



# Article Burnout and Its Relation to Emotion Dysregulation and Social Cognition among Female Interns and Undergraduate Dental Students at King Khalid University

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**Copyright:** © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https:// creativecommons.org/licenses/by/ 4.0/). Abstract: Background: Burnout is a state of vital exhaustion that has a high global prevalence among dental professionals. Yet the early diagnosis of this syndrome is challenging due to its multidimensional nature. Aim: To assess burnout and its relation to emotional dysregulation and social cognition among undergraduate dental students. Methods: We mailed 148 self-administered questionnaires to all interns and undergraduate dental students belonging to the College of Dentistry's female campus at King Khalid University, Saudi Arabia. A questionnaire was designed comprising three measuring instruments of psychological inventories to assess work-related stress, namely, burnout (Copenhagen burnout inventory questionnaire (CBI)), emotional dysregulation (emotion regulation questionnaire (ERQ)), and social cognition (interpersonal reactivity index (IRI)). We examined the difference in burnout between two cohorts (interns and undergraduates) using Student's 't' test and the association between emotional regulation/social cognition domains using Pearson's correlation. Results: Among the participants, around 70% obtained higher scores than the cut-off points for personal and workrelated domains in both groups. There was no statistically significant difference in burnout domain between the two cohorts (p > 0.05; Cohen d < 0.3). A negative correlation existed between burnout and emotion regulation, i.e., higher burnout score is associated with lesser cognitive reappraisal and more expressive suppression (CBI—personal burnout r = -0.251; r = -0.220 respectively). Social cognitive scores had various associations among interns and undergraduates, with personal distress being significantly associated with greater burnout levels among both groups (p < 0.05). Conclusions: The present study revealed significantly elevated burnout levels among both interns and undergraduate students. Emotional dysfunction and social cognition assessment can be a valuable adjunct in identifying this erosive syndrome. Early recognition and primordial prevention targeting burnout are strongly recommended.

Keywords: burnout; dentistry; emotional regulation; social cognition

## 1. Introduction

Dentistry is a gratifying, yet challenging profession. It requires an enormous number of poised social, cognitive, psychological, and emotional interactions to emerge as a successful dental professional [1]. Prolonged working hours, a highly competitive academic curriculum, and challenging clinical practice are among the significant factors that make dentistry one of the professions with the highest burnout rates [2,3]. Burnout is manifested as a working environment syndrome and is a triad of "emotional exhaustion" (EE), "depersonalization" (DP), and low "personal accomplishment" (PA) [4]. Occupational burnout has emerged as a global pandemic with a significant impact, urging the World Health Organization (WHO) to classify it as a disease in ICD-10 (International Classification of Diseases) [5]. Higher levels of burnout have been reported among dental students and practitioners from various parts of the world, owing to multiple types of stress they face daily [6–9].

Burnout affects the dentist at all career stages, starting from education at dental schools to clinical practice [10]. A recent meta-analysis among medical professional students depicted diverse and continuously changing study environments across countries [3].

The highly demanding learning environment at dental schools, which require theoretical and clinical training and daily patient interaction, has emerged as a significant factor in inducing burnout among dental students [11,12]. Evidence suggested a higher prevalence of burnout among dental students and young professionals than established professionals [13]. However, awareness of these mental health issues in dental schools and during the internship is still in infancy. Hence, identifying this multifaceted work-related construct earlier and drafting coping/preventive strategies to target these professionals during training is highly recommended.

A recent systematic review conducted during this COVID-19 pandemic revealed that dental professionals faced higher levels of depression compared to other professional students [9]. Early identification of burnout remains quite challenging. Hence, identifying regulatory strategies closely associated with burnout has become essential. A recent study indicates emotional dysregulation and social cognition as two immense predictors of occupational burnout [14]. Although a few studies report the presence of occupational burnout among medical and dental professionals in Saudi Arabia [15–17], none exclusively evaluated burnout among the female dental students and interns of this region during the COVID-19 pandemic. For cultural reasons, most of Saudi Arabia's education system follows gender segregation, including higher education institutions. Since the authors belong to the female campus of the College of Dentistry, this study was conducted among female interns and postgraduate students. This study is of great significance because dental interns and postgraduate students form the majority of frontline healthcare workers in any dental college. It is crucial to understand burnout and emotional dysregulation among them in order to ensure psychological well-being and mental health. Therefore, this research aimed to understand the levels of burnout and its relation to emotional dysregulation and social cognition among undergraduate students and interns in the female campus of College of Dentistry, King Khalid University, Abha, Saudi Arabia. Hence, the study's primary objective was to assess the levels of burnout among interns and undergraduates.

The secondary objectives included setting different emotional regulation strategies and evaluating their relationship with burnout, as well as the association between social cognitive difficulties and vulnerability to burnout among these students and interns.

Social cognition, in the present study, was defined and measured, as stated by Davies, using four subscales: "perspective-taking—the tendency to spontaneously adopt the psychological point of view of others", "fantasy—the tendency to transpose oneself imaginatively into the feelings and actions of fictitious characters in books, movies, and plays", "empathic concern—'other-oriented' feelings of sympathy and concern for unfortunate others", and "personal distress—'self-oriented' feelings of personal anxiety and unease in tense interpersonal settings" [18]. Emotional regulation was used to measure respondents' tendency to regulate their emotions in two ways: "cognitive reappraisal—a way that reduced emotional responding", and "expressive suppression—suppressing one's emotional behavior, i.e., in particular, how one controls, regulate or manage his/her emotions" [19].

#### 2. Methodology

#### 2.1. Participants

This cross-sectional study was conducted among undergraduate dental students at the female campus of College of Dentistry, King Khalid University, in the month of December 2020. Forty dental interns and 108 undergraduate students (from academic Level 8 to Level 12),

who gave informed consent, formed the study population. An electronic survey form was mailed to both the cohorts to participate in the study. The Institutional Review Board approved the study (IRB/KKUCOD/ETH/2020-21/005) before sending the question-naires. Dental interns and undergraduate students willing to participate were included in this study.

#### 2.2. Procedure

All potential participants were mailed self-administered questionnaires and informed about the study's aims, methods, and objectives. They were asked to complete the whole box of questionnaires. The term "burnout syndrome" was not mentioned directly to avoid the risk of framing.

#### 2.3. Measurements

A valid and reliable questionnaire was designed, comprising three measuring instruments of psychological inventories to assess work-related stress: burnout (Copenhagen burnout inventory questionnaire (CBI)) [20], emotional dysregulation (emotion regulation questionnaire (ERQ)) [19], and social cognition (interpersonal reactivity index (IRI)) [21].

#### 2.4. Burnout

The Copenhagen burnout inventory (CBI) consists of three subscales of burnout to measure the physical and psychological fatigue and exhaustion experienced by the person in three domains, namely the personal domain (for example, 'How often do you think: 'I can't take it anymore?'); the work domain (for example, 'Does your work frustrate you?'); and the client/patient-related domain (for example, 'Does it drain your energy to work with clients?'). All questions have five possible answers. The average of the items' scores was calculated as the total score by converting the answers into a scoring system ranging from 0 to 100 in a way that the response 'always' scored 100; 'often' scored 75; 'sometimes' scored 50; 'seldom' scored 25 and 'never/almost never' scored 0). A score of more than 50 points indicates burnout [22,23].

#### 2.5. Emotion Regulation

A ten-item scale was used to index respondents' tendency to regulate their emotions in two ways. One is their emotional experience of what they felt inside and the ability to cognitively change emotionally evocative stimuli—"cognitive reappraisal" (for example, "I control my emotions by changing the way I think about the situation I am in"). The other is the emotional suppression of their behavior—"expressive suppression" (for example, "When I am feeling negative emotions, I make sure not to express them"). Respondents answered each item on a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). The cognitive reappraisal facet was comprised of items 1, 3, 5, 7, 8, 10, while the expression facet was made up of 2, 4, 6, 9.

#### 2.6. Social Cognitive Function

The interpersonal reactivity inventory (IRI) was used to index social cognitive function. This consists of 28 items divided into 3 subscales with 7 items each, answered on a 5-point Likert scale ranging from "Does not describe me well" to "Describes me very well". The first subscale assesses perspective-taking, i.e., the tendency to spontaneously adopt others' perspectives. (For example, "I try to look at everybody's side of a disagreement before I make a decision"). Second is the fantasy subscale; it taps the respondents' tendencies to transpose themselves imaginatively into fictitious characters' feelings and actions in books, movies, and plays (for example, "When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me"). The third is the empathic concern subscale, which assesses feelings that concern others (for instance, "I am often quite touched by things that I see happen"). Finally, the personal distress subscale

evaluates feelings of personal anxiety and uneasiness towards others' distress (for example, "I tend to lose control during emergencies").

#### 2.7. Statistical Analysis

Data analysis (descriptive statistics and inferential statistics) was carried out using SPSS version Windows 20.0 (IBM, Armonk, NY, USA). As Kolmogorov–Smirnov verified the normality of the distribution, Student's *t*-test was applied to compare interns' and undergraduates' scores. The Pearson's correlation was computed to estimate the direct or indirect association of burnout with emotional dysregulation and social cognition. A statistically significant difference was accepted at a *p*-value of less than 5%.

#### 3. Results

In this study, when interns were compared to undergraduate students, the burnout scores, as indexed by all three subscales of CBI were 56.7 + 13.8; 56.1 + 12.7, 44.8 + 19.8 and 57.9 + 16.5; 57.3 + 16.7; 42.3 + 21.2 respectively (Table 1) There was no statistically significant difference in the burnout domain between the two cohorts (p > 0.05). Effect size values of Cohen's *d* score less than 0.3 further substantiated the above statement. A domain-wise audit revealed that more than 70% had burnout in the work and stress-related domains. The 50% and 39% of interns and students experiencing patient-related burnout had higher stress.

**Table 1.** Comparison of burnout, emotional regulation, and social cognitive scores among interns and undergraduate dental students.

Burnout Measure	Interns Undergraduate Students		ate Students	t	p Value	Cohen' s d	
	Mean	SD	Mean	SD			
CBI—personal burnout	56.7654	13.82950	57.9513	16.53423	-0.404	0.687	0.085751
CBI— work-related burnout	56.1096	12.75079	57.3735	16.70977	-0.434	0.665	0.099123
CBI— patient-related burnout	44.8049	19.84173	42.3082	21.29829	0.645	0.520	0.125831
ER- cognitive reappraisal	4.8255	1.39224	4.6046	1.31913	0.891	0.374	0.158665
ER—expressive suppression	4.0021	1.35632	4.1384	1.16144	-0.605	0.546	0.100493
IRI—perspective-taking	2.1452	0.84826	2.1606	0.76250	-0.106	0.916	0.018155
IRI—fantasy	1.9950	0.68877	2.0222	0.80135	-0.190	0.850	0.039491
IRI—empathic concern	2.3730	0.77528	2.2105	0.81539	1.091	0.277	0.201896
IRI—personal distress	2.0506	0.68195	2.0966	0.60637	-0.396	0.693	0.067454

#### 3.1. Emotional Regulation Domains and Burnout

The relationship of emotional regulation with burnout revealed a similar correlation pattern among interns and undergraduate dental students. Mean scores of both cohorts for all two subscales were 4.8 + 1.3; 4.0 + 1.3/4.6 + 1.3; 4.3 + 1.1 respectively (Table 1). A negative correlation existed between burnout and emotion regulation, i.e., a higher burnout score is associated with lesser cognitive reappraisal and more expressive suppression (CBI—personal burnout r = -0.251; r = -0.220 respectively) among dental students, whereas interns managed expressive suppression as seen in Table 2.

	E R-Cognitive Reappraisal	ER-Expressive Suppression			
	Interns				
CBI—personal burnout	-0.025	0.188			
CBI—work-related burnout	-0.081	-0.066			
CBI—patient-related burnout	-0.217	0.065			
Undergraduate Students					
CBI—personal burnout	-0.251 **	-0.220 *			
CBI—work-related burnout	-0.130	-0.190 *			
CBI—patient-related burnout	-0.062	0.027			

**Table 2.** Correlation of emotional regulation with burnout scores among interns and undergraduate students.

\* *p* less than 0.05, \*\* *p* less than 0.01.

#### 3.2. Social Cognitive Dysfunction and Burnout

Comparing the domains of burnout with cognitive subscales revealed a mild positive correlation between IRI fantasy, empathetic cognition and personal distress among interns (CBI—patient-related burnout (r = 0.247; r = 0.232; r = 0.215; r = 0.190 respectively), whereas undergraduate students had negative correlations for three social cognitive functions, especially perspective-taking, fantasy (Graph 1), and empathetic concern; whereas personal distress had a direct link, as given in Table 3.

**Table 3.** Correlation of social cognitive function with burnout scores among interns and undergraduate students.

	IRI-Perspective Taking	IRI-Fantasy	IRI-Empathic Concern	IRI-Personal Distress					
Interns									
CBI—personal burnout	-0.221	0.048	0.041	0.038					
CBI—work-related burnout	-0.154	0.060	0.036	0.082					
CBI—patient-related burnout	0.247	0.232	0.215	0.190					
Undergraduate Students									
CBI—personal burnout	0.019	-0.113	-0.082	0.021					
CBI—work-related burnout	-0.076	-0.108	-0.085	0.067					
CBI—patient-related burnout	-0.159	-0.257 **	-0.093	0.037					

\*\* *p* less than 0.01.

## 4. Discussion

It is widely acknowledged that there is a significant variation in work-stress perception among dental students [24]. Despite this, a considerable amount of burnout has been reported among dental students worldwide [25–29]. Although several behavioral and psychological factors predispose burnout syndrome among undergraduate dental students, their associations with the induction of burnout are still underresearched. Studies revealed that dentistry stressors are different from those in medical and allied sciences [30]. Hence, in this study, we investigated the relationship of two strategies, emotional regulation and social cognitions, with this erosive condition of burnout.

#### 4.1. Prevalence of Burnout

The present study reported that more than two-thirds of the study cohorts had burnout in the personal and work-related domains, the average emphasizing the patient domain. This is similar to previous reports by some authors [3,14,31]. Higher levels of patient-related burnout reported in interns than in students may be due to their increased client/patient

responsibility. It has been found that healthcare students are prone to more depression than the general public even before entering internship/residency, which could affect their mental health even as they join the workforce as healthcare professionals [3]. Psychological distress among final-year students as they move from student life to internship is a cause of exhaustion a few months after graduation [32].

#### 4.2. Correlates of Emotional Dysregulation and Burnout

Evidence supports that participants who had work-related stress were less capable of downregulating their negative emotions and altered stress-processing mechanism [33,34]. In this study, both the cohorts had the same (negative) relationship for all burnout subscale components substantiating the above sentence. Reports from institutional settings show that various emotional suppression mechanisms are linked with excessive burnout levels and contribute to depersonalization [35].

#### 4.3. Cognitive Reappraisal

Considering emotional regulation in the cognitive 'reappraisal' context, it revealed an overall indirect relationship with all subscales, indicating that students and undergraduates have problems cognitively rephrasing their emotions as their burnout symptoms dominate. In particular, personal burnout scores among undergraduates had an inverse relationship with reappraisal, denoting their difficulty in articulating negative emotions. Hence, emotional regulation was a good predictor of burnout in all aspects. This corroborated the previous research on burnout [36]. Research also shows consistent inverse relationships between emotional control and burnout were one of the most significant predictors of burnout, as were workloads and the work/family interface [33]. This research also suggests a buffering effect of enhanced emotional intelligence in cases of burnout.

#### 4.4. Expressive Suppression

Withholding one's emotion during interpersonal communication reveals 'expressive suppression'. In this study, interns who had indirect rapport with the work-related domain told us of their enthusiastic learning nature. On the contrary, students with only client-related domains had emotional setbacks, indicating that they take patient work in a stressful way.

#### 4.5. Correlates of Social Cognition and Burnout

The interns' social cognitive functions had a positive correlation for all three burnout subscales, except for perspective-taking; whereas, in students, only personal distress had a direct link with professional stress.

## 4.6. Perspective-Taking

Perspective-taking means trying to look at things from another person's point of view. The negative link of this trait with personal and work-related domains indicated that as the burnout level increases, it freezes students' ability to think of others' points of view. Interns' positive associations of this trait with the patient-related domain alone indicated that they analyze or understand patients' feelings more. For example, when delivering a prosthesis with mild deformities, interns' stress and anxiety levels increased as they cogitated things from their patient's/client's positions, indicating that increasing years of experience increases perspective-taking ability and leads to higher stress levels. This may also be attributed to interns' higher maturity level than that of the undergraduates.

Similar to the study reported earlier [14], undergraduates had indirect relations with two dimensions of burnout in this study—personal burnout was positively associated with perspective-taking, which indicated that direct monitoring and guidance of faculties could make them think that the whole patient responsibility was vested with the clinical supervisors. Hence, they found it challenging to adapt to others' psychological aspects.

#### 4.7. Fantasy

Indirect association of burnout with IRI fantasy in undergraduates revealed they are more realistic and fantasize less, which may be due to lesser leisure time and autonomy as they are under the direct surveillance of faculties. In contrast, interns' burnout positively correlates with the fantasy score, indicating that this population tries to handle stress by imagining and engaging in fantasizing things. The overall fantasy scale had varied results, denoting that it changed based on the year of study.

#### 4.8. Empathetic Concern

As feelings of sympathy and concern for unfortunate others increased, burnout too increased among interns, and the vice versa case remains valid for undergraduates, the rationale being the same as for perspective-taking.

#### 4.9. Personal Distress

Among the social cognitive parameters, personal distress was significantly associated with a more significant burnout level among both groups. The study done among undergraduate dentists in Queensland indicated it to be a reliable strategic predictor of professional stress in dental students [14].

## 5. Influence of Pandemic on Burnout, Emotional Regulation, and Social Cognitive Scores

The COVID-19 pandemic could influence the results of the study in varying proportions. Since there is no available literature to compare burnout levels in dental students and interns during the pandemic, we chose to review findings among dental practitioners. In a recent survey among dental defense unit professionals based in the UK, more than half of the participants (68%) reported an increase in their stress and anxiety during this pandemic [37]. On the contrary, lower psychological distress was reported in the UK's general dental practitioners during the national lockdown period compared to other reports [24]. Another study among Israeli dentists showed increased psychological distress among those with preexisting diseases, apprehension of getting infected with COVID-19 from their patients, and a higher workload, whereas those in a committed relationship and those that had higher self-efficacy scores exhibited lower burnout and distress [38].

To the best of our knowledge, this study is the first of its kind that addresses the issue of burnout and its relation to emotion dysregulation and social cognition among interns and undergraduate students at a dental school in Saudi Arabia. This study is even more significant as it reflects the burnout among these groups during the COVID-19 pandemic. This paper is also one among few studies to evaluate burnout's multidimensional aspect by validating its emotional dysfunction and cognition domain associations. However, selection bias could be possible when assessing this study's generalizability, as data were collected from one geographical area. Moreover, burnout is a fluctuating and chronic phenomenon, reliability of cross-sectional study's reliability should be validated. Furthermore, the variables are measured by the subjective method without behavioral observation, which can under- or overestimate study results.

We would like to make the following recommendations:

- 1. It is important to engage in prevention of burnout and emotional dysregulation among female interns and postgraduate students by means of reduced work hours, arranging rooms for rest, and arranging for psychological counselling whenever the need arises.
- Comprehensive training of supervisors, faculty members, and administration is necessary for a deeper understanding of students' problems and attitudes.
- 3. Initiating more positive stress-free learning and clinical environments is important to emphasize the stimulatory aspects of work.
- 4. Changing modalities of evaluation to reduce the importance of ranking method is recommended.
- 5. Nonacademic domains, i.e., cultural and sports, should be included as part of the dental curriculum to alleviate the interpersonal stress domain.

- 6. Periodic continuing dental education programs/workshops to train and retrain young minds toward poised emotional and cognitive health should be targeted as a primary preventive measure against this multifaceted condition.
- 7. Introduction of interventions to improve emotional intelligence is recommended to enable emotional coping resources and social skills.

## 6. Conclusions

In this study, more than two-thirds of the study cohort was found to be under the clutches of occupational burnout. The emotional regulation–burnout relation showed a negative correlation among interns and undergraduate dental students, while undergraduate students showed a negative correlation with most social cognitive functions. Therefore, it can be concluded that burnout is prevalent among dental students and interns. Furthermore, emotional dysfunction and social cognition assessment can be valuable adjuncts in identifying this erosive syndrome. Early recognition and prevention tactics for targeting burnout are highly recommended in this population.

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