the physical

and mental health of these individuals, leading to the development of emotional disorders.⁴ In the present study addressing stress and associated socioeconomic factors in dental students, the proportion of the female sex was greater, which is compatible with data found in other current studies.^{2,3,4,8} This phenomenon is well illustrated in the multicenter study conducted by Pau et al. (2007) involving nine dentistry courses at universities in England, Romania, South Africa, Australia, the United States, Greece, and

Malaysia, all of which except in the United States had higher proportions of women.⁸

A significant association was found between stress and the female sex. Although some researchers explain the difference between the sexes due to the burden of non-academic activities and the accumulation of functions and responsibilities in women,² this profile is not compatible with most of the participants of the present study. However, such vulnerability to stress may be related to the expectations of society, along with the personal, biological, and professional demands placed on women. On the other hand, other authors explain this difference by the fact that women are more likely to express and accept their emotions of stress when answering research questionnaires compared to men.⁸

The majority of students did not exercise a paid activity and depended on family resources to cover the cost of their studies. Indeed, it seems that students have difficulty reconciling their studies with a job due to the high hourly load required by the course.⁴

A large portion of the participants used financing (partial or full) to cover the cost of their studies (48.14%), using government benefits,¹⁰ and such individuals were significantly more stressed. This may be related to the fact that students who receive a scholarship feel pressured by the need for dedication and involvement in order to achieve good results in their evaluation and maintain the scholarship, as the possibility of losing this funding would lead to having to quit the course due to a lack of financial resources.⁴ One should also consider the possibility that the debt accumulated with the financing to be paid back by the student when she or he enters the job market may generate anxiety, anguish, and stress. This hypothesis should be investigated in future studies.

Although living far from their parents was

not associated with stress among the participants of the present study, new experiences like living alone and far from home, making new friends, and adapting to new situations are potential stressors.¹¹ Low social support from one's parents, friends, and community can make it difficult to cope with adversities, consequently generating stress. Graner et al. (2018) detected a greater frequency of psychological disorders among students who reported difficulties adapting to a new city, problems with relationships involving schoolmates, and little social support.

Although researchers have demonstrated that individuals with free time dedicated to physical activities and leisure are less susceptible to the development of symptoms of stress and depression,^{4,9} this was not confirmed in the present study, as a large portion of the interviewees (65.18%) dedicated three or more hours per day to leisure activities.

A total of 61.48% of the students exhibited stress. Considering the four-phase model, none of the participants was in the alarm phase, which is the positive phase of stress. Most individuals with stress (86.90%) were in the resistance (intermediate) phase and a smaller proportion was in the quasi-exhaustion or exhaustion phases (13.09%).

It is important to highlight what it means to be in the resistance phase. According to Lipp, this phase occurs when the individual resists stressors and attempts to reestablish the balance of the alarm phase, leading to a loss of productivity. Moreover, this is a pre-pathological phase, in which symptoms related to a reduction in memory emerge. This makes it difficult to retain the information necessary to the execution of activities, exerting a negative impact on one's academic performance.^{4,5,9}

The high prevalence of psychological symptoms is in agreement with data reported in

at least two previous studies.^{9,11} The condition of stress is manifested mainly through psychological symptoms.⁹ A systematic review addressing depression, anxiety, and burn-out in students of medicine concluded that psychological suffering in these students was a predictive factor of a future risk of depression.¹²

Most of the socioeconomic variables analyzed in the present study were not associated with stress. This suggests that stress in this group of participants may be centered on variables linked to the educational environment. Personal demands for good grades, a lack of emotional intelligence, fear of failing, insecurity with regards to manual skills, the transition from pre-clinical to clinical activities, the absenteeism of patients, and fear of facing one's parents after failing are possible sources of stress among dental students.⁸

A group of researchers from Germany found that the creation of a "transition to clinical training" group with the aim of preparing students for clinical activities had a positive influence on reducing stress and enhancing the learning process. The authors demonstrated that it is fundamental for professors to instill confidence in students, as they feel anxious and insecure about putting the theory learned into practice and many have difficulty during this process. This interaction with the professor as encourager was critical to the students acquiring confidence, improving the care offered to the patients, and enhancing the learning process.¹³

The present study has limitations that should be considered. The fact that it was conducted with a specific population of students at a private institution means that it is not possible to generalize the results. Moreover, we only evaluated socioeconomic variables involved in the stress of dental students. Therefore, future studies with a broader scope are needed, investigating variables related to the educational

environment so that we may have a clearer notion of the sources of stress rather than the mere estimation of its prevalence.

5 CONCLUSION

The occurrence of stress was found in among the dental students in different stages of the undergraduate course, the most prevalent phase of which was "resistance". The female sex and form of covering the costs of one's studies were associated with this state of stress. However, no significant associations were found between stress and place of residence, type of housing, time dedicated to leisure, or time dedicated to studying.

The results of the present study show the occurrence of stressful factors that may diminish the productivity of students. Other variables beyond socioeconomic characteristics that were not considered in this study should be investigated, such as those related to the educational environment.

RESUMO

O estresse e fatores socioeconômicos associados em graduandos de Odontologia

Ao entrar no ambiente do Ensino Superior surge um novo conceito de vida para o estudante, que passa a ter responsabilidades e compromissos que outrora não tinha. Esta mudança na sua rotina pode gerar sentimentos de ansiedade e estresse, fatores que influenciam no desempenho diário do estudante. O objetivo dessa pesquisa foi avaliar a presença de estresse, seus níveis e fatores socioeconômicos associados entre graduandos de um curso de Odontologia. Nesse estudo transversal e observacional, de abordagem quantitativa, estudantes matriculados no curso de Odontologia de uma instituição de ensino superior privada (n=135) responderam a um questionário autoaplicável contendo questões sociodemográficas e o Inventário de Sintomas de Stress para Adultos de Lipp (ISSL). Os dados coletados foram analisados por estatística

descritiva e as associações realizadas por meio do teste qui-quadrado. A maioria dos participantes cursava o décimo semestre (29,63%), era do sexo feminino (68,15%), solteiros (88,89%), sem filhos (90,37%), com idade média de 23,03±3,50 anos, apresentando estresse (62,22%) caracterizado pela prevalência da fase de resistência (86,90%) e sintomas psicológicos (48,81%). O sexo feminino e estudantes que optavam pelo custeio dos estudos na modalidade financiamento estavam significativamente mais estressados (50,37%; $\chi^2=16,79$; $p=0,000$ e 34,81%; $\chi^2=8,22$; $p=0,042$, respectivamente). Conclui-se que o estresse esteve presente no transcorrer do curso de graduação em Odontologia, principalmente na fase de resistência. Entre as variáveis socioeconômicas analisadas, o sexo feminino e o tipo de custeio dos estudos na modalidade financiamento estiveram associados a condição.

Descritores: Estudantes de Odontologia. Educação Superior. Estresse psicológico. Saúde Mental.

REFERENCES

- Alhaji MN, Khader N, Murad AH, Celebic A, Halboub E, Márquez JR, et al. Perceived sources of stress amongst dental students: a multi-country study. *Eur J Dent Educ*. 2018; 22(4):258-71.
- Halboub E, Alhaj MN, Alkhairat AM, Sahaqi AM, Quadri MFA. Perceived stress among undergraduate dental students in relation to gender, clinical training and academic performance. *Acta Stomatol Croat*. 2018; 52(1):37-45.
- Al-Saleh SA, 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;22(2):83-8.
- Estrela YCA, Rezende ACC, Guedes AF, Pereira CO, Sousa MNA. Estresse e correlatos com características de saúde e sociodemográficas de estudantes de medicina. *CES Medicina*. 2018; 32(3):215-25.
- Lipp MEN. Manual do Inventário de Sintomas de Stress para adultos de Lipp. 3ª ed. São Paulo: Casa do Psicólogo, 2015.
- Basudan S, Binanzan N, Alhassan A. Depression, anxiety and stress in dental students. *Int J Med Educ*. 2017;8:179-86.
- Rodovida TAS, Sumida DH, Santos AS, Moimaz SMSA, Garbin CSA. Estresse e o estilo de vida dos acadêmicos ingressantes em um curso de graduação em Odontologia. *Rev ABENO*. 2015; 15(3):26-34.
- Pau A, Rowland ML, Naidoo S, Abdulkadir R, Makrynika E, Moraru R, et al. Emotional intelligence and perceived stress in dental undergraduates: a multinational survey. *J Dent Educ*. 2007; 71(2):197-204.
- Souza JA, Fadel CB, Ferracioli UM. Estresse no cotidiano acadêmico: um estudo com pós-graduandos em Odontologia. *Rev ABENO*. 2016; 16(1):50-60.
- Brasil. Ministério da Educação. Programa Universidade para todos. Manual do Bolsista: Prouni, 2015. [Cited: Jul 15, 2020]. Available from: <https://www.prouniportal.mec.gov.br>.
- Graner KM, Moraes AB, Torres AR, Lima MCP, Rolim GS, Cerqueira ATAR. Prevalence and correlates of common mental disorders among dental students in Brazil. *Plos One*. 2018; 13(9):1-16. [Acesso: Jul 15, 2020].
- 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;81(4):354-73.
- Frese C, Wolffi D, Saure D, Staehle HJ, Schulte A. Psychosocial impact, perceived stress and learning effect in undergraduate

dental students during transition from pre-clinical to clinical education. Eur J Dent Educ. 2018; 22(3):555-63.

Correspondence to:

Taiomara Vieira Mania

e-mail: taiomaravieiramania@hotmail.com

Av. Luís Eduardo Magalhães, 1035 -

Candeias

45.055-420 Vitória da Conquista/BA Brazil