Ministry of Higher Education

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Alkindy College of Medicine

Prevalence of burnout syndrome among medical students in Al-kindy College of Medicine

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Abstract

Background: psychological burnout in general is a psychological or mental condition that disturbs individuals who work in professions whose nature is dealing with many people and these workers usually give more than they take. Burnout can be seen among health professionals at every stage of their careers. The incidence of burnout among health care professionals varies among countries, ranging from 25% to 75%, depending on different areas of specialization and work units. Studies conducted on nurses and assistant health personnel have provided burnout rates of approximately 30-50%. The frequency of burnout among doctors varies depending on the branches and the work units. The aim of this survey is to demonstrate the prevalence of burnout syndrome on medical students at Al-kindy College of Medicine.

Sample and methods: A randomized, cross-sectional study was performed to investigate the side effects of burnout syndrome on medical students in Iraq. Using an independent online questionnaire gathering responses from Iraqi population (specifically Baghdad). Samples collection started from October 2022 to January, 2023 through online platform (Google forms) and we spread the link to the medical students in all governments of Iraq.

Results: 750 response was recorded. 66.53% of participants were females and 33.47% males. The results showed that 70.80% of the participants had burnout, of which 48% in females and 22.80% in males. Lowest rate of burnout found in students at first stage of study 5.87%. Emotional exhaustion revealed that burnout appeared in 14.93% of females and 3.87% of males and in lower extent at 23.07% and 11.33% of females and males, respectively. While, females and males exhibited mild burnout syndrome at 28.53% and 18.27%, respectively. Comparable results

were found in depersonalization and personal accomplishment where students showed higher rate of burnout.

Conclusion: there is a high prevalence of burnout syndrome among Iraqi medical students.

Keywords: burnout, syndrome, medical students. Maslach burnout inventory

1. Introduction

The concept of psychological burnout is considered one of the modern and relative concepts. Freud Neberger was the first to use this term in the early seventies to refer to the physical and emotional responses to work pressures among workers in the humanitarian professions and at more or less the same time was popularized by Ginsburg (1). The concept of psychological burnout has become a widespread term and Maslach has shown that this dangerous phenomenon affects professionals causing them frustration with commitment to their work as a result of the work pressures that people in the work environment are exposed to where the individual feels exhaustion, inadequacy and inability to perform the work at the required level (2).

Despite the multiplicity of definitions of psychological burnout there is an agreement on its meaning and characteristics in a way. In general, the followings are some definitions of the concept of psychological burnout:

1-Chernis define: Burnout is a syndrome related to work over load and associated generally with the helping professions.

2- Maslach explained a definition of psychological burnout as: the loss of interest that makes this individual lose a sense of achievement and thus lose his sympathy for the workers (3).

Maslach and Jackson define burnout in three dimensions (3):
A- An increase in the feeling of fatigue and emotional exhaustion
B- Emotions dull which means that workers start having negative thoughts
C- A sense of incompleteness which means the tendency of workers to evaluate themselves negatively.

3-Tyler defined psychological burnout as: exhaustion and depletion of strength and activity.

4- Kyriakou defined psychological burnout as: behavioral indicators resulting from the psychological pressure that an individual is exposed to while working for a long time.

1.1Background:

In the modern classifications of psychiatry in the tenth classification of mental disorders issued by the World Health Organization under the title “Problems Associated with Dealing with Life Difficulties” a pathological condition called burnout disease. Psychological burnout in general is a psychological or mental condition that disturbs individuals who work in professions whose nature is dealing with many people and these workers usually give more than they take.

After presenting a set of definitions of psychological burnout by different researchers and in different periods we can define psychological burnout as a state of mental, physical and emotional fatigue and stress characterized by constant fatigue, a feeling of frustration and helplessness, and the development of a negative concept and negative attitudes towards work and colleagues at work. Whereas the descriptions from the late 1960s are clearly colored by the social attitudes of those years, at the beginning of the present century Farber (4) points to a remarkable change in the form of burnout. He described the classical burnout victims of the 1970s and 1980s as people who failed to reach high altruistic goals, people who at least on the surface had been idealists.

Individuals of that kind seem to have become the exception today. In contrast, he said "Today’s burnout stems largely from pressure to fulfill the escalating requirements of others or from the intense competition to be better than others in the same organization or company or from the drive to make more and more money, or

from the feeling that something that one obviously deserves is being withheld" (2).

Burnout phase model (5).

- Compulsion to prove oneself (excessive ambition).
- Working harder.
- Neglecting own needs.
- Displacement of conflicts and needs.
- No longer any time for non-work-related needs.
- Increasing denial of the problem, decreasing flexibility of thought/behavior.
- Withdrawal, lack of direction, cynicism.
- Behavioral changes/psychological reactions.
- Depersonalization: loss of contact with self and own needs.
- Inner emptiness, anxiety, addictive behavior.
- Increasing feeling of meaninglessness and lack of interest.
- Physical exhaustion that can be life-threatening (2, 5).

Burnout can be seen among health professionals at every stage of their careers (6). The incidence of burnout among health care professionals varies among countries, ranging from 25% to 75%, depending on different areas of specialization and work units. Studies conducted on nurses and assistant health personnel have provided burnout rates of approximately 30-50%. The frequency of burnout among doctors varies depending on the branches and the work units (7). Table 1 contains a comparison between burnout and depression while, features of burnout are shown in Table 2.

Table 1. Comparison between burnout and depression.

	Burnout	**Major depressive disorder**
Core features	Extreme emotional and physical exhaustion, depersonalization and decreased sense of accomplishment.	Persistently depressed mode and/or loss of interest/pleasure in daily activities, fatigue, functional impairment
Common features	Extreme exhaustion Feeling unhappy Reduced performance	Extreme exhaustion Feeling unhappy Reduced performance
Context	Job-related and situational	General
Affect	Variable; may feature positive emotions and use of humor.	Sad, blunted, restricted
Thought content	Preoccupation with work Self-esteem preserved	Feeling of hopelessness Suicidality Mood-congruent delusions Low self-esteem
Course	Correlate with workload May resolve with changes in work, environment, workplace, or other occupational factors.	Persistent

Table 2. Features of burnout syndrome

Warning symptoms in the early phase
Increased commitment in goals
Exhaustion
Reduced commitment to:
-patients and clients
-others in general
-work
-increased demands
Emotional reactions:
Depression and or aggression
Reduced:
Cognitive performance
Motivation
Creativity
Judgment
Flattened :
Emotional life
Social life
Intellectual life
Psychosomatic reaction
Despair

2. Aim of the study

To demonstrate the impact of burnout syndrome on medical students in Al-Kindy College of Medicine.

3. Sample collection and methods

A randomized, cross-sectional study was performed to investigate the side effects of burnout syndrome on medical students of Al-kindy College of Medicine. Using an independent online questionnaire gathering responses from Iraqi population (specifically Baghdad). Samples collection started from October 2022 to January, 2023 through online platform (Google forms) and we spread the link to the medical students in the college. We investigated their status by three prepared tests to identify what they feel and their thoughts about burnout syndrome. The tests explore emotional exhaustion (EE), depersonalization (DP), and the sensation of reduced personal accomplishment (PA). The 7-level frequency scale for all scales is as follows:

```
Never (0)
A few times a year or less (1)
Once a month or less (2)
A few times a month (3)
Once a week (4)
A few times a week (5)
Every day (6)
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The emotional exhaustion score included nine items with a score range of 0–54 (a score of < 19 was considered low burnout, 19–26 reflected moderate burnout, and > 26 reflected high burnout. Depersonalization with a score range of 0–30 points (< 6 reflected low burnout, 6–9 reflected moderate burnout, and > 9 indicated high burnout). The personal accomplishment evaluation included eight items with a score range of 0–48 points (> 39 reflected low burnout, 34–39 indicated moderate burnout, and < 34 reflected high burnout) (8).

We also asked them about their residency, age, gender, their social status their feelings during studying, etc. We took permissions from the participants to use their information in our study avoiding personal questions. We also put ethics in

consideration by avoiding the use of individual's personal information such as names because there might be some embarrassment of symptoms by population. We collected the data by google forms processing option into Excel file which consisted of 750 responses from all Iraqi governments. The results obtained were analyzed by Statistical Package for the Social Sciences SPSS (version 25). We expressed the qualitative date by frequencies and the quantitative data by arithmetic mean and standard deviation.

4. Results

4.1. Demographical distribution

750 students participated in this survey from all Iraqi cities who were studying at Alkindy College of Medicine. 499 female students and 251 male students were participated in this study.

Table 3. Distribution of participated students according to their gender and age

Characteristics	Variables	Number	Percent %
Age (y)	18-22	503	67.07
	22-26	215	28.67
	26-30	32	4.27
Gender	Male	251	33.47
	Female	499	66.53
Educational stage	First	69	9.20
	Second	153	20.40
	Third	200	26.67
	Fourth	133	17.73
	Fifth	85	11.33
	Sixth	110	14.67
Lectures per day	1-2	473	63.07
	3-4	205	27.33
	More than that	72	9.60
Study hours per day (h)	1-6 h	596	79.47
	12-18 h	20	2.67
	6-12 h	134	17.87
Living during study	University Housing	115	15.33
	Family house	635	84.67

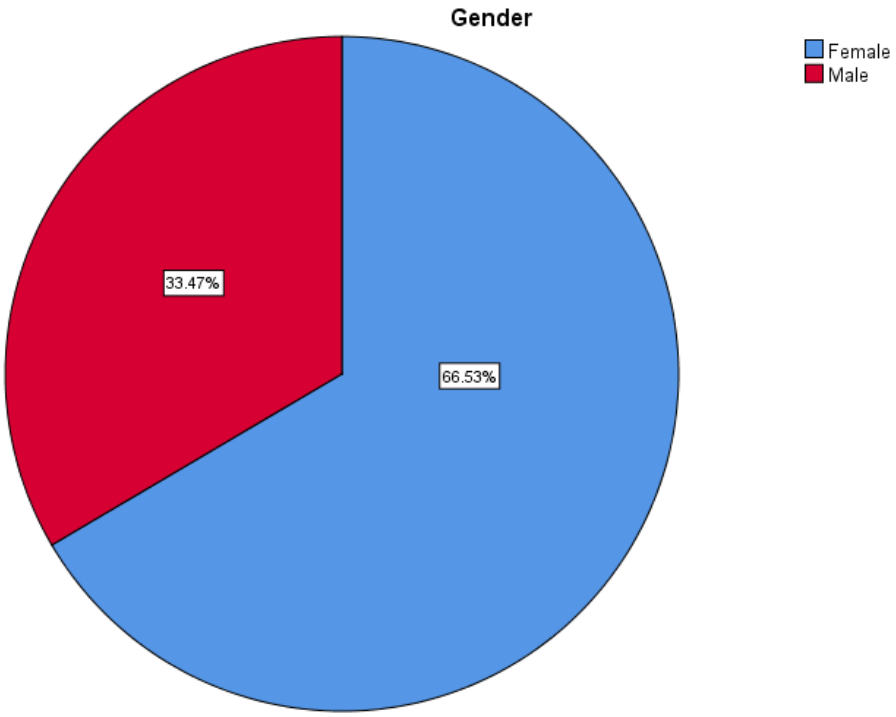

Figure (1): Gender distribution of the participants

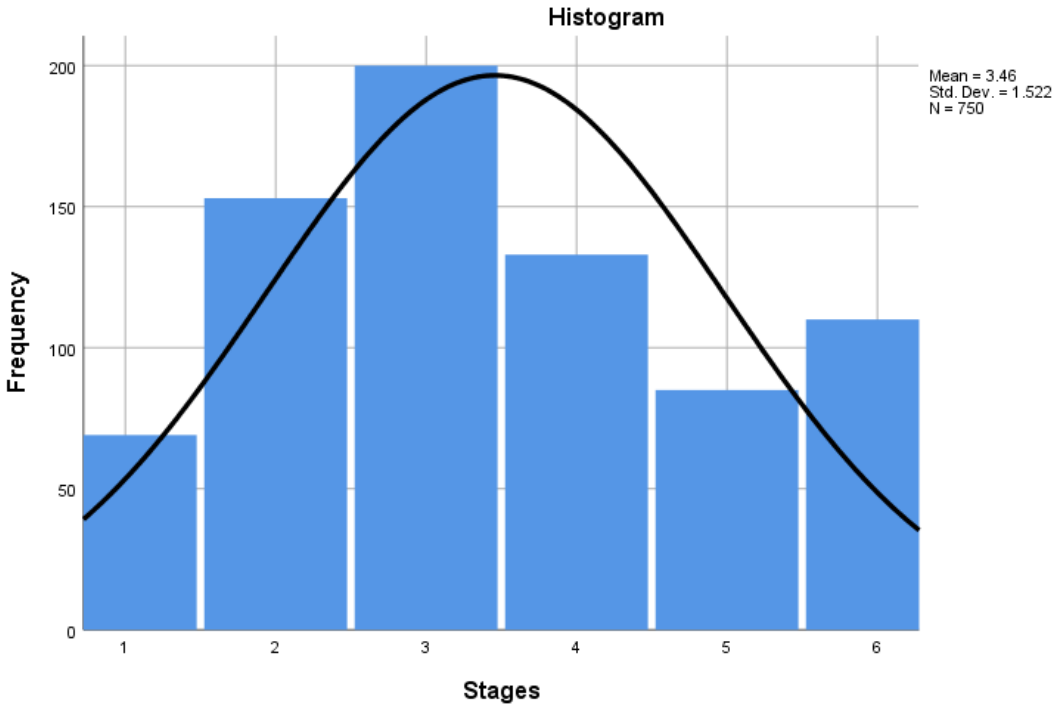

Figure (2): Distribution of participated students according to their stages of study

4.2 Emotional Exhaustion (EE)

Emotional exhaustion refers to a student who feels emotionally overextended and exhausted because of the study. Therefore, more emotional exhaustion is found among students with higher levels of burnout. Results showed that 38% of female students who participated in the study showed burnout syndrome with different extent (moderate to high) while 15.2% of male students showed burnout syndrome.

Table (4): Emotional exhaustion between participated students

	Gender	
	Female	Male
Mild Burnout	28.53%	18.27%
Moderate Burnout	23.07%	11.33%
Severe Burnout	14.93%	3.87%
Total	66.53%	33.47%

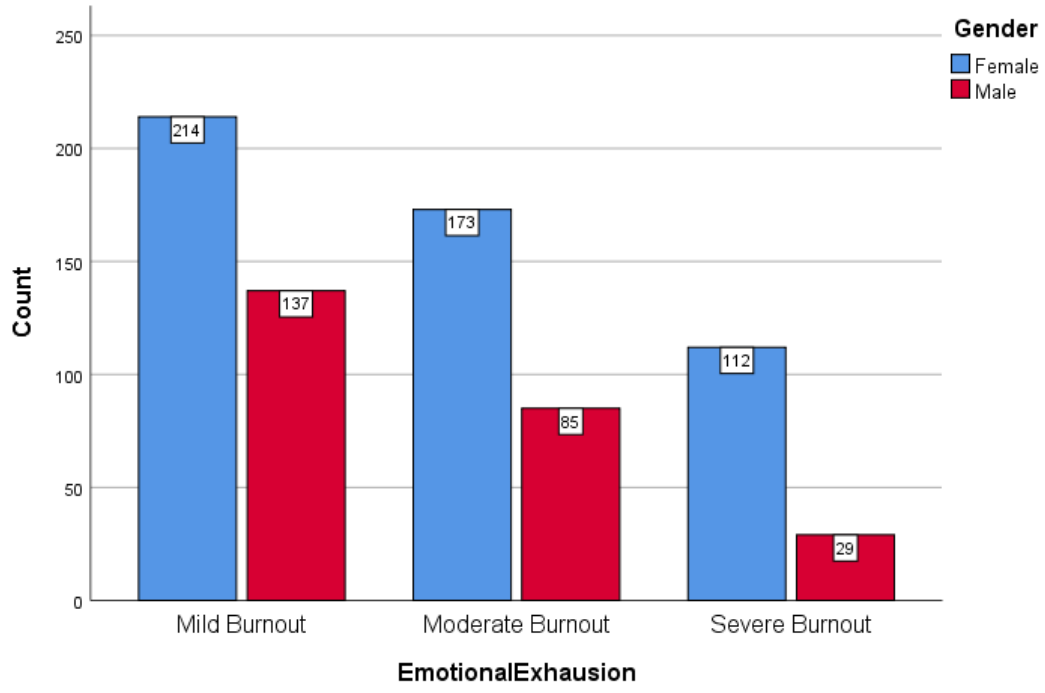

Figure (3): Emotional exhaustion between males and females

Table (5): Emotional exhaustion between males and females at different stages of study

		First	Second	Third	Fourth	Fifth	Sixth
Female	Mild Burnout	31.88%	32.03%	30.50%	24.81%	23.53%	26.365
	Moderate Burnout	20.29%	18.95%	20.00%	29.32%	23.53%	28.18%
	Severe Burnout	8.70%	18.30%	16.50%	10.53%	18.82%	13.645
Male	Mild Burnout	24.64%	9.80%	17.50%	21.80%	23.53%	19.09%
	Moderate Burnout	10.14%	16.34%	13.50%	9.02%	5.88%	8.18%
	Severe Burnout	4.35%	4.58%	2.00%	4.51%	4.71%	4.55%

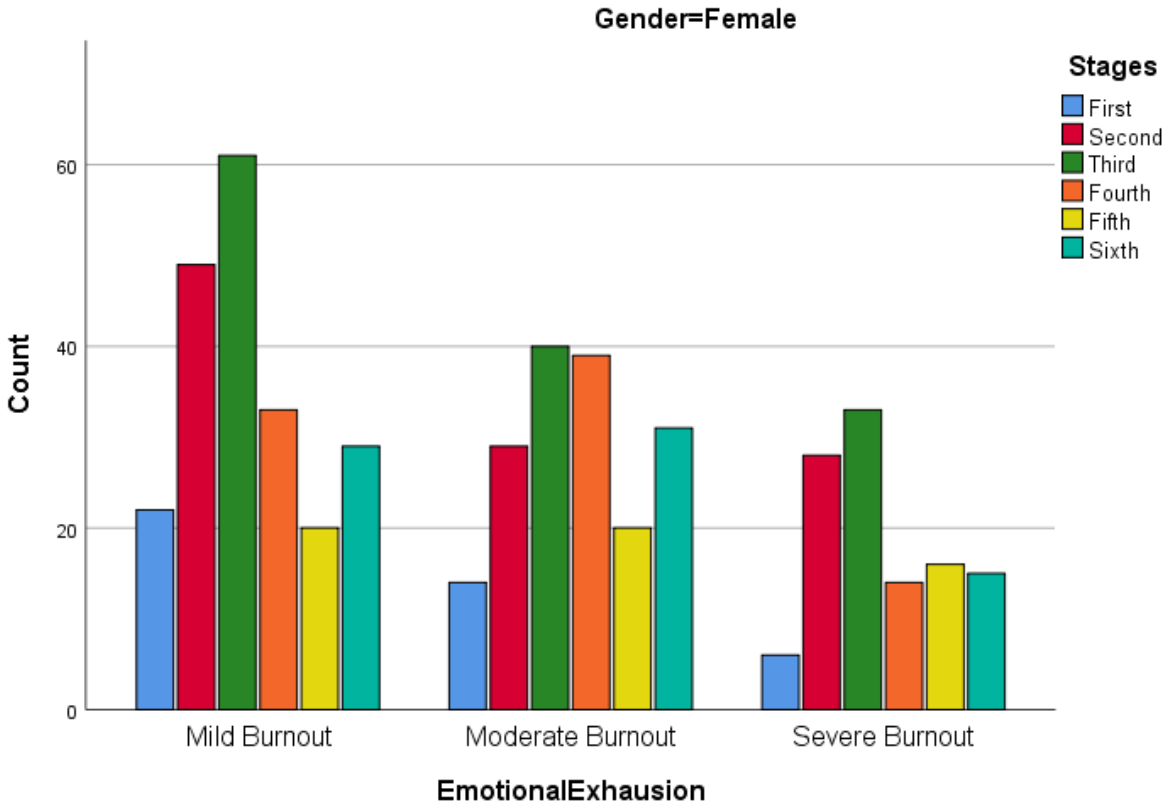

Figure (4): Emotional exhaustion of females according to their stage of study.

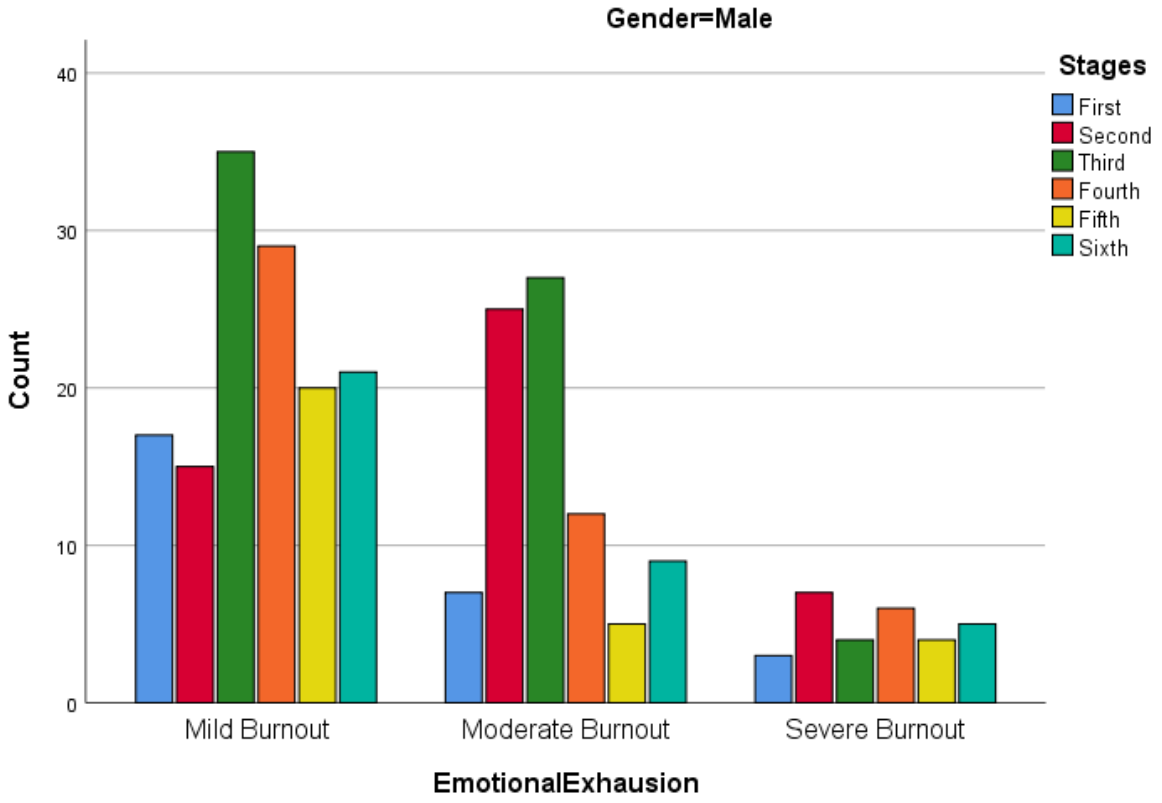

Figure (5): Emotional exhaustion of males according to their stage of study.

4.3 Depersonalization (DP)

Depersonalization measures an unfeeling response toward colleagues. Females showed higher rate of depersonalization (61.07%) by increased burnout subscales (moderate and severe burnout) and (29.47%) in males.

Table (6): Depersonalization between participated students.

	Gender	
	Female	Male
Mild Burnout	5.47%	4.00%
Moderate Burnout	13.07%	6.67%
Severe Burnout	48.00%	22.80%
Total	66.53%	33.47%

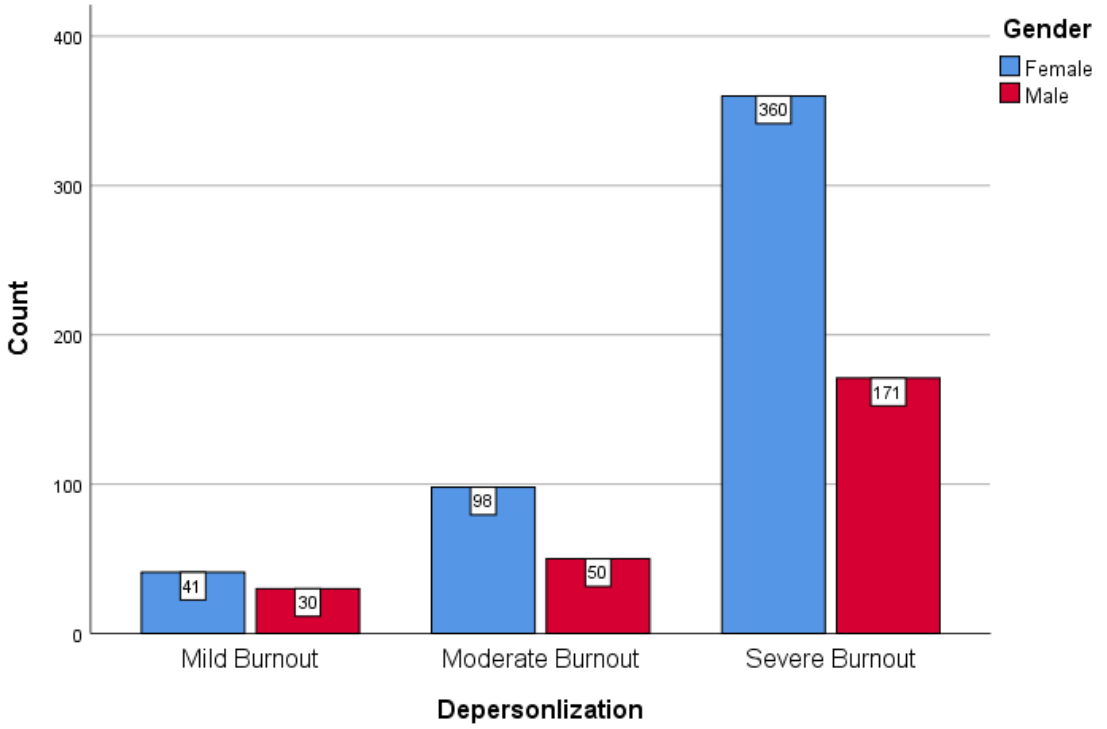

Figure (6): Depersonalization between males and females

Table (7): Depersonalization between males and females at different stages of study

		First	Second	Third	Fourth	Fifth	Sixth
Female	Mild Burnout	7.25%	5.23%	5.50%	5.26%	0.00%	9.09%
	Moderate Burnout	17.39%	18.30%	12.50%	9.77%	14.12%	7.27%
	Severe Burnout	36.23%	45.75%	49.00%	49.62%	51.76%	51.82%
Male	Mild Burnout	7.25%	1.96%	4.00%	3.01%	4.71%	5.45%
	Moderate Burnout	4.35%	4.58%	6.50%	8.27%	8.24%	8.18%
	Severe Burnout	27.54%	24.18%	22.50%	24.06%	21.18%	18.18%

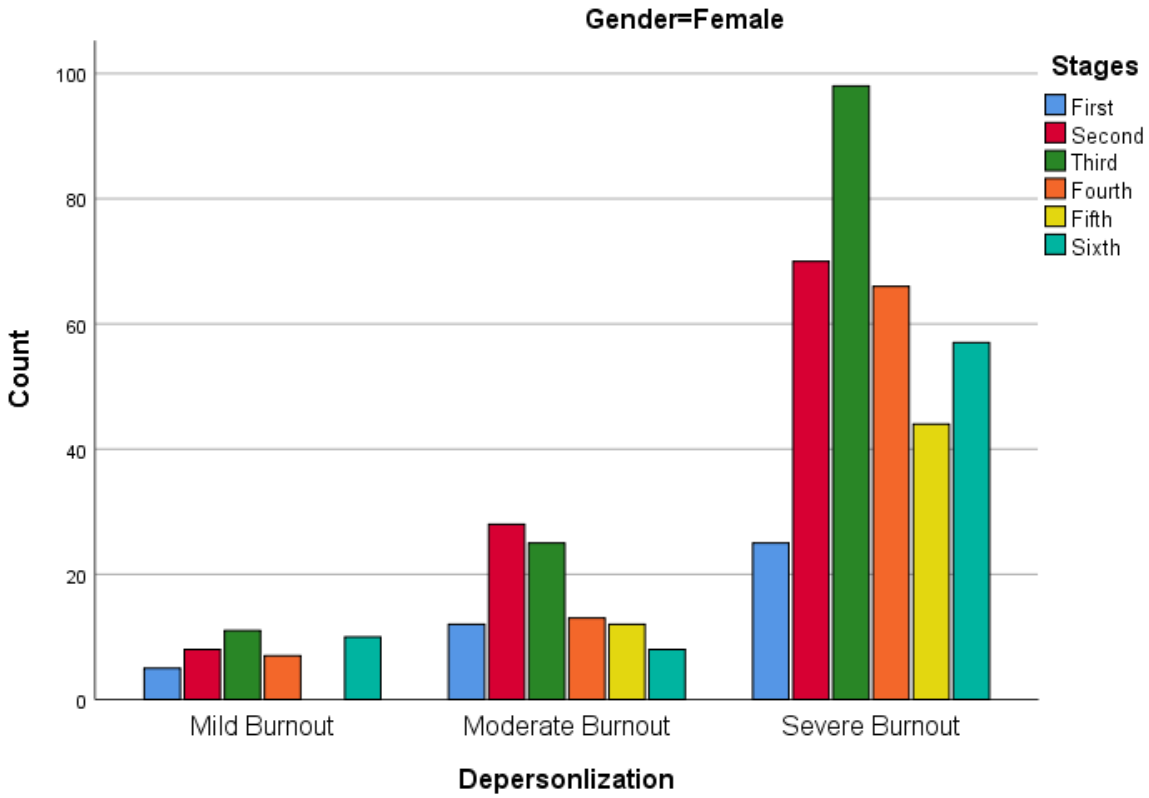

Figure (8): Depersonalization of females according to their stage of study.

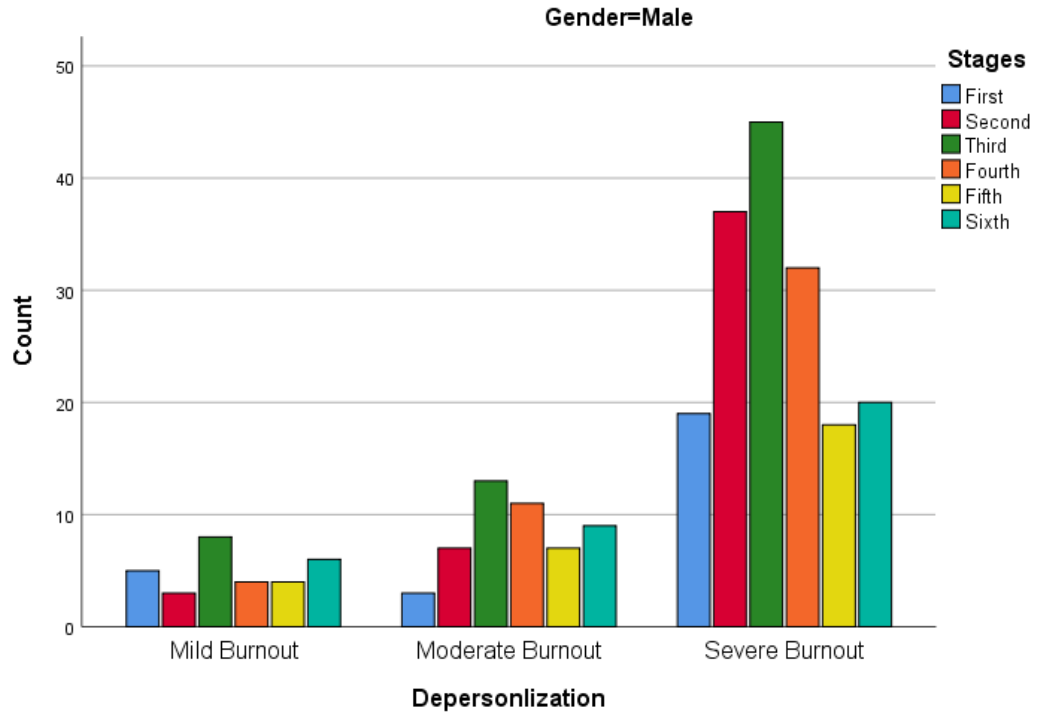

Figure (9): Depersonalization of males according to their stage of study.

4.4 Personal accomplishment (PA)

This subscale measures feelings of competence and successful achievement in student's study. Results exhibited that 60.13% of females are unsatisfied with their achievements against 30.93% of males.

Table (8): Personal accomplishment between participated students.

	Gender	
	Female	Male
Mild Burnout	6.40%	2.53%
Moderate Burnout	8.93%	3.33%
Severe Burnout	51.20%	27.60%
Total	66.53%	33.47%

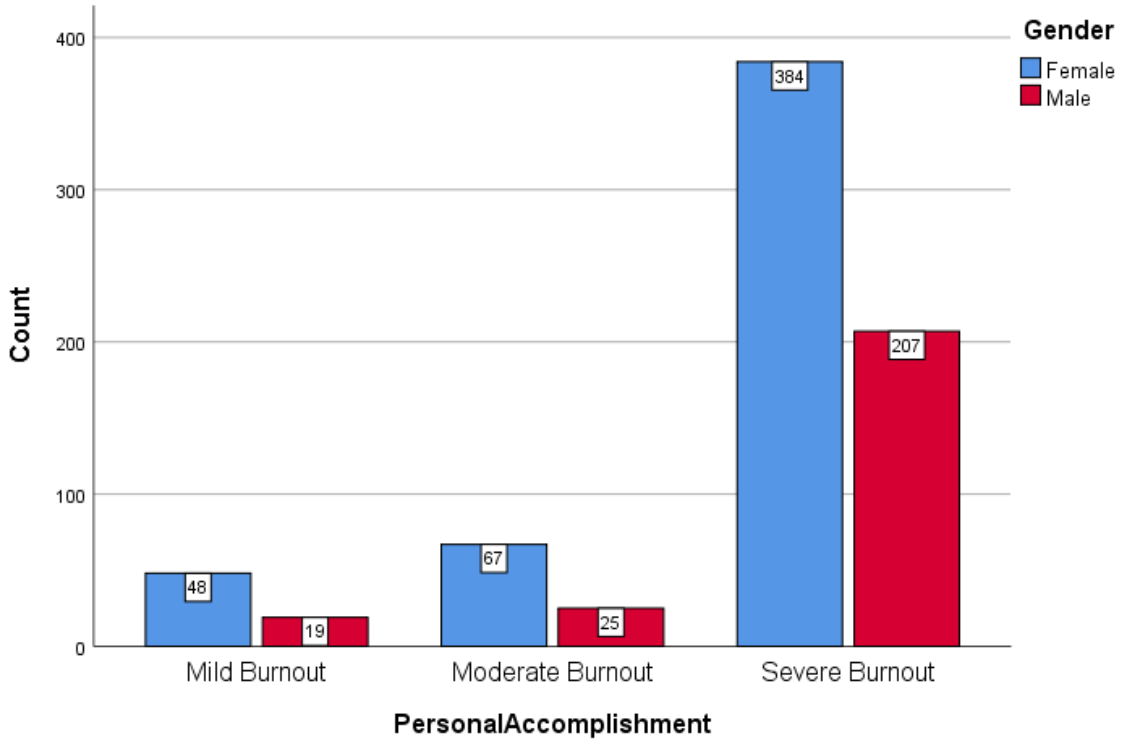

Figure (10): Personal accomplishment between participated students.

Table (9): Personal accomplishment between males and females at different stages of study

		First	Second	Third	Fourth	Fifth	Sixth
Female	Mild Burnout	4.35%	11.11%	6.00%	7.52%	0.00%	5.45%
	Moderate Burnout	7.25%	12.42%	8.00%	7.52%	12.94%	5.45%
	Severe Burnout	49.28%	45.75%	53.00	49.62%	52.94%	57.27%
Male	Mild Burnout	1.45%	5.23%	2.00%	0.75%	1.18%	3.64%
	Moderate Burnout	7.25%	1.96%	3.00%	4.51%	3.53%	1.82%
	Severe Burnout	30.43%	23.53%	28.00%	30.08%	29.41%	26.36%

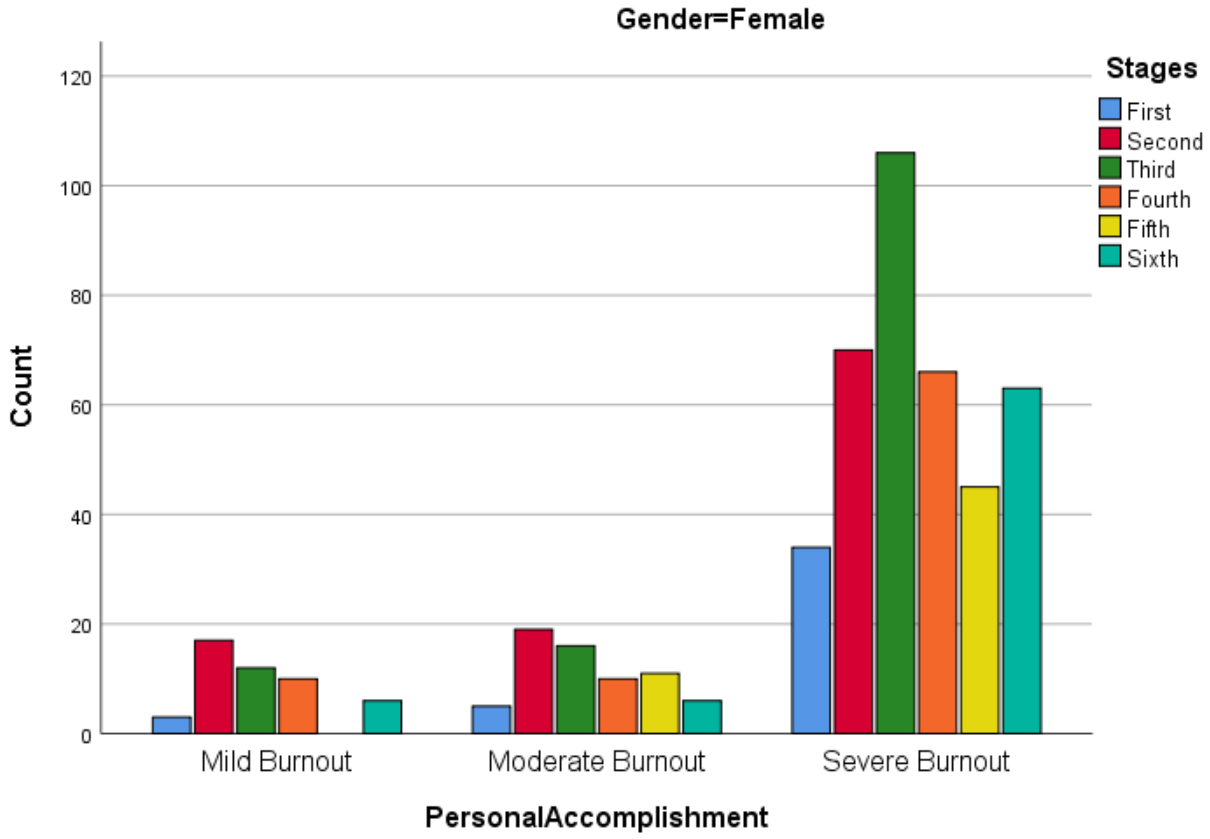

Figure (11): Personal accomplishment of females according to their stage of study.

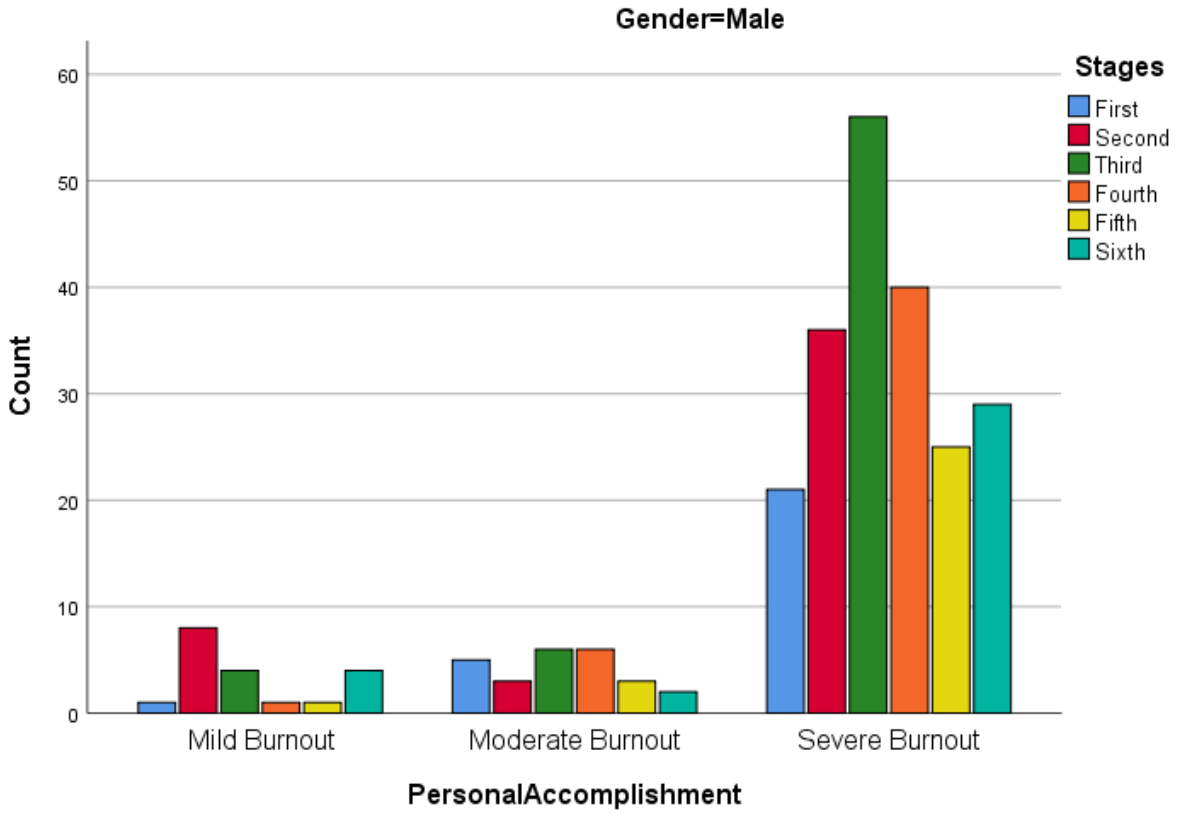

Figure (12): Personal accomplishment of males according to their stage of study.

4.5 Further parameters

In addition to Maslach subscales of burnout syndrome, some parameters have been taken into consideration in this study and summarized in Table (10) below.

Table (10): Univariate analysis of parameters used in the study

Variables	n (%)	Non-burnout, n (%)	Burnout n (%)	df	*p* value
Total	**750**	**219 (29.20)**	**531 (70.80)**		
Age (y)					
18-22	**503 (67.07)**	**146 (19.47)**	**357 (47.60)**	**2**	**0.171**
23-26	**215 (28.67)**	**59 (7.87)**	**156 (20.80)**		
27-30	**32 (4.27)**	**14 (1.87)**	**18 (2.4)**		**(Fisher's exact test)**
Gender					
Male	**251 (33.47)**	**80 (10.67)**	**171 (22.80)**	**1**	**0.269**
Female	**499 (66.53)**	**139 (18.53**	**360 (48.00)**		
Educational stage					
First	**69 (9.20)**	**25 (3.33)**	**44 (5.87)**	**5.00**	**0.78**
Second	**153 (20.40)**	**46 (6.13)**	**107 (14.27)**		
Third	**200 (26.67)**	**57 (7.60)**	**143 (19.07)**		
Fourth	**133 (17.73)**	**35 (4.67)**	**98 (13.07)**		
Fifth	**85 (11.33)**	**23 (3.07)**	**62 (8.27)**		
Sixth	**110 (14.67)**	**33 (4.40)**	**77 (10.27)**		
Lectures per day					
1-2	**473 (63.07)**	**128 (17.07)**	**345 (46.00)**	**2.00**	**0.227**
3-4	**205 (27.33)**	**66 (8.80)**	**139 (18.53)**		
More than that	**72 (9.60)**	**25 (3.33)**	**49 (6.53)**		
Study hours /day					
1-6 h	**596 (79.47)**	**170 (22.67)**	**426 (56.80)**	**2**	**0.63**
12-18 h	**20 (2.67)**	**7 (0.96)**	**13 (1.73)**		
6-12 h	**134 (17.87)**	**42 (5.60)**	**92 (12.27)**		
Living during study					
University Housing	**115 (15.33)**	**43 (5.73)**	**72 (9.60)**	**1**	**0.044**
Family house	**635 (84.67)**	**176 (23.47)**	**459 (61.20)**		
You are					
Lonely	**346 (46.13)**	**84 (11.20)**	**262 (34.93)**	**1**	**0.006**
Social	**404 (53.87)**	**135 (18.00)**	**269 (35.87)**		
Economic situation					
Bad	**119 (15.87)**	**31 (4.13)**	**88 (11.73)**	**2**	**0.72**
Good	**545 (72.67)**	**163 (21.73)**	**382 (50.93)**		
Very Good	**86 (11.47)**	**25 (3.33)**	**61 (8.13)**		
Hypertension					
No	**626 (83.47)**	**184 (24.53)**	**442 (58.93)**	**1**	**0.83**
Yes	**124 (16.53)**	**35 (4.67)**	**89 (11.87)**		
Anxiety					
No	**262 (34.93)**	**109 (14.53)**	**153 (20.40)**	**1**	**0.000000001**
Yes	**488 (65.06)**	**110(14.67)**	**378 (50.40)**		
Gnashing teeth					
No	**591 (78.80)**	**178 (23.73)**	**413 (55.07)**	**1**	**0.326**
Yes	**159 (21.20)**	**41 (5.47)**	**118 (15.73)**		
Sleeping disorders					
No	**385 (51.33)**	**142 (18.93)**	**243 (32.40)**	**1**	**0.00002**
Yes	**365 (48.67)**	**77 (10.27)**	**288 (38.40)**		
Anorexia					
No	**495 (66.00)**	**159 (21.20)**	**336 (44.80)**	**1**	**0.014**
Yes	**255 (34.00)**	**60 (8.00)**	**195 (2.00)**		
quick anger					
No	**269 (35.87)**	**99 (13.20)**	**170 (22.67)**	**1**	**0.001**
Yes	**481 (64.13)**	**120 (16.00)**	**361 (48.13)**		
The feeling that studying invades all life					
No	**166 (22.13)**	**83 (11.07)**	**83 (11.07)**	**1**	**0.000000001**
Yes	**584 (77.87)**	**136 (18.13)**	**448 (59.73)**		
Thinking about the possibility of leaving the medical field or college					
No	**392 (52.27)**	**143 (19.07)**	**249 (33.20)**	**1**	**0.000004**
Yes	**358 (47.73)**	**76 (10.13)**	**282 (37.60)**		
Inability to enjoy the good news					
No	**362 (48.27)**	**134 (17.87)**	**228 (30.40)**	**1**	**0.000006**
Yes	**388 (51.73)**	**85 (11.33)**	**303 (40.40)**		

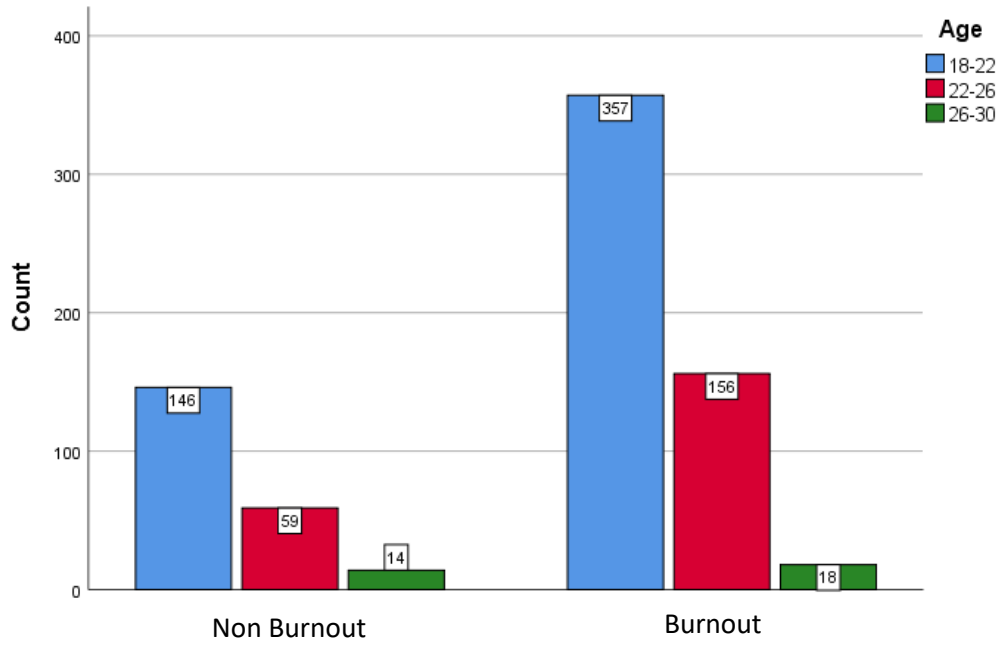

Figure (13): Incidence of burnout according the age of participants

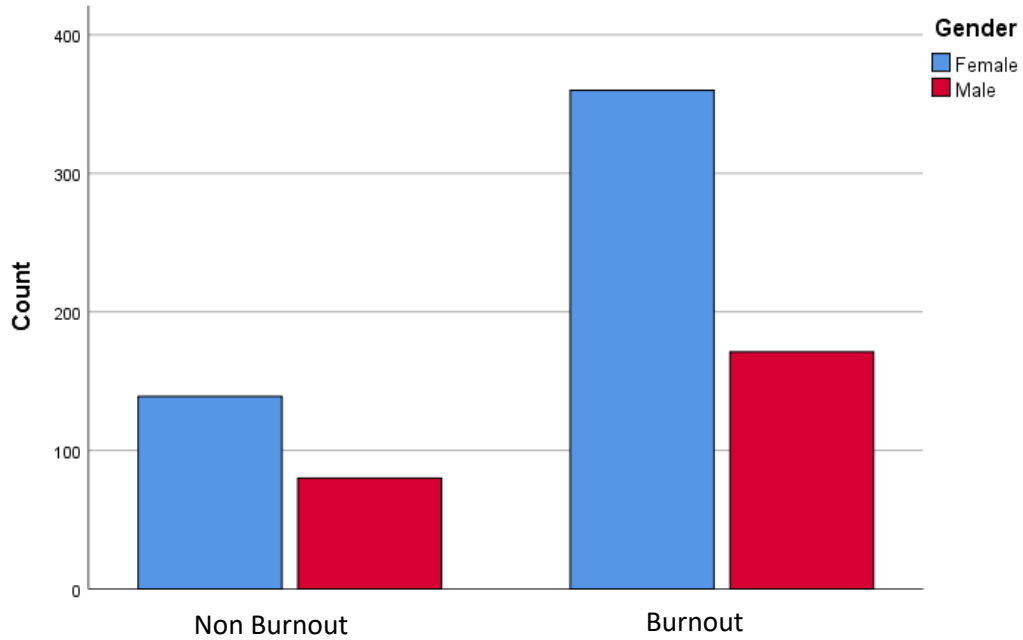

Figure (14): Incidence of burnout according the gender of participants

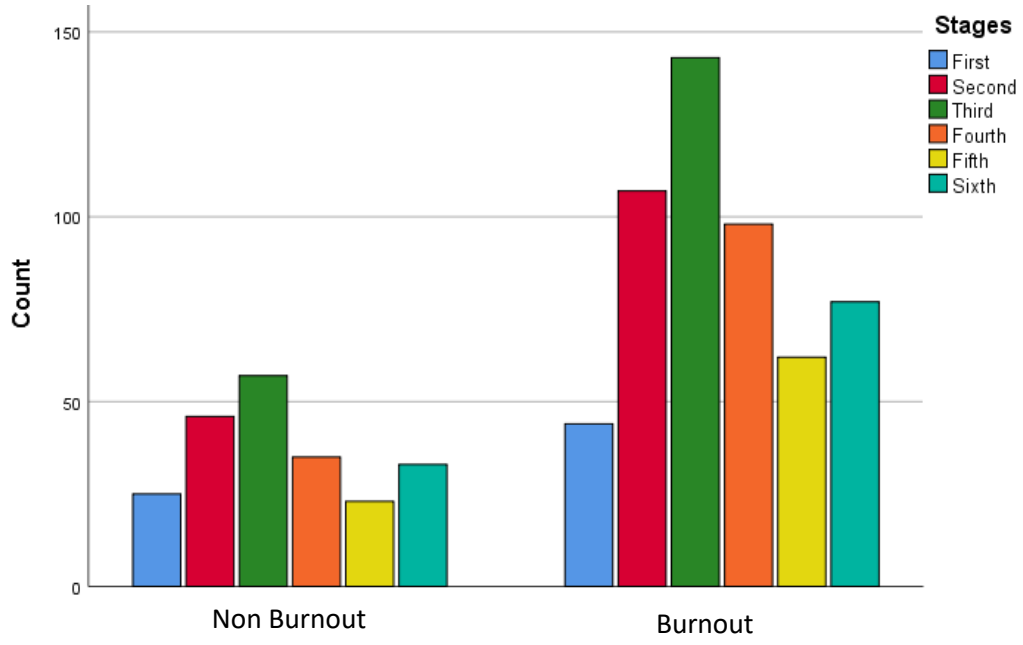

Figure (15): Incidence of burnout according the academic stage of participants

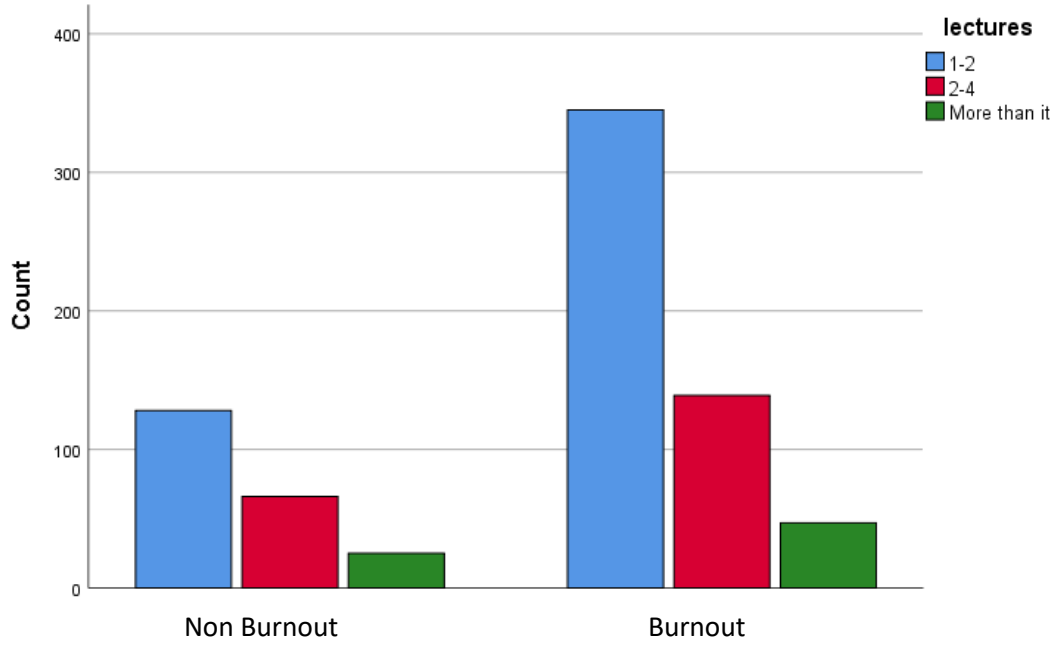

Figure (16): Incidence of burnout according the lectures per day of participants

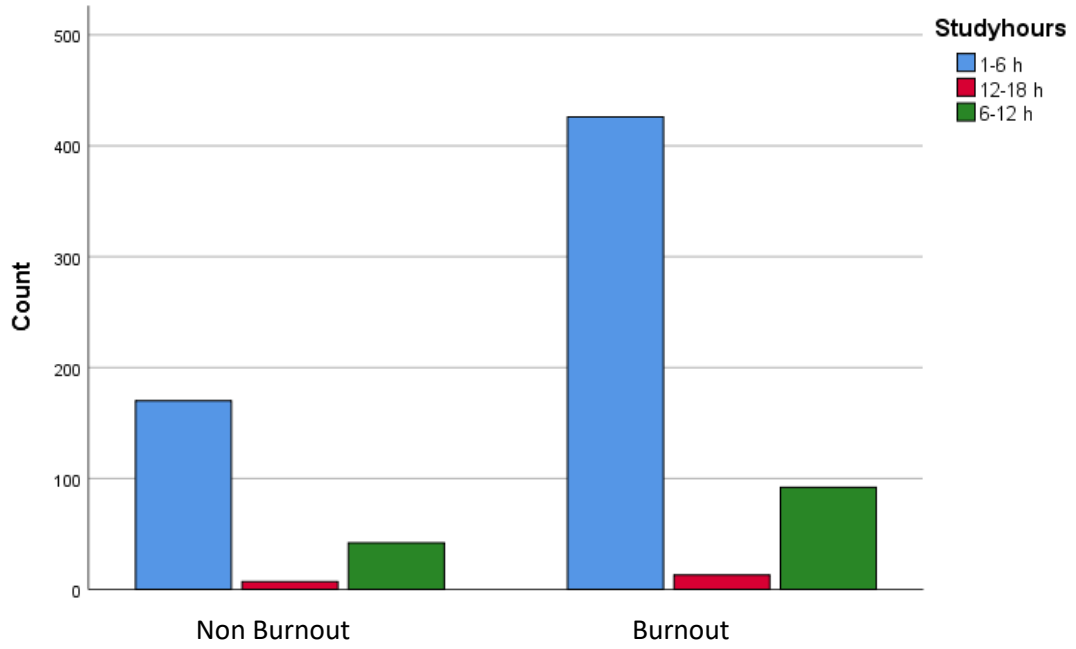

Figure (18): Incidence of burnout according the study hours per day of participants

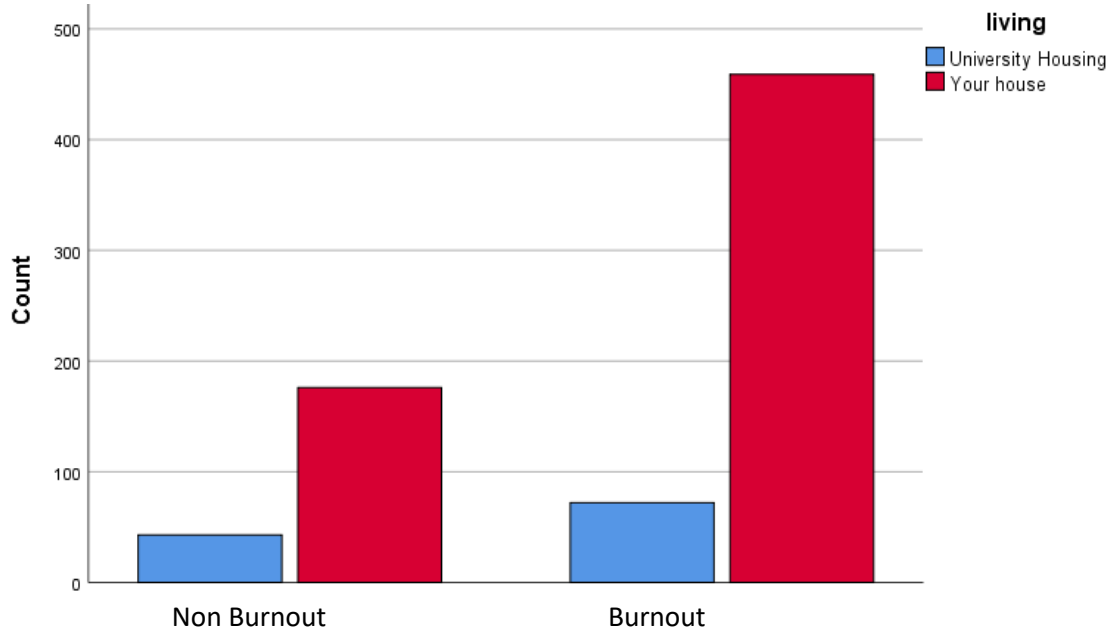

Figure (19): Incidence of burnout according the type of living during study of participants

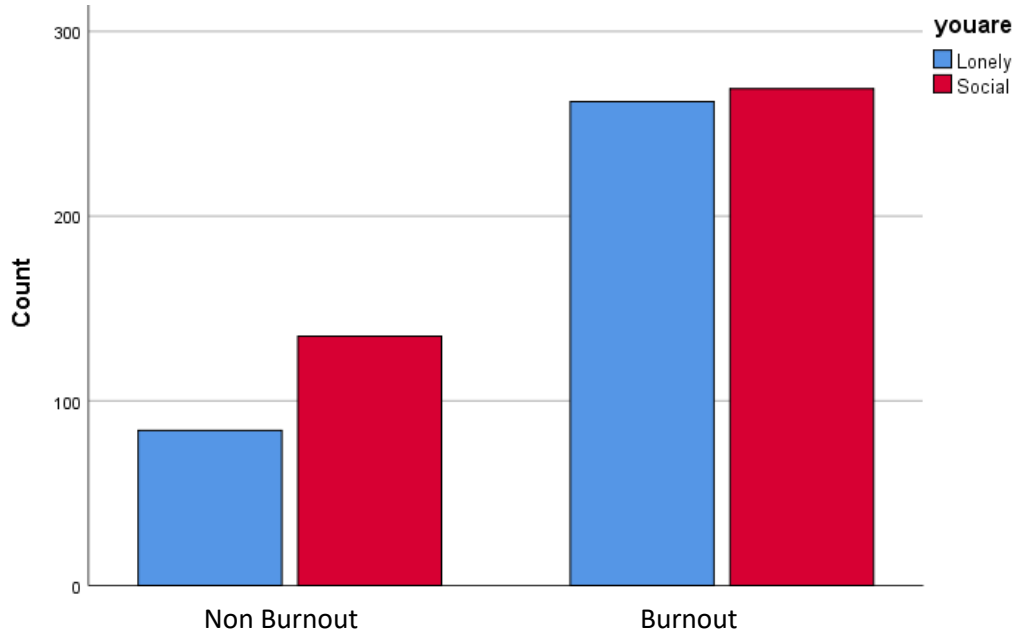

Figure (20): Incidence of burnout according the social situation of participants

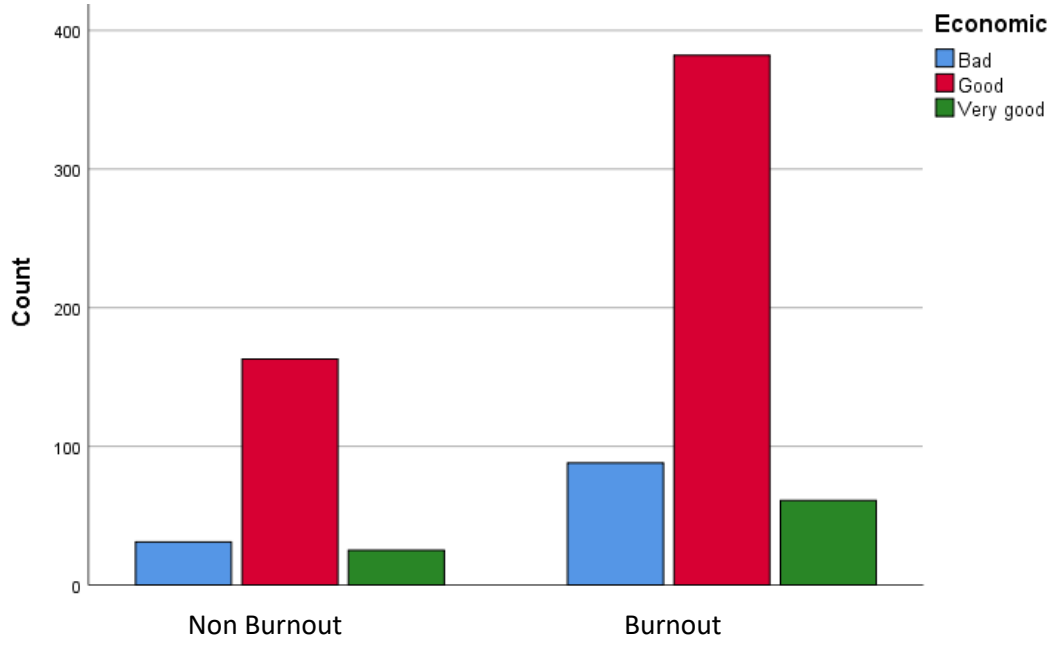

Figure (21): Incidence of burnout according the economic situation of participants

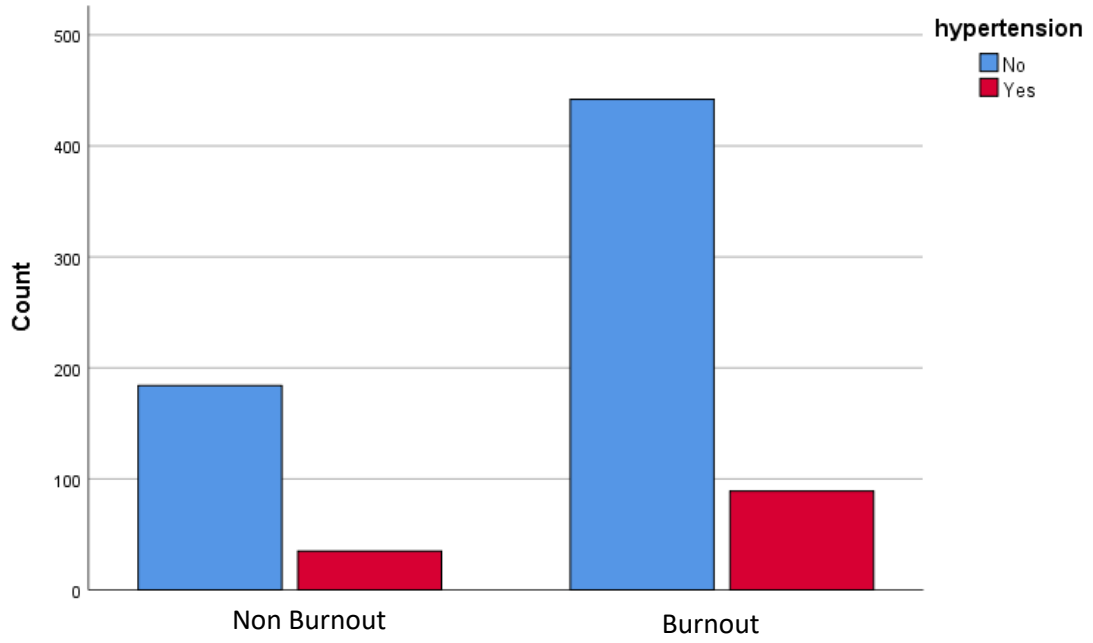

Figure (22): Incidence of burnout according the medical condition of participants

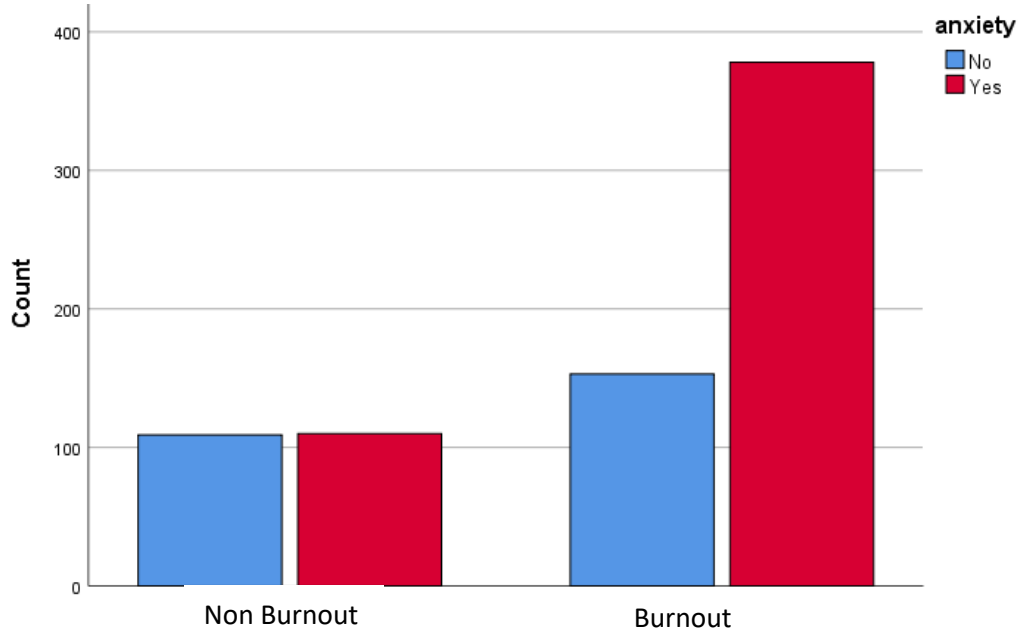

Figure (23): Impact of anxiety on incidence of burnout between participants

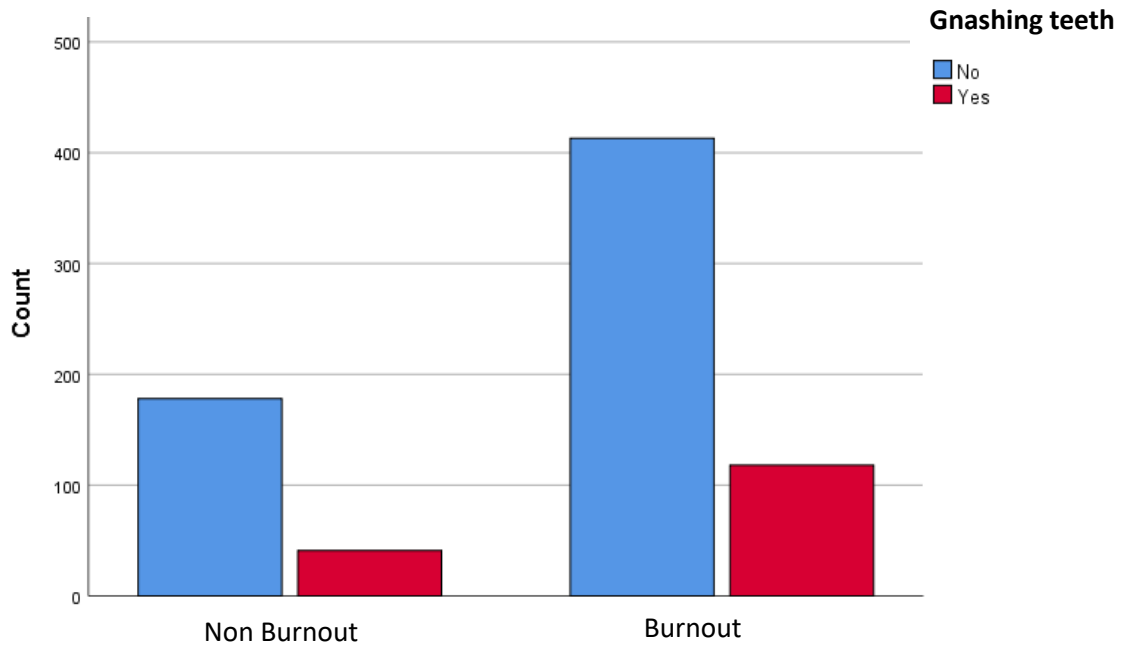

Figure (24): Impact of gnashing teeth on incidence of burnout between participants

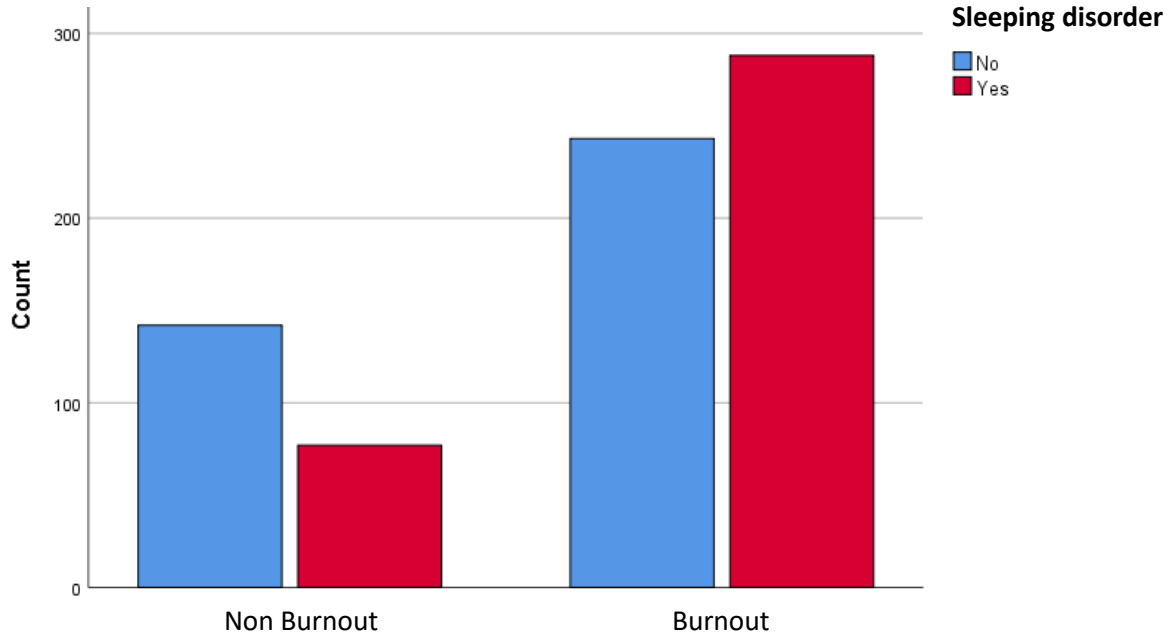

Figure (25): Impact of sleeping disorder on incidence of burnout between participants

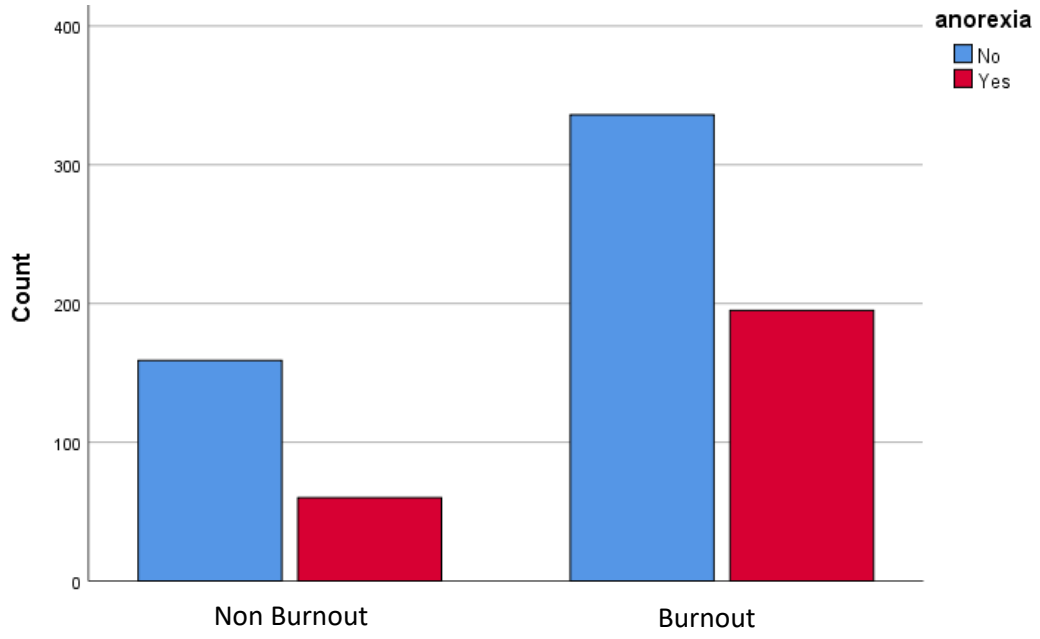

Figure (26): Impact of anorexia on incidence of burnout between participants

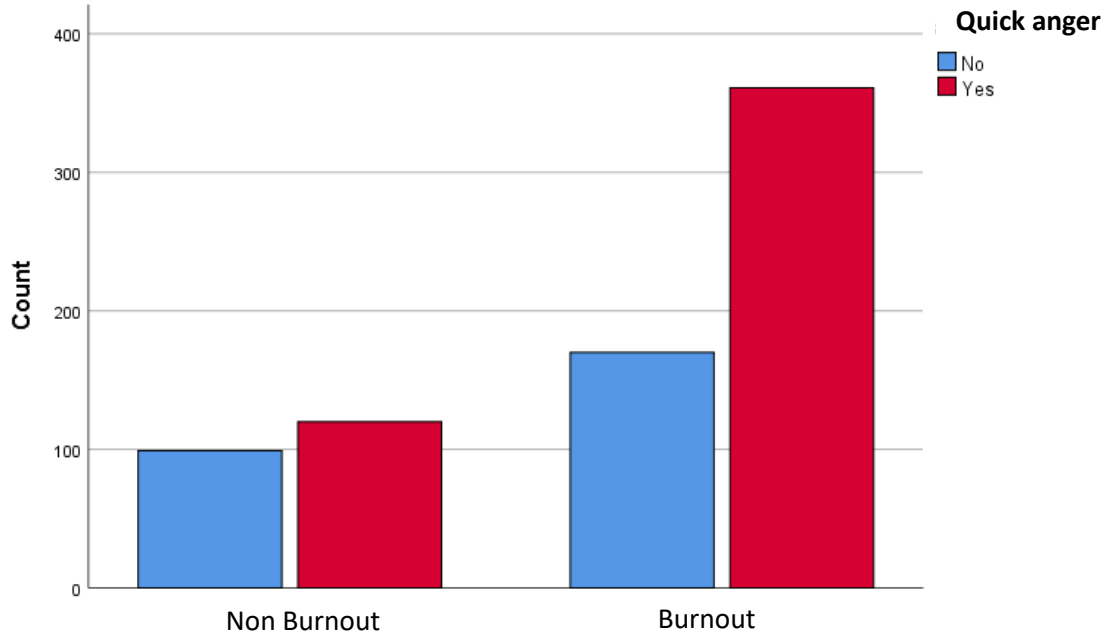

Figure (27): Impact of quick anger on incidence of burnout between participants

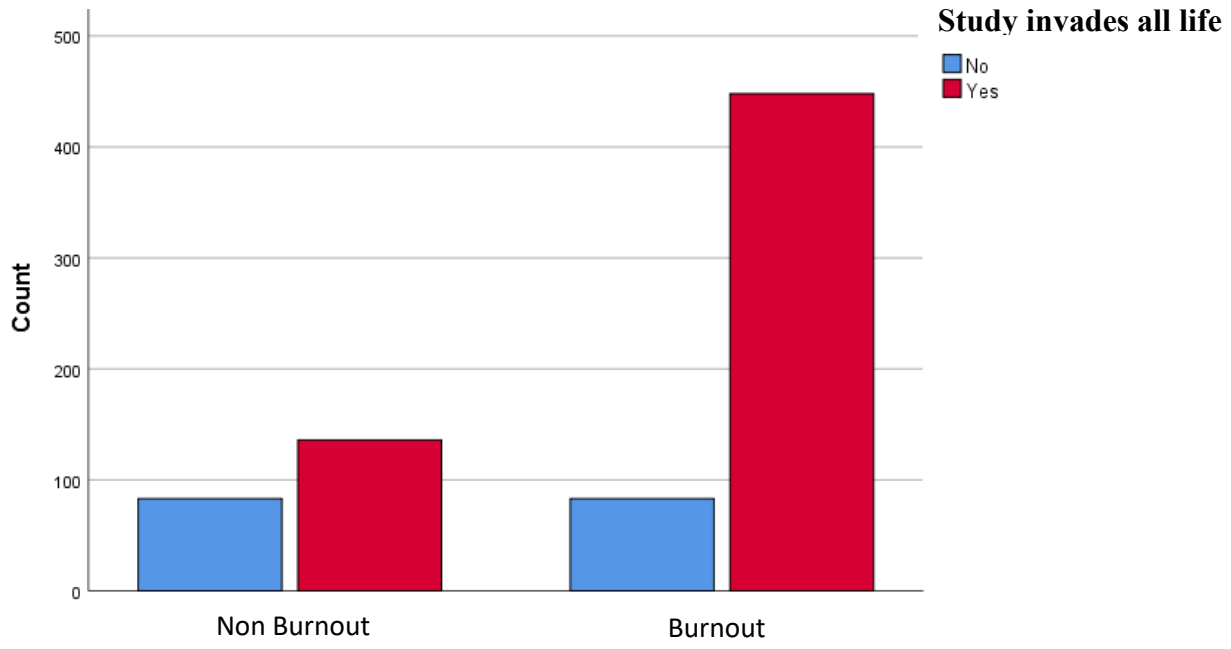

Figure (28): Incidence of burnout between participants who feel that studying invades all life

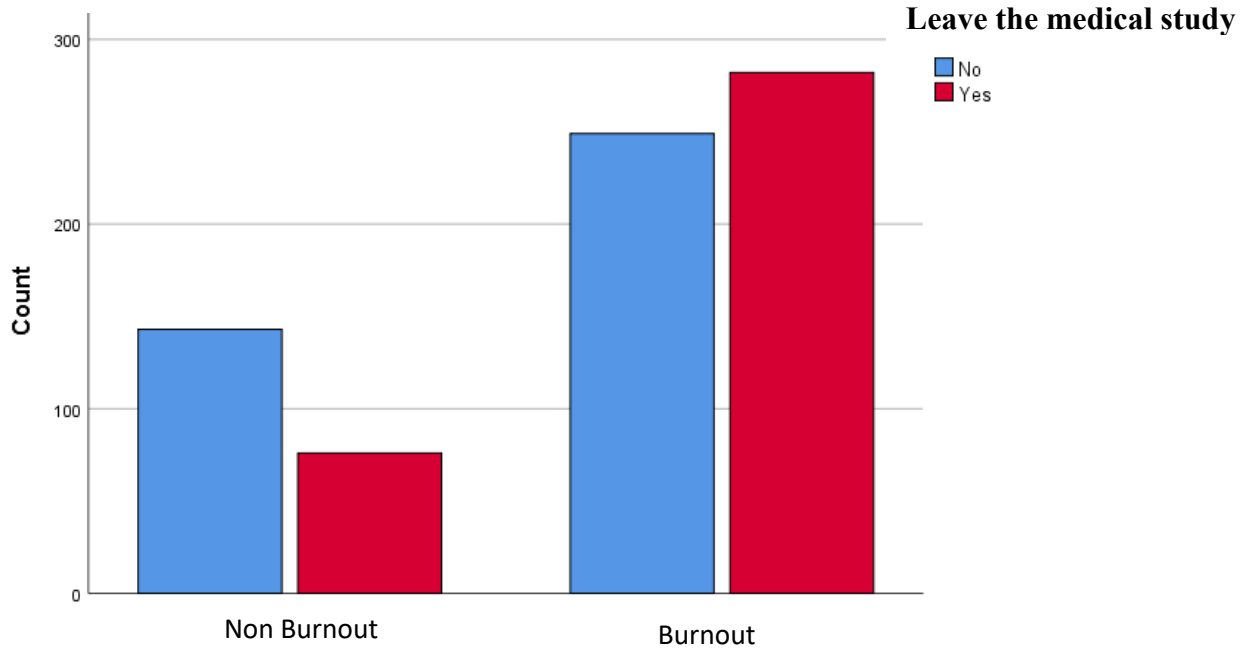

Figure (29): Incidence of burnout between participants who are thinking to leave the medical college or field

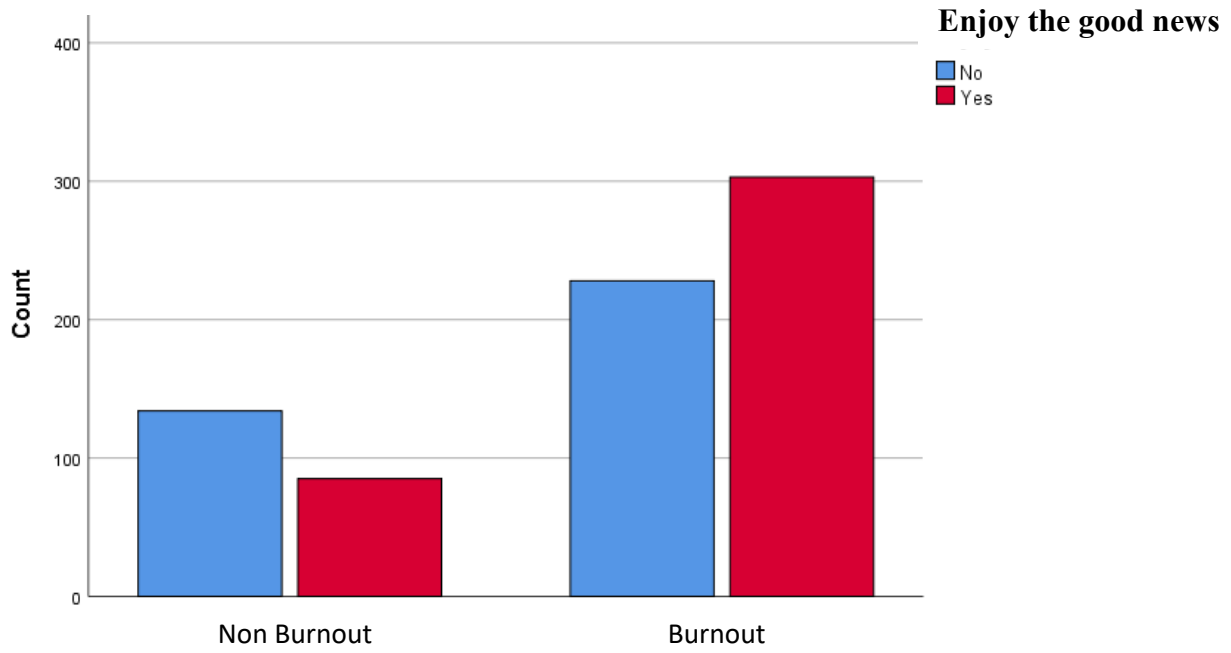

Figure (30): Incidence of burnout between participants who can't enjoy the good news

Discussion

This study was designed to evaluate the extent and causes of burnout among medical students at Alkindy College of Medicine. 750 students from different ages and education stages were participated in this study. 70.80% of participants had burnout syndrome (severe score on depersonalization sub subscale of Maslach burnout survey [9]) , while only 29.20% had no burnout according to Maslach score. These results are similar to another study done in China by Jing Wang et. al (9) that show 65.6% of participants showed burnout. Similar results were found in Germany by L. Thun-Hohenstein et. al (10) and in Iraq (Kerbala) by Marwa Saad Yahya et. al.

(11). The high rate of burnout among medical students can be explained because medical college is a demanding educational environment where students are constantly required to acquire and recall a lot of knowledge in a fixed timeframe. While lower rates of burnout among medical students were reported in other studies performed in Saudi Arabia by Altannir et al. (12) and in Brazil by Almeida et al. (13) represented 13.4% and 14.9% respectively. These differences in burnout rates might be related to the variations in curricula between medical colleges and differenced in demography of medical students from one country to another.

When each dimension of burnout was assessed separately, medical students of Alkindy College of Medicine had moderate percentages of emotional exhaustion (18.8%), but high percentage of depersonalization (70.8%), and personal accomplishment (78.8%). Similar findings were described by other studies (14). This implies that in medical students, a high degree of professional effectiveness can compensate for the stress of academic life. While students with a high level of burnout had lower academic efficacy.

Incidence of burnout were higher in females (48%) than in males (22.8%) which is in agreement with results obtained by several researchers (15, 16, 17). However, this difference showed no statistical significance ($p > 0.269$) which implies that such differences may due to chance. Similar results were obtained by several researchers (18, 19, 20). This difference may refer to gender differences in the mechanism of burnout where, it is documented that females and female medical students are more vulnerable to stress and depression, general anxiety which can be contributed to their high rates of burnout as compared to male students (21).This contradict a study conducted in Thailand and Brazil that revealed high burnout rates among males as compared with females medical students (11).The differences may be due to sampling, research settings, cultures, assessment methods for burnout, and variable

cut-off values—at least 142 unique burnout definitions or subscale criteria (15). First year students showed the lowest frequency of burnout (5.87%) as compared to the second to sixth stages of study which were (14.27%, 19.07%, 13.07%, 8.27%, and 10.27%) respectively. Such findings were comparable to a study conducted in Germany by L. Thun-Hohenstein et al. (10). While a study conducted in Egypt by Wassif et al. (22) showed that burnout is higher in the clinical years as compared to the preclinical years. The difference in burnout levels between the studies is may be due to sample size and distribution between academic stages. No significant relationship was found between lectures studied per day, study hours per day, economic situation, medical situation (hypertension), and gnashing teeth and burnout. However, significant association was found between living during study and burnout feeling of student (lonely or social), anxiety, sleeping disorders, anorexia, quick anger, the feeling that studying invades all life, thinking about the possibility of leaving the medical field or college, and inability to enjoy the good news and burnout which were confirmed by many studies (23, 24, 25). These factors may contribute together or separately to increase stress which is the central factor causing distress and exhaustion. Stress comes from a high workload (e.g., information to be learned), reduced time and control, exams and clinical procedures (such as dissection), low support from family, friends, colleagues and academic staff. Together with difficulties to relax, sleep deprivation, and feeling guilty, this results in a toxic combination that can lead to burnout symptoms and psychiatric disorders (26).

The results obtained in this study and elsewhere confirmed that symptoms of burnout are prevalent from the outset of medical training, where seeds of mental health issues in health care providers begin in medical school which is supported by multi-institutional studies indicating that at least 50% of medical students may meet

burnout criteria at some point during their studies. Furthermore, it was found by Frajerman et al. (27) that the prevalence of burnout in medical students before residency was significantly affected by geographic localization, being highly represented in Oceania and the Middle East as compared to other countries. Burnout in medical school has the potential to negatively impact on students' academic development and overall well-being, with burnout identified as a significant independent predictor of suicide ideation and dropping out of medical school (28).

Limitations

As this was a naturalistic study, we used no control group design, which could be the next step to compare burnout rates of medial students to other faculties.

Conclusions

There is a high degree of burnout among medical students (70.80%) and it is prevalent in females (48%) more than males (22.80%). Burnout symptoms must to be taken into consideration in academic learning and teaching institutions. Depersonalization was the most prominent among all burnout subscales which might be related to students' exposure to chronic stress and lack of social and communication skills.

Recommendations

Several possibilities may help to reduce burnout prevalence between students of medical school comprises balanced study load and good academic and psychological support, clear rules for fair exam, improving the relationship between the students and academic staff, and adapt the curriculum to preventive measures of stress as well as offering counseling and courses regarding mindfulness and relaxation to their medical students.

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