Professional stress in relation to anxiety, depression and irrational beliefs among dental and psychotherapy students

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Abstract

Becoming a dental and psychotherapy professional implies multiple demands, challenges and responsibilities that might affect directly or indirectly students’ quality of life and training efficiency. Therefore, we aimed to study professional stress among Romanian dental and psychotherapy students, by introducing into equation the content areas of irrational beliefs, along with symptoms of depression, anxiety and general stress. The variables were measured with DES (Garbee et al., 1980), DASS-21 (Lovibond & Lovibond, 1995) and GABS-SF (Lindner et al., 1999). Overall, professional stressors were associated with depression, anxiety, general stress and irrational beliefs and there were also noticed some between-group differences.

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1. Introduction

A series of studies with various methodologies have revealed important findings regarding stress related to professional and academic life among either medical or dental students, sometimes along with students in pharmacy, nursing or other health care professions (Murphy et al., 2009), but scarcely along with psychotherapy trainees. However, it has been well documented that dental training experience is generally marked by considerable levels of stress that can have implications on students’ emotional, physical, social, and professional functioning, a concerning
prevalence and severity of psychological morbidity being reported (Polychronopoulou & Divaris, 2010). In the specialized literature, several factors have been associated with students’ stress as a result of their efforts to meet the academic and professional tasks requested in dental school. The most frequently cited have been grade competition, heavy workload (e.g., Burk et al., 2005), difficulties in meeting procedural clinical requirements (e.g., Westerman et al., 1993; Yap et al., 1996), inconsistent feedback from faculty, perceptions of receiving unjustified criticism on preclinical and clinical exercises, tensed relationships with faculty members (e.g., Sanders & Lushington, 2002) and student annoyance due to the absence of schooling advocacy or the lack of time for relaxation (e.g., Aktekin et al., 2001). Also, different individual characteristics (such as personality type or emotional intelligence) and social support have been reported to have a role in one’s responses to stress (e.g., Muirhead & Locker, 2008). Moreover, sociocultural and gender differences, as well as various institutional and curricular factors have also proved to be related to perceived stress (Polychronopoulou et al., 2009). Thus, considering the important issue of professional and academic stress as it has been sustained by the extensive specialized literature, our goals within the current study were: 1) to analyze the way students’ perceived stress of attending a professional training in dentistry and psychotherapy, might be related to irrational beliefs and symptoms of anxiety, depression and general stress; 2) to explore the differences between psychotherapy and dental students with regard to their levels of professional stress, anxiety, depression, general stress and irrational beliefs.

2. Method

2.1. Participants

The participants were 60 dental undergraduates in their 6th year of studies (Mage = 24.92, SD = 1.38) and 30 psychotherapy master’s degree trainees (Mage = 32.70, SD = 9.68) at two universities from Bucharest, during the 2013-2014 academic year. All of them were asked to voluntarily participate to this study by anonymously completing a series of self-report measures of professional stress, general stress, anxiety, depression and irrational beliefs, either during classes prior to lectures, or online. Ethical Considerations: care was taken to ensure that the students understood their rights as research participants, as well as the rationale for the study.

2.2. Instruments

a) Dental Environmental Stress Questionnaire (DES; Garbee et al., 1980), a questionnaire that contains 38 items scored on a 4-point Likert scale (from 1 = not stressful to 4 = very stressful), yielding values for 6 categories of stress: professional identity – items 8, 12, 13, 14, 23, 25, 26, 29, 38; faculty and administration – items 9, 17, 24, 32, 35, 37; workload – items 1, 3, 15, 20, 28; patient treatment – items 2, 4, 6, 18; performance pressure – items 5, 7, 11; personal life/personal relationships – items 10, 21, 22, 30, 33, 34, 36. Two versions of DES were used: one for dental students and one adapted for psychotherapy master’s degree trainees.

b) Depression Anxiety Stress Scales Short Version (DASS 21; Lovibond & Lovibond, 1995), a self-report instrument that assesses on a 4-point Likert-type scale the severity/frequency of three negative affective states: depression, anxiety and stress. Each of the three scales comprises 7 items and addresses the last 7 days of the respondent’s life.

c) General Attitude and Beliefs Scale Short Form (SGABS; Lindner et al., 1999), a self-report measure for the content areas of rational and irrational cognitive processes. It comprises 26 items grouped accordingly to 7 subscales: need for achievement, need for approval, need for comfort, demand for fairness, self-downing, other-downing and rationality. The respondents have to rate each item on a 5-point Likert scale in order to indicate their level of agreement with each statement (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree).

3. Results

The objectives of this study were attained by conducting two types of statistical processing: one for investigating the relations among the variables of interest within all participants (with no regard to their specialization), as well as within each research group (dental and psychotherapy students), and one for calculating the differences between the
psychotherapy trainees and 30 dental students randomly selected from the initial group. Based on a preliminary statistical analysis, we concluded that all data, except for the ones indicated in text or in the notes below each table, were normally distributed.

Table 1. Correlation coefficients, means, standard deviations and scales' internal consistency – cumulative group (dental plus psychotherapy students, N = 90).

| DES                  | DASS General Attitude and Beliefs Scale Short Form |
|----------------------|--------------------------------------------------|
|                      | DES Group  | D     | A     | S     | Self-D | N_Ach | N_App | NC | DF | OD | α  | M   | SD |
| Professional Identity| Dentistry  | .50   | .30   | .38   | .12    | .19    | .04   | .02 | -.01| -.36| .84| 3.23 | 2.49 |
|                      | Psychotherapy | .25   | .19   | .30   | .18    | .57**  | .53**  | .30 | .53**| .44*| .83| 3.23 | 2.49 |
| Faculty              | Dentistry  | .27*  | .26*  | .33** | .27*   | .31**  | .20*  | .28**| .41**| .25*| .62 | 12.13| 3.37 |
|                      | Psychotherapy | .20*  | .36** | .33** | .13    | .27**  | .32** | .40**| .42**| .24*| .68 | 11.20| 3.03 |
| Workload             | Dentistry  | .12   | .10   | .19   | .07    | .23*   | .06   | .29**| -.004| .75 | 9.34 | 2.59 |
|                      | Psychotherapy | .18   | .37** | .28*  | .15    | .35    | .23*  | .29**| .53**| .27**| .64 | 7.11 | 2.25 |
| Performance Pressure | Dentistry  | .08   | .19   | .04   | .15    | .03    | .06   | -.02| -.05| .004| .68 | 10.99| 4.48 |
|                      | Psychotherapy | .36** | .43** | .38** | .24*   | .37**  | .26*  | .30**| .43**| .15  | .89 | 82.37| 17.04 |
| Cronbach’s α         | Dentistry  | .81   | .78   | .80   | .77    | .78    | .61   | .72  | .83  | .71  | .81 | 3.20 | 6.03 |
|                      | Psychotherapy | .3.23 | 3.52  | 3.73  | 2.55   | 3.47   | 2.46  | 3.29 | 3.63 | 2.49 | .3.23| 4.03 | 6.03 |

Note. Spearman coefficients for D and Self-D; Pearson coefficients for the rest of the scales; D = Depression; A = Anxiety; S = Stress; Self-D = Self-downing; N_Ach = Need for Achievement; N_App = Need For Approval; NC = Need for Comfort; DF = Demand for Fairness; OD = Other-downing; *p < .05; **p < .01.

The statistical results emphasized that the overall level of students’ professional stress was moderately associated with symptoms of depression, anxiety, general stress and irrational beliefs regarding need for achievement, need for comfort and demand for fairness. The correlations with self-downing and need for approval were weak. Consistently, there were also some statistically significant relations as far as each dimension of professional stress was concerned. More notably, the level of stress related to professional identity, faculty administration and workload was positively associated with depression, anxiety, general stress and almost all content areas of irrational thinking, while performance pressure correlated significantly with all DASS symptoms, except for depression, as well as with all types of irrational beliefs, except for self-downing. The only professional stress dimension that did not correlate with any variables measured with DASS and GABS was personal life.

Further, using the same cumulative sample (N = 90) we conducted a multiple regression analysis using the hierarchical method, in order to assess the degree to which irrational beliefs (global score) predicted professional stress (global score) and whether including general stress improved the regression model. The obtained results revealed that irrational beliefs accounted for 19.4% of the variation in professional stress ($R^2 = .19; R^2_{adjusted} = .18$), being also significant predictors for its levels ($B = .59; SD = .12; \beta = .44; p = .001$). By adding general stress as potential predictor, we noticed a significant small increase in $R^2$ ($R^2 = .25; R^2_{adjusted} = .23; \Delta R^2 = .05; p < .05$), but a decrease in FANOVA ($F_{ANOVA} = 14.55; p < .01$) as compared to the value of the previous model which was equal to 21.13 ($p < .01$). This means that, although the second model was also better than the mean in predicting professional stress, it might have been less accurate than the first one. Both predictors within the second model – irrational beliefs ($B = .46; SD = .13; \beta = .34; p = .001$) and general stress ($B = 1.17; SD = .45; \beta = .25; p = .012$) – were significant. Thus, we could presume that irrational beliefs, compared to general stress, might be more important in explaining professional stress, but that the combination of both variables might be better than cognitions alone.

Table 2. Correlation coefficients and scales’ internal consistency for each group (dental students, N = 60; and psychotherapy trainees, N = 30).
The relation between professional stress on one hand, and depression anxiety and general stress on the other hand, were statistically significant for both psychotherapy and dental students but the correlational matrix differed between the two groups when the 6 components of professional stress were analyzed separately.

Moreover we obtained some surprising results as far as the content areas of irrational beliefs were concerned. Thus, contrary to our hypotheses and implicitly to the REBT theory, we did not find any significant positive correlations between dental students’ irrational beliefs and their perceived professional stress. However, for this group, the results were statistically significant for the relations between other-downing on one hand, and professional identity and patient treatment on the other hand, but in an unexpected way, namely negative. In contrast, for the psychotherapy trainees group, the obtained values were generally concordant to our hypotheses.

The between-group differences regarding both DES and four GABS scores were tested with two MANOVA procedures followed by a post hoc analysis consisted of a series of ANOVAs and t tests. For DASS variables and GABS self-downing and demand for fairness scales we used a series of Mann-Whitney tests considering that the distributions were not normal. The results should be interpreted accordingly to the $p$ values obtained as a result of applying the Bonferroni correction, as following: $p < .025$ for MANOVAs, as well as for self-downing and demand for fairness $U$ tests; $p < .016$ for DASS variables $U$ tests.

Table 3. MANOVA, ANOVA and independent t test for the differences between dental and psychotherapy students.

|                | Multivariate Test | ANOVA                     | Dental Students ($N = 30$) | Psychotherapy Trainees ($N = 30$) | t(58) | p    | d    |
|----------------|-------------------|---------------------------|-----------------------------|-----------------------------------|-------|------|------|
| DES            |                   |                           |                             |                                   |       |      |      |
| Professional Identity | .53              | 10.17*                    | 000                         | 53                                |       |      |      |
| Faculty Administration |               |                           |                             |                                   |       |      |      |
| Workload       |                   |                           |                             |                                   |       |      |      |
| Patient Treatment Performance Pressure |               |                           |                             |                                   |       |      |      |
| Personal Life  |                   |                           |                             |                                   |       |      |      |
| GABS           |                   |                           |                             |                                   |       |      |      |
| Need for achievement | .24              | 4.37*                     | 004                         | 24                                |       |      |      |
| Need for approval         | .581             | .449                      | .010                        | 12.17                             | 3.46  | .001 | .89  |
| Need for comfort          | .938             | .320                      | .003                        | 14.12                             | .39   | .76  | .449 |
| Other-downing         |                   |                           |                             |                                   |       |      |      |

Note. $*p < .025$ for multivariate tests (Bonferroni correction); the were not $p$ values $< (.05; .01); *p < .01$ for ANOVAs; $*p < .01$ for t tests.
The level of perceived professional stress, irrational beliefs and symptoms of anxiety were generally different from one group to another. Thus, the dental students reported higher levels of stress regarding professional identity, faculty administration, workload, patient treatment and performance pressure, more accentuated symptoms of anxiety ($U = 280.50, z = -2.53, p = .009, r = .32$) as well as more intense irrational beliefs regarding the need for comfort and demand for fairness ($U = 271.50, z = -2.65, p = .008, r = .34$). In contrast, the psychotherapy trainees had a higher tendency to make global judgments on others, compared to dental students. The differences regarding the intensity of depression ($U = 393.00, z = -.85, p = .39$) general stress ($U = 447.00, z = -.04, p = .96$) and self-downing ($U = 408.00, z = -.64, p = .52$) were not statistically significant.

4. Conclusions

Although our results were generally consistent with Ellis’ rational-emotive behavior theory (e.g., Dryden et al., 2010), suggesting that as irrational beliefs increased, professional stress, depression, anxiety and general stress were more prominent, we also found some surprising between-variables relations in the fact that as the dental students had a higher tendency to irrationally evaluate others, their perceived level of professional stress decreased, while in the case of psychotherapy trainees, these two variables were positively correlated. These findings might suggest that there could be some moderator or mediator factors that might intervene in the way other-downing is related to professional stress, and we recommend further research regarding this assumption. Moreover, there were some between-group differences that might be relevant in sustaining the importance of adapting the educational and psychotherapeutic prevention/intervention strategies depending on group particularities, but this is also an issue that needs more research. All in all, despite a series of methodological and statistical shortcomings, this paper highlights that professional stress might be associated with symptoms of anxiety, depression and general stress among both dental and psychotherapy students and brings to attention the necessity of conducting more studies regarding the mechanisms that might maintain and/or amplify professional stress in relation to mental health and well-being.

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