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ORIGINAL ARTICLE

The relationship between perfectionism, depressive symptom severity, rumination and burnout in physicians

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ABSTRACT

Objective: A large number of studies indicate that clinicians are at risk for burnout. However, literature on the relationship between burnout and personal traits is limited. Perfectionism may play a role in the development of burnout by increasing ruminative thoughts and depressive symptoms. This study aimed to investigate the relationship between burnout and perfectionism, rumination and depressive symptoms.

Materials and Methods: This study included 317 physicians who completed online surveys between May 2024 and September 2024. The questionnaires included sociodemographic and work environment characteristics, as well as the Maslach Burnout Inventory, Frost Multidimensional Perfectionism Scale, the Patient Health Questionnaire-9, and the Ruminative Response Scale - Short Form self-report scales. Work-related ruminative thoughts and ruminative thoughts related to other life domains were assessed separately.

Results: The results of our study showed that being unmarried, having a history of mobbing, taking the primary responsibility for household chores, being a resident, and working night shifts were associated with burnout. According to the results of regression analysis, emotional exhaustion and depersonalization were predicted by depressive symptom severity and work-related rumination, whereas perfectionism scores were significantly predicted personal accomplishment. The likelihood of being in the suicide risk group was associated with low personal accomplishment in addition to depressive symptom severity. Mediator analysis revealed that the relationship between perfectionism and burnout was fully mediated by depressive symptom severity and rumination.

Conclusion: Perfectionism leads to an increase in burnout through ruminative thoughts and an increase in depressive symptoms. Although small sample size of the study, our results have an important potential to guide interventions for perfectionism in physicians to reduce burnout and associated suicide risk.

Keywords: Burnout, perfectionism, depression, rumination

INTRODUCTION

Burnout syndrome is a long-term, negative emotional state consisting of emotional exhaustion, physical fatigue, and cognitive wear [1]. The currently accepted definition of burnout consists of three dimensions: (i) emotional exhaustion (EE), which is associated with a decrease in the emotional resources of individuals and manifested by weakness, fatigue and exhaustion, (ii) depersonalization (DP), which refers to negative feelings and behaviors towards colleagues or

individuals served, and (iii) a decrease in the sense of personal accomplishment (PA), which is characterized by seeing oneself as inadequate and professionally unsuccessful due to these two dimensions [2]. Life events that cause chronic stress and demanding work conditions create vulnerability to burnout [1]. Physicians are exposed to numerous work-related stressors. In fact, compared to other workers, physicians have higher rates of burnout [3]. At the same time, burnout levels in physicians were found to vary across different medical specialties [4]. This diversity is thought to arise from factors such as extended working hours, sleep deprivation, night shifts, and exposure to violence and mobbing [4,5]. Identifying potential work-related causes of burnout and changing working conditions could help implement the necessary measures within preventive approaches.

Burnout leads to decreased professional effectiveness [6]. In addition, burnout in physicians is associated with psychiatric disorders such as major depressive disorder (MDD) and anxiety disorders [7]. In particular, MDD shares significant clinical similarities with burnout [8]. Several studies have demonstrated the relationship between burnout, especially emotional exhaustion, and MDD [4,9]. Decreased energy, anhedonia, feelings of inadequacy, and suicidal thoughts are common to both burnout and MDD [9]. However, factor analysis studies showing depression and burnout do not share the same items indicate that they are distinct conditions [8,10]. On the other hand, a longitudinal study using latent class analysis, a person-centered approach, has shown that depressive symptoms and burnout symptoms cluster together and follow similar trajectories [11]. Therefore, some authors believe that burnout corresponds to work-related depression [11]. According to another perspective, depression is considered as one of the advanced stages of burnout [12]. At the same time, subthreshold depressive symptoms secondary to chronic stress may contribute to burnout and negatively affect functioning [9]. While the distinction between depression and burnout continues to be debated, burnout is considered a useful concept for recognizing and preventing depressive symptoms caused by chronic stress in the workplace.

Burnout does not result in depression in everyone despite the close relationship between depression and burnout. When tracing the development of burn-out in physicians, individual factors need to be taken into account in addition to work-related factors. Because, burnout is not only related to increased workload, but also to the difficulty in maintaining a balance between work demands and psychological resources [13]. Individual psychological factors such as high levels of perfectionism can disrupt this balance by causing chronic stress. Thus, high personal expectations, concern over mistakes and high self-criticism may play a mediating role in the development of burnout. Maladaptive perfectionism, characterized by fear of making mistakes and high self-criticism, was found to be higher in medical students compared to students in other programs [14]. Another study showed a positive correlation between both adaptive and maladaptive perfectionism and depressive symptom severity in medical students [15]. On the other hand, only one study was found investigating the relationship between burnout and perfectionism in physicians. The study revealed that high self-critical perfectionism predicted both high EE and DP scores [16].

Another personal factor that may pose a risk for burnout is rumination. Studies evaluating psychotherapists, intensive care physicians, and nurses have found that rumination is associated with burnout, particularly emotional exhaustion [17,18]. However, no study has investigated the mediating role of rumination in the development of burnout among physicians. The main hypothesis of our study is that rumination will play a mediating role in the development of depressive symptoms and burnout in the presence of high perfectionism.

There has been an increase in physician suicides in our country in the last 10 years [19]. Among the most important reasons for physician suicides are difficult training process, fear of stigmatization that creates difficulty in accessing treatment, MDD and burnout syndrome [9]. In a large sample study, suicidal ideation was found to be associated with burnout independent of depression [20]. In our country, there is no study investigating the relationship between suicidal risk and burnout in physicians. Another aim of this study is to investigate the relationship between suicidality and burnout.

MATERIALS AND METHODS

Participants

The study is a cross-sectional survey study conducted online between May 2024 and September 2024. The information form and questionnaires were distributed to the target population using the Google Forms platform. The informational text accompanying the survey assured participants that the collected data would be used solely for research purposes and highlighted their right to withdraw from the study at any time. After reading the brief information form, participants who agreed to participate proceeded to fill out the questionnaires. Duplicate participation was prevented by the system.

The questionnaires were distributed to a total of 3998 physicians (WhatsApp groups: 1496, email groups: 2502) through social media platforms where clinicians were members. Out of the 340 physicians who read the brief information text, 11 did not consent to participate, and 12 had incomplete sociodemographic information (see Figure 1). Consequently, data of 317 participants were included in the analysis.

This study was approved by Başkent University Institutional Review Board (Date/Number: 12.19.2023/KA23/424). The study protocol is consistent with the principles of the Declaration of Helsinki.

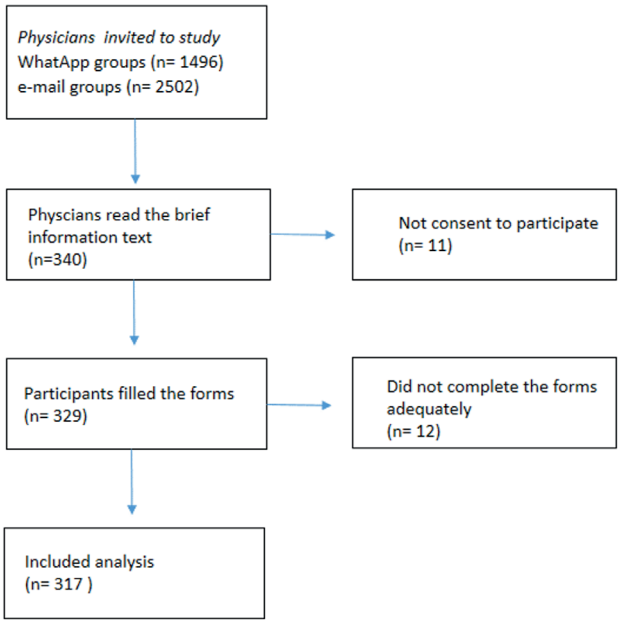

Figure 1. Flow Chart of the Participants

Instruments

Sociodemographic data and work-related features

In the study sociodemographic and work-related characteristics were collected from participants, including variables such as age, gender, marital status, history of psychiatric illness, current psychiatric treatment status, person primarily responsible for household chores (self or partner/parent or equally shared), presence of at least one child requiring care (childcare status), years in the profession (since the beginning of residency training), number of patients examined per day (daily patient load), history of mobbing or violence by patients or their relatives, and the frequency of night shifts (NSs) or on-call shifts (OCSs). Participants were also asked to rate their level of financial satisfaction on a scale from 1 to 10. Furthermore, information regarding suicidal ideation, planning, or attempts within the last week was obtained.

Maslach Burnout Inventory (MBI)

The Maslach Burnout Inventory (MBI), developed by Maslach and Jackson in 1981, is a 22-item scale consisting of three subdimensions: emotional exhaustion (9 items), depersonalization (5 items), and personal accomplishment (8 items). The Turkish validity and reliability study of the scale was conducted by Ergin et al. in 1992 [21]. In the original version of the scale, a 7-point scale was used for each item. However, in the Turkish adaptation, a 5-point scale is employed, ranging from "never" to "always". The internal consistency coefficients of the Turkish version were calculated as 0.83 for emotional exhaustion (MBI-EE), 0.65 for depersonalization (MBI-DP), and 0.72 for personal accomplishment (MBI-PA). Unlike the other two subscales, low scores on the MBI-PA indicate a high level of burnout.

Ruminative Reponse Scale - Short Form (RRS-SF)

The short form of the Ruminative Response Style Questionnaire (RRS), which assesses ruminative thoughts, consists of 10 items rated on a 4-point scale ranging from 1 to 4. The Turkish version of the RRS-SF has been shown to be valid and reliable [22]. Since nonwork-related negative life events may influence the severity of depressive symptoms and burnout scores, and because we are interested

in whether work-related and non-work-related rumination have different effects on burnout, our study assessed work-related rumination (RRS-Work) and rumination related to other areas of life (RRS-Other) separately.

The Patient Health Questionnaire-9 (PHQ-9)

PHQ-9 is a self-report scale assessed the severity of depressive symptoms. It consists of 9 items that evaluate the frequency of symptoms over the past two weeks, with each item rated on a 4-point scale ranged between 0 and 3 [23]. It is considered major depressive disorder if at least one of the first two items and at least 5 of all items have a 'positive' response (2 or 3 points from the first 8 items and a score higher than 1 from the last item). The Turkish adaptation and validity study of the scale was conducted by Corapcioglu et al. [23].

Frost's Multidimensional Perfectionism Scale (FMPS)

Frost et al. developed a scale comprising six subscales: concern over mistakes (FMPS-CM), doubts about actions (FMPS-DA), parental expectations (FMPS-PE), parental criticism (FMPS-PC), order/organization (FMPS-Ord), and personal standards (FMPS-PS) [24]. The scale consists 35 five-point likert-type items. Organisation subscale should not be included in the total scoring due to its weak correlation with the other subscales [24]. The Turkish validty and reliability study of the scale was conducted by Kağan [25]. In the Turkish form, the internal consistency coefficients of the subscales ranged from 0.64 to 0.94, while the total scale was 0.91.

Statistical analysis

All analyses were performed with R version 4.1.2 [26]. Skewness and kurtosis were used to test the conformity of the variables to normal distribution (values between -1 and +1 were considered acceptable), and Levene's test was used to assess the homogeneity of variances [27]. Skewed data were presented with median and minimum-maximum values, while normally distributed data were presented with mean and standard deviation. Comparisons between groups were made with independent sample t-test for continuous data (burnout, depression and rumination scores) and chi-squared test for categorical data. One-way ANOVA (Tukey test for post-hoc comparisons) or Welch ANOVA (Games-Howell test for post-hoc comparisons) was used for comparisons of scale scores of more than two groups according to the homogeneity of variance between groups. Since 9 comparisons were made between the groups regarding burnout scores, Bonferroni corrected significance level was applied to adjust for multiple comparisons ($p<0.005$). Cohen's d, partial eta-squared and omega-squared values were calculated for t-test for effect sizes, one-way ANOVA and Welch ANOVA, respectively. In cases where variances were not homogeneous, Hedges' g effect size was reported for the t-test. The following conventional thresholds were used to interpret effect sizes: for Cohen's d and Hedges' g, small 0.2, medium 0.5, large 0.8; for partial eta squared and omega squared, small 0.01, medium 0.06, large 0.14 [28].

The variables years of experience, financial satisfaction, number of night shifts, and number of call shifts were not normally distributed. These variables were to be included in the regression analyses along with the scale scores. Therefore, logarithmic transformation was applied to all variables included in the regression analyses so that the variables were not on different scales. Pearson correlation coefficients and partial correlation analyses were used to assess the relationships between normally distributed scale scores. For variables that were not normally distributed, Spearman's correlation analysis was used.

Multiple linear regression analyses were conducted with work related conditions, perfectionism scores, depressive symptom severity, and rumination scores as predictors and burnout dimensions as dependent variables. Assumptions required for multiple linear regression were tested prior to analyses. All variables were log-transformed, and normal distribution was achieved. Scatter plots examining the distribution of residuals showed random dispersion around zero with no detectable pattern [27]. Correlations between dependent and independent variables were significant. Multicollinearity checks indicated that none of the correlation coefficients between independent variables exceeded 0.8. In addition, all variance inflation factor (VIF) values were below 5, and Durbin-Watson statistics ranged between 1 and 3 across all models [28]. Thus, all assumptions of the models were considered to be met.

In addition, logistic regression analysis was conducted to assess whether burnout and depressive symptom severity were associated with a higher risk of suicide. The backward conditional technique was used in the regression analyses.

Depressive symptom severity and work-related rumination - but not rumination about other life events - predicted burnout dimensions, whereas no burnout dimension predicted depressive symptom severity. The mediating role of depressive symptom severity and rumination in the relationship between perfectionism and burnout was assessed by serial mediation analysis (using the lavaan package). Prior to the mediation analysis, the common factor (ComPer) representing the subscale scores was calculated using Principal Component Analysis (PCA) instead of the total scale score to represent the shared variance among the subscales (using *psych package*). The correlations between the subscale scores ranged from -0.356 to 0.621 (all $p< 0.001$). Since the factors were not independent, oblimin rotation was applied. The Organization subscale, which is not recommended to be included in the total scale score due to its low factor loading in the literature, was not included in the factor analysis [24]. Similarly, another common-factor (ComBurn) was calculated for MBI. In the serial mediation model, ComPer was used as the independent variable (IV), ComBurn as the dependent variable (DV), while RRS-Work served as the first mediator (M1) and PHQ-9 total score as the second mediator (M2). To analyze indirect effects, we applied bootstrapping with 5000 samples. Indirect effects were considered significant if the bootstrap-derived 95% CI interval did not include zero.

RESULTS

A total of 317 participants (184 females, age=33.35±8.28 years) were included in the analyses. According to the PHQ-9 scale, 27.76% (n=88) of the participants met the diagnosis of major depressive disorder. Sociodemographic data of the participants are given in Table 1.

Differences in Burnout, Depression and Rumination Scores Between Groups

In between-group comparisons, having at least one child in care and being married were associated

Table 1. Sociodemographic and Clinical Characteristics of Participants

	Mean	SD
Age	33.35	8.28
Financial satisfaction	5.65	1.9
Number of working hours per week	46.69	6.07
	Median	**Min-Max**
Years of experiencea	4	0-43
Daily patient load	30	0-200
Number of NSs/month	3	0-15
	n	**%**
Gender		
Female	184	58.04
Male	133	41.96
Marital status		
Married	170	53.63
Single	147	46.37
Childcare status		
Yes	99	31.23
No	218	68.77
Housework responsibility		
Primarily self	132	41.64
Primarily partner/parent	74	23.34
Equally shared	111	35.02
Academic title		
Resident	180	56.78
Specialist	95	29.97
Academician	42	13.25
Shift status		
Night-call shift	216	68.14
On-call call shift	53	16.72
No shifts	48	15.14
Mobbing and Violence		
Physical violence exposed by patient relatives or patients in the last year	30	9.46
Mobbing in the last year	90	28.39
History of psychiatric illness	134	42.27
Distribution of psychiatric ilnesses		
MDD	71	22.39
Anxiety disorder	59	18.61
ADHD	13	4.1
OCD	6	1.89
Bipolar disorder	3	0.94
PTSD	4	1.26
Adjustment disorder	2	0.63
Suicide risk		
Suicidal thoughts in the last week	55	17.35
Suicide plan or attempt in the last week	8	2.52
	Mean	**SD**
Burnouıt Scores		
MBI-EE	30.22	7.61
MBI-DP	12.72	4.3
MBI-PA	30.37	4.55
PHQ-9 Total	10.55	6.15
Perfectinonism scores		
FMPS-CM	21.02	6.36
FMPS-DA	11.16	3.77
FMPS-PE	13.78	5.13
FMPS-PC	9	3.71
FMPS-PS	22.89	5.33
FMPS-Ord	22.64	4.46
Rumination scores		
RRS-Work	20.71	6.35
RRS-Other	21.57	6.33

[a] From the beginning of the residency.

NSs: Night shifts, MDD: Major depressive disorder, ADHD: Attention deficit and hyperactivity disorder, OCD: Obsessive compulsive disorder, PTSD: Posttraumatic stress disorder, MBI-EE: Emotional exhaustion subscale of Maslach burnout inventory, MBI-DP: Depersonalization subscale of MBI, MBI-PA: Personal accomplishment subscale of MBI, PHQ-9: Patient Health Questionnaire-9, FMPS-CM: Concern over mistakes subscale of Frost multidimensional perfectionism scale, FMPS-DA: Doubts about actions subscale of FMPS, FMPS-PE: Parental expectations subscale of FMPS, FMPS-PC: Parental criticism subscale of FMPS, FMPS-PS: Personal standarts subscale of FMPS, FMPS-Ord: Ordering/organization subscale of FMPS, RRS: Ruminative Responses Scale

with lower burnout scores (lower MBI-EE and MBI-DP and higher MBI-PA) (see Table 2). Physicians who had been exposed to mobbing in the past year had higher levels of burnout (high MBI-EE and MBI-DP and low MBI-PA) than those who had not, whereas exposure to violence in the past year was not significantly associated with burnout.

Physicians primarily responsible for household chores exhibited higher levels of burnout compared to those who shared household responsibilities equally with their partners or parents. Academicians reported the lowest levels of MBI-DP and the highest levels of MBI-PA, whereas residents exhibited the opposite pattern, with the highest levels of MBI-DP and the lowest levels of MBI-PA. Emotional exhaustion was also found to be higher in resident physicians compared to academicians.

No significant differences in any scale scores were observed between physicians who did not take on-call shifts and those who did. However, physicians working night shifts reported significantly higher MBI-EE and lower MBI-PA scores compared to both those on on-call shifts (see Table 3). Moreover, MBI-EE scores were significantly higher among physicians working night shifts compared to those who did not take any shifts.

Table 2. Comparisons of Burnout, Depression and Rumination Scores Between Groups in Terms of Gender, Marital Status, Exposed Violence and Mobbing

	Gender				**Marital status**			
	Female (n= 184)	**Male (n=133)**			**Single (n= 147)**	**Married (n= 170)**		
	Mean±SD	**Mean±SD**	**Statistics**	**p**	**Mean±SD**	**Mean±SD**	**Statistics**	**p**
MBI-EE	30.66±7.2	29.61±8.12	*t(315)*=1.189 *d*=0.138	0.235	31.8±7.56	28.85±7.4	*t(315)*=-3.506 *d*=0.395	<0.001*
MBI-DP	12.58±4.32	12.92±4.28	*t(315)*=-0.713 *d*=0.081	0.477	13.77±4.23	11.82±4.17	*t(315)*=-4.124 *d*=0.465	<0.001*
MBI-PA	30.12±4.46	30.71±4.67	*t(315)*=-1.126 *d*=0.129	0.261	29.31±4.72	31.28±4.2	*t(315)*=3.884 *d*=-0.441	<0.001*
	Exposed violence in the last year				**Exposed mobbing in the last year**			
	Yes (n=30)	**No (n= 287)**			**Yes (n= 90)**	**No (n=227)**		
	Mean±SD	**Mean±SD**	**Statistics**	**p**	**Mean±SD**	**Mean±SD**	**Statistics**	**p**
MBI-EE	30.47±7.49	30.21±7.66	*t(315)*=-0.18 *g*=0.034	0.858	32.91±6.95	28.95±7.46	*t(315)*=-4.471 *g*=0.54	<0.001*
MBI-DP	12.57±4.48	12.71±4.29	*t(315)*=0.166 *g*=-0.033	0.869	13.9±4.15	12.15±4.21	*t(315)*=-3.363 *g*=0.416	0.001*
MBI-PA	30.27±4.77	30.33±4.52	*t(315)*=0.069 *g*=-0.014	0.945	29.33±4.3	30.8±4.61	*t(315)*=2.675 *g*=-0.323	-
	Childcare Status				**Current psychistric treatment**			
	Yes (n=99)	**No (n=218)**			**Yes (n=90)**	**No (n=227)**		
	Mean±SD	**Mean±SD**	**Statistics**	**p**	**Mean±SD**	**Mean±SD**	**Statistics**	**p**
MBI-EE	27.64 (7.44)	31.39 (7.4)	*t(315)*=4.168 *d*=-0.506	<0.001*	29.99±6.73	30.31±7.94	*t(315)*=0.362 *d*=-0.042	0.718
MBI-DP	11.25 (4.3)	13.39 (4.14)	*t(315)*=4.148 *d*=-0.51	<0.001*	12.68±3.7	12.74±4.53	*t(315)*=0.127 *d*=-0.014	0.899
MBI-PA	31.73 (4.33)	29.75 (4.52)	*t(315)*=-3.721 *d*=0.443	<0.001*	29.5±4.97	30.71±4.33	*t(315)*=2.022 *d*=-0.267	0.045

MBI-EE: Emotional exhaustion subscale of Maslach burnout inventory, MBI-DP: Depersonalization subscale of MBI, MBI-PA: Personal accomplishment subscale of MBI

t: Independent Samples t-Test, d=Cohen's d coefficient, g=Hedges' g coefficient

Significant ANOVA results ($p < 0.005$) are indicated by *

Table 3. Comparisons of Burnout, Depression and Rumination Scores in Terms of Home Housework Responsibility, Academic Title and On Shift Status

	Housework responsibility					
	PS (n=132)	PP (n=74)	ES (n=111)			
	Mean±SD	Mean±SD	Mean±SD	Statistics	*p*	Post-hoc
MBI-EE	31.56±7.24	29.28±7.66	29.24±7.82	F(2.314)=3.584 η2=0.022	0.029	-
MBI-DP	13.47±4.23	12.31±4.71	12.09±3.99	F(2.314)=3.596 η2=0.022	0.029	-
MBI-PA	29.24±4.64	31.11±4.49	31.21±4.33	F(2.314)=7.174 η2=0.044	0.001*	ES> PS=PP
	Academic title					
	Resident (n=180)	Specialist (n=95)	Academician (n=42)			
	Mean±SD	Mean±SD	Mean±SD	Statistics	*p*	Post-hoc
MBI-EE	31.1±7.11	29.86±8.75	27.24±6.03	F(2.314)=6.49 *ω2*= 0.033	0.002*	Res>Ac
MBI-DP	13.65±4.02	12.21±4.44	9.91±3.78	F(2.314)=15.11 *ω2*=0.081	<0.001*	Res>Spec>Ac
MBI-PA	29.27±4.31	31.52±4.18	32.45±5.09	F(2.314)=13.66 *ω2*=0.074	<0.001*	Ac>Spec>Res
	Shift status					
	No shifts (n=48)	On-call call shifts (n=53)	Night-call shifts (n=216)			
	Mean±SD	Mean±SD	Mean±SD	Statistics	*p*	Post-hoc
MBI-EE	26.94±7.34	28.07±6.91	31.47±7.52	F(2.314)=10.048 *ω2*=0.054	<0.001*	NS>OS=NoS
MBI-DP	12.15±4.11	11.36±4.22	13.18±4.29	F(2.314)=4.441 *ω2*=0.021	0.013	-
MBI-PA	30.71±4.6	32.68±3.92	29.72±4.49	F(2.314)=9.646 *ω2*=0.052	<0.001*	NS>OS

MBI-EE: Emotional exhaustion subscale of Maslach burnout inventory, MBI-DP: Depersonalization subscale of MBI, MBI-PA: Personal accomplishment subscale of MBI, PS: Primarily self, PP: Primarily partner or parent, ES: Equally shared, Res: Resident, Ac: Academician, Spec: Specialist, NS: Night-call shifts, OS: On-call call shifts, NoS: No shifts

F: F statistic of ANOVA, η2: partial eta-squared, *ω2=omega squared*

Significant ANOVA results ($p < 0.005$) are indicated by *

When burnout, depression, rumination and perfectionism scores were compared between physicians with and without suicidal ideation-plan-attempt (*suicide risk*), the increased suicide risk group had higher MBI-EE and lower MBI-PA scores. In addition, depression, rumination, FMPS-CM, FMPS-PE, FMPS-PC and FMPS-DA scores were higher in the suicide risk group (see Table S1). Perfectionism dimensions except FMPS-PE and FMPS-Ord, all burnout and rumination scores, and depressive symptom severity were significantly higher in those who met the diagnosis of depression according to the PHQ-9. Participants in the depression group were more likely to be in the suicide risk group (see Table S1).

Correlations Between Work-Related and Clinical Variables

Number of night shifts and number of working hours per week were associated with an increase in MBI-EE, MBI-DP, depression, and rumination scores and a decrease in MBI-PA. Age and financial satisfaction level were associated with a decrease in burnout, rumination, and depressive symptom severity. There were positive correlations between the number of patients examined per day and MBI-EE and MBI-DP (see Table S2).

Significant correlations were found between burnout, depressive symptom severity, and perfectionism. MBI-EE, MBI-DP, PHQ-9, and rumination scores were positively correlated with

each other and with most perfectionism scores. Negative correlations were found with the MBI-PA, as expected (see Table S3).

Linear Regression Models of Burn-out and Depressive Symptom Severity

Four different regression models were constructed to evaluate the associations between all three dimensions of burnout and PHQ-9 total score (as dependent variables), and perfectionism, rumination scores, age, academic title (academicians vs. specialists/residents), number of NCSs, number of working hours per week, housework responsibility (equally shared vs. primarily self/partner or parent), caregiving for a child, number of patients examined per day, financial satisfaction, and history of mobbing in the last year (see Table 4). The models established for MBI-EE, MBI-DP, and MBI-PA were all significant [adjusted R^2=0.494, F(3,313)=100.702, p<0.001; adjusted R^2=0.289, F(4,312)=31.248, p<0.001; and adjusted R^2=0.269, F(7,309)=16.062, p<0.001, respectively].

Table 4. Results of Linear Regression Analyses

Variables	Unstandardized coefficients		Standardized coefficient			95%CI for B	
	B	SE	ß	t	*p*	Lower	Upper
MBI-EE							
(Constant)	1.076	0.058		18.619	<0.001***	0.962	**1.190**
PHQ-9 total	0.175	0.021	0.420	8.190	<0.001***	0.133	**0.217**
RRS-Work	0.255	0.045	0.287	5.623	<0.001***	0.166	**0.344**
Financial satisfaction	-0.144	0.031	-0.195	-4.718	<0.001***	-0.204	**-0.084**
MBI-DP							
(Constant)	0.637	0.096		6.606	<0.001***	0.447	**0.827**
PHQ-9 total	0.150	0.035	0.265	4.342	<0.001***	0.082	**0.218**
RRS-Work	0.251	0.073	0.207	3.424	0.001**	0.107	**0.395**
Age	-0.003	0.001	-0.149	-2.665	0.008**	-0.005	**-0.001**
Being an academician	-0.070	0.025	-0.151	-2.753	0.006**	-0.020	**-0.120**
MBI-PA							
(Constant)	1.414	0.051		27.636	<0.001***	1.313	**1.514**
PHQ-9 total	-0.037	0.015	-0.155	-2.533	0.012*	-0.066	**-0.008**
FMPS-CM	-0.150	0.036	-0.313	-4.195	<0.001***	-0.221	**-0.080**
FMPS-PS	0.214	0.041	0.345	5.279	<0.001***	0.134	**0.294**
FMPS-DA	-0.071	0.027	-0.165	-2.617	0.009**	-0.124	**-0.018**
Age	0.001	<0.001	0.158	3.104	0.002**	<0.001	**0.002**
Sharing of houseworks	0.015	0.007	0.107	2.131	0.034*	0.001	**0.029**
Financial satisfaction	0.058	0.022	0.135	2.663	0.008**	0.015	**0.101**
PHQ-9							
(Constant)	-0.432	0.199		-2.171	0.031*	-0.824	**-0.040**
RRS-Work	0.866	0.116	0.405	7.485	<0.001***	0.639	**1.094**
FMPS-CM	0.576	0.130	0.290	4.439	<0.001***	0.321	**0.831**
FMPS-PS	-0.295	0.144	-0.114	-2.042	0.042*	-0.578	**-0.011**
FMPS-PC	-0.139	0.081	-0.089	-1.722	0.086	-0.298	**0.020**
FMPS-DA	0.266	0.101	0.150	2.642	0.009**	0.068	**0.465**
Age	-0.003	0.001	-0.082	-1.866	0.063	-0.006	**<0.001**
Sharing of houseworks	-0.056	0.025	-0.096	-2.216	0.027*	-0.106	**-0.006**
Financial satisfaction	**-0.182**	**0.077**	**-0.103**	**-2.358**	**0.019***	**-0.334**	**-0.030**

PHQ-9: Patient Healt Questionnaire-9, RRS: Ruminative Responses Scale, FMPS-CM: Concern over mistakes subscale of Frost multidimensional perfectionism scale, FMPS-DA: Doubts about actions subscale of FMPS, FMPS-PE: Parental expectations subscale of FMPS, FMPS-PC: Parental criticism subscale of FMPS, FMPS-PS: Personal standarts subscale of FMPS.

Model for MBI-EE: *adjusted* R^2=0.494, $F(3,313)=100.702$, $p<0.001$

Model for MBI-DP: *adjusted* R^2=0.289, $F(4,312)=31.248$, $p<0.001$

Model for MBI-PA: *adjusted* R^2=0.269, $F(7,309)=16.062$, $p<0.001$

Model for PHQ-9: *adjusted* R^2=0.460, $F(8,308)=32.434$, $p<0.001$

*p<0.05, **p<0.01, ***p<0.001

MBI-EE scores were positively predicted by depressive symptom severity, RRS-Work, and working night shifts, whereas financial satisfaction was negatively predicted MBI-EE. MBI-DP was positively associated with depressive symptom severity and RRS-Work scores, but negatively associated with being an academician.

Depressive symptom severity and maladaptive perfectionism negatively influenced MBI-PA, whereas adaptive perfectionis and shared household responsibilities were associated with increased MBI-PA. Depressive symptom severity was positively predicted by FMPS-CM, FMPS-DA, and RRS-Work, whereas negative associations were observed with age, shared household responsibilities, high FMPS-PS, and financial satisfaction [R^2=0.460, F(8,308)=32.434, p<0.001].

The Relationship Between Burnout, Depressive Symptoms, and Suicide Risk

According to the logistic regression analysis conducted to evaluate whether the relationship between suicide risk and burnout is independent of depressive symptoms, the PHQ-9 total score (Wald=37.345, p<0.001) and low MBI-PA (Wald=4.612, p=0.032) were significant predictors of being in the suicide risk group (Chi-square=60.747, p<0.001, Log likelihood=253.75, Nagelkerke R^2=0.283). The results of the logistic regression analysis are presented in Table 5.

Effects of depressive symptoms and rumination on the relationship between perfectionism and burnout

Before conducting the mediation analysis, common factors for burnout and perfectionism were calculated using principal component analysis (PCA). The derived common factor for burnout (ComBurn) explained 48.2% of the total variance. For adaptive perfectionism, the calculated common factor based on the PS and Ord subscales explained 36% of the total variance, which was considered insufficient. Consistent with the literature, the Ord subscale showed inadequate correlations with other subscales. Conversely, the PS subscale, another form of adaptive perfectionism, showed positive and significant correlations with other

Table 5. Logistic Regression Model Predicting Suicide Risk from Depression and Burnout Scores

	ß	SE	Wald	OR	95% CI for OR	p
Constant	0.891	1.468	0.369	2.438		
MBI-EE	-0.051	0.031	2.672	0.95	0.893-1.01	0.102
MBI-DP	-0.083	0.048	2.95	0.921	0.837-1.012	0.086
MBI-PA	-0.082	0.038	4.612	0.921	0.855-0.993	0.032*
PHQ-9	0.226	0.037	37.345	1.254	1.171-1.353	<0.001**

ß= Unstandardized coefficient, SE= standard error, OR = odds ratio, CI= confidence interval

MBI-EE: Emotional exhaustion subscale of Maslach burnout inventory, MBI-DP: Depersonalization subscale of MBI, MBI-PA: Personal accomplishment subscale of MBI, PHQ-9: Patient Health Questionnaire-9

*p<0.05, **p<0.001

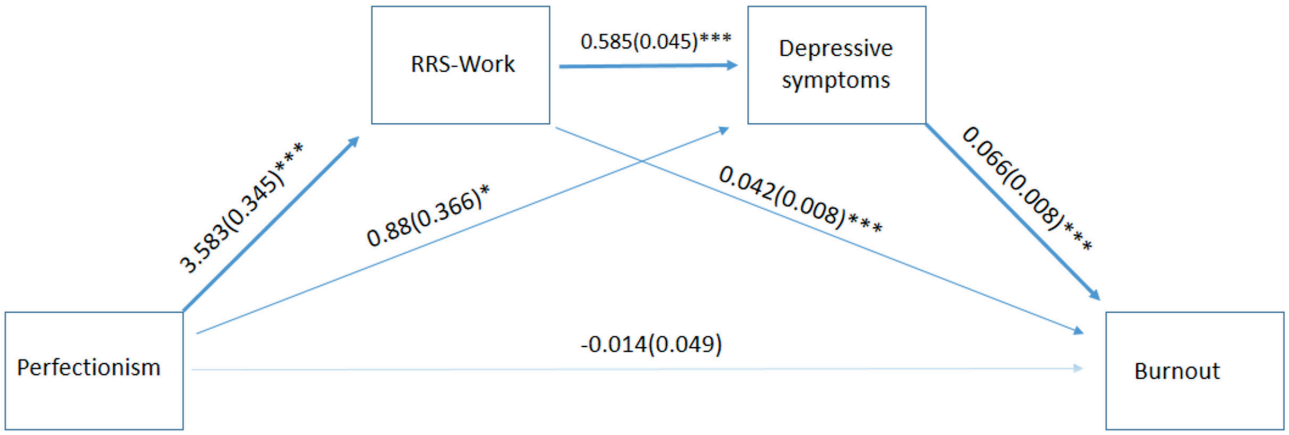

Figure 2. Effects of depressive symptoms and rumination on the relationship between perfectionism and burnout

The numbers above the lines represent the standardized beta coefficient and standard error: beta coefficient (standard error)

RRS-Work: - Work related score of Ruminative Responses Scale

*p<0.05, **p<0.01, ***p<0.001

Table 6. The Role of Depressive Symptoms and Work Related Rumination in the Relationship Between Perfectionism and Burnout

	ß	SE	z	p	LLCL	ULCL
Direct effects						
ComPer → RRS-W	3.583	0.345	10.387	<0.001	2.907	4.249
ComPer → PHQ-9	0.88	0.366	2.403	0.016	0.184	1.607
RRS-W → PHQ-9	0.585	0.045	12.944	<0.001	0.444	0.675
RRS-W → ComBurn	0.042	0.008	4.986	<0.001	0.025	0.058
PHQ-9 → ComBurn	0.066	0.008	8.055	<0.001	0.05	0.082
ComPer → ComBurn	-0.014	0.049	-0.283	0.777	-0.013	0.082
Indirect effects						
ComPer → RRS-W → ComBurn	0.15	0.032	4.77	<0.001	0.091	0.217
ComPer → PHQ-9 → ComBurn	0.058	0.026	2.276	0.023	0.013	0.113
RRS-W → PHQ-9 → ComBurn	0.039	0.006	6.894	<0.001	0.028	0.051
Total Indirect effect	0.138	0.024	5.648	<0.001	0.096	0.191
Total effect	0.124	0.055	2.276	0.023	0.019	0.234

ComPer: Common-factor for perfectionism, RRS-W: Work related score of Ruminative Response Scale; PHQ-9: Patient Health Questionnaire-9; ComBurn: Common-factor for burnout, SE: Standard error; LLCL: Lower limit of the 95 % confidence interval; ULCL: Upper limit of the 95 % CI.

subscales. The factor loading for the recalculated common factor excluding the Ord items was 0.668. Thus, perfectionism was treated as a unified construct. The common factor calculated for Perfectionism (ComPer) explained 52.2% of the total variance. For ComPer, the factor loadings of the subscales ranged from 0.651 to 0.803, whereas for ComBurn, the factor loadings for MBI-EE, MBI-DP, and MBI-PA were 0.807, 0.777, and -0.437, respectively. While RRS-Work positively predicted MBI-EE, MBI-DP, and PHQ-9 total scores, RRS-Other had no significant predictive effect. Therefore, only RRS-Work was included as a first mediator in the mediation analysis.

There were significant positive direct effects of ComPer on RRS-Work and PHQ-9 total score, RRS-Work on PHQ-9 total score and ComBurn and PHQ-9 on ComBurn (see Table 6 and Figure 2)

The total indirect effect of ComPer on ComBurn mediated by depressive symptoms and rumination was statistically significant. The direct effect of ComPer on ComBurn was not significant. There were significant indirect effects of ComPer on ComBurn mediated by RRS-Work and mediated by PHQ-9.

DISCUSSION

In this study, the relationships between burnout, perfectionism, depressive symptoms and rumination in physicians, as well as the mediating role of depression and rumination in the relationship between perfectionism and burnout were evaluated. The findings of our study indicated that being unmarried, having a history of mobbing, taking the primary responsibility for household chores, being a resident, and working night shifts were associated with burnout. According to the results of regression analysis, emotional exhaustion and depersonalization were predicted by depressive symptom severity and rumination, while significant relationships were found between personal accomplishment and perfectionism scores. The likelihood of being in the suicide risk group was determined by personal accomplishment in addition to depressive symptom severity. Mediation analysis revealed that the relationship between perfectionism and burnout was fully mediated separately and jointly by depressive symptom severity and rumination.

Our study revealed that low financial satisfaction, younger age, high daily patient load, number of working hours per week and number of night shifts, as well as being exposed to mobbing in the last 1 year were related to increased emotional exhaustion and depersonalization. Being married and having children to care for were shown to be protective in terms of all burnout subscores and sharing housework responsibility was related to increased personal accomplishment. Our findings are consistent with the literature [5,29]. Financial satisfaction is closer to psychological qualities

rather than objective economic indicators [30]. Low financial satisfaction may affect the enjoyment of life and lead to difficulties in coping with work-related stressors. In fact, financial satisfaction negatively predicted emotional exhaustion and positively predicted personal accomplishment. In parallel with our findings, in a large sample study, burnout severity was found to be lower in those with higher financial satisfaction. [30].

High daily patient load, the number of hours worked per week and the number of night shifts are known to have both psychologically and physically exhausting effects like sleep deprivation and attention deficits [4,5,12,31]. At the same time, spending extended periods in the hospital may reduce the time available for professional development and decrease the appreciation received relative to the effort exerted, leading to a diminished sense of personal accomplishment. Devoting a significant portion of time to work may also reduce the sense of autonomy in life and limit time for social activities, potentially resulting in increased loneliness and decreased job satisfaction [30]. Moreover, being single and not sharing household responsibilities—factors potentially associated with loneliness and inadequate social support —were found in our study to be related to increased burnout, rumination, depression, and suicide risk. Our findings align with the literature suggesting that being married and having children are protective against burnout [30,32]. Sharing household responsibilities can also be interpreted as a sign of increased social interaction, in addition to reducing the physical workload. To our knowledge, no studies in the literature have specifically evaluated the impact of sharing household responsibilities on burnout.

Another factor shaping working conditions is the sense of psychological and physical safety. Mobbing can disrupt the sense of psychological security. In our study, individuals who experienced mobbing in the past year exhibited higher scores for burnout, depressive symptom severity, and rumination. Consistent with our findings, mobbing has been associated with increased emotional exhaustion and depersonalization [5,33]. The lack of a significant relationship between exposure to violence and burnout in our study may suggest that mobbing has more long-term and profound psychological effects than violence. However, factors such as duration and severity of violence were not assessed in our study. In contrast, a study conducted in our country that comprehensively assessed violence (n=310) found that physical or verbal violence was associated with emotional exhaustion and depersonalization [34]. The literature on the relationship between exposure to violence and burnout is limited and further studies are needed.

In our study, in line with the literature, residents had higher emotional exhaustion, depersonalization, and lower personal accomplishment scores than academicians [4,5]. Specialists were between residents and academics in terms of depersonalization and personal accomplishment scores. In addition, age and academic title were negatively predictive of emotional exhaustion and depersonalization. Differences between academic title groups may indicate the impact of roles and expectations in the professional hierarchy on burnout. Lower personal accomplishment scores in residents compared to specialists and academicians may be related to inexperience and lower sense of control. The fact that there was no difference between residents and specialists in terms of emotional exhaustion, but that the sense of personal accomplishment was higher and depersonalization was lower in specialists, may be a sign that ways of coping with emotional exhaustion have developed over time. In the literature, a negative correlation between age and burnout has been found in parallel with our findings [4,5,9].

In the correlation analyses, an increase in depressive symptom severity and rumination scores was associated with a decrease in the personal accomplishment and an increase in emotional exhaustion and depersonalization. In addition, depressive symptom severity significantly predicted burnout, while work related rumination score predicted emotional exhaustion and depersonalization in multiple linear regression analyses. In support of our findings, it is known that there is a positive correlation between burnout level and severity of depressive symptoms and rumination [8,11,17,18]. Rumination is a way of thinking triggered by uncertainty or unresolvable situations [35]. Factors such as coping with problems that arise in health care processes and worrying about making mistakes, along with fatigue, can lead to the development of rumination. Rumination is

thought to increase sensitivity to negative cues and contribute to the onset or persistence of depressed mood [36]. Increased sensitivity to negative situations may lead to emotional exhaustion and depersonalization through decreased enjoyment of the health care process. Thus, depressive symptom severity and work related rumination together positively predicted depersonalization and emotional exhaustion scores. The fact that work related rumination score and depressive symptom severity predicted burnout scores supports the hypothesis that burnout is a subthreshold or clinical manifestation of depression secondary to work-related stress [11,37]. There is a need for more studies investigating the effect of rumination on burnout. In addition, determining the characteristics of the work environment that create a triggering atmosphere for rumination and interventions to address them may be a protective approach to preventing the development of burnout in physicians.

The only study investigating the relationship between perfectionism and burnout in physicians found that self-critical perfectionism predicted high emotional exhaustion and depersonalization [16]. In the study, three dimensions of perfectionism were investigated with the Big Three Perfectionism Scale. In our study, perfectionism scores were found to be associated with personal accomplishment. High personal standards, which represents a dimension of adaptive perfectionism, was found to positively predict the sense of personal accomplishment. In contrast, concern over mistakes and doubts about actions, components of maladaptive perfectionism, were linked to a reduction in personal accomplishment. A balance between personal standards, including goal-setting and attentiveness, and maladaptive perfectionism dimensions, such as fear of making mistakes and doubting one's actions, which reduce self-confidence and sense of competence, seems to be associated with an increased sense of personal accomplishment. Future research may provide insights for the development of individualized approaches to the prevention and treatment of burnout.

The mediation analysis we conducted to present a holistic picture revealed that perfectionism increases burnout through rumination and depressive symptoms. Additionally, rumination exacerbates depressive symptoms, thereby contributing to higher burnout levels. Similarly, perfectionism was shown to independently increase depressive symptoms through rumination, leading to an increase in burnout. These results were consistent with the other findings of the study. Our findings suggest that interventions targeting rumination and perfectionist beliefs may be beneficial in preventing burnout. Such intervention efforts could help reduce depression and suicidal tendencies among physicians.

Burnout has been shown to be associated with increased suicide risk in the literature [9,20,38]. In our study, in parallel with the literature, emotional exhaustion, depersonalization, Depressive symptom severity, rumination and maladaptive perfectionism scores were higher and personal accomplishment scores were lower in the suicide risk group. Perfectionism can also be a source of suicidal thoughts. It has been shown that self-stigma is higher and help-seeking is lower in individuals with high perfectionism [39,40]. Physicians experiencing burnout may avoid seeking professional help for their psychiatric complaints and try to cope with depressive symptoms. Therefore, perfectionism may be a condition that prevents help-seeking behaviors in physicians. This may lead to increased rumination, exacerbation of depressive symptoms and burnout, and the emergence of suicidal thoughts. Our study also demonstrated that a higher depressive symptom severity and lower personal accomplishment scores increased the likelihood of being in the suicidal risk group. A dynamic process (including maladaptive perfectionism) whose final common pathway is a decrease in the sense of low personal achievement may lead to an increase in feelings of inadequacy and worthlessness and hopelessness. There is no study investigating the role of perfectionism and rumination in the relationship between burnout and suicide. Follow-up studies with large samples investigating the relationship between suicide risk, burnout and self-stigma may be instructive in illuminating the path to suicide in physicians.

Our study is the first to examine the role of perfectionism in the development of physician burnout, taking into account indirect effects. Examining the role of mediators such as depressive symptoms and rumination are among the strengths of the study. However, this study has several

limitations. First, the relatively small sample size limits the generalizability of the results and further analyses to analyze more complex relationships. Second, factors not assessed in our study, such as obsessive-compulsive and other personality traits, autistic traits, anxious temperament, self-esteem, coping mechanisms, resilience, and perceived social support, may have influenced the relationship between perfectionism and burnout. Future studies with larger samples that examine both vulnerability factors for burnout and positive coping strategies from a broader perspective may provide clearer inferences about the underlying mechanisms of burnout. Third, depressive symptoms were assessed using a self-report scale. Fourth, our study is cross-sectional. Follow-up studies may provide a clearer understanding of the causal relationships between burnout and individual psychological characteristics.

Author contribution

Study conception and design: EM, BKY; data collection: EM, BKY; analysis and interpretation of results: EM, BKY; draft manuscript preparation: AA, EM, BKY. All authors reviewed the results and approved the final version of the manuscript.

Ethical approval

The study was approved by the Baskent University Institutional Review Board (Protocol no. KA23/424/12.19.2023).

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Conflict of interest

The authors declare that there is no conflict of interest.

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Table S1. Burnout, Depression, Rumination and Perfectionism Scores in Suicide Risk and Depression Groups

	Suicide Risk			
	Yes (n=63)	No (n=254)		
	Mean±SD	Mean±SD	Statistics	p
MBI-EE	32.76±7.35	29.59±7.55	*t(315)*=-3.053 *d*=0.423	0.003**
MBI-DP	13.48±4.71	12.54±4.18	*t(315)*=-1.449 *d*=0.219	0.151
MBI-PA	28.75±4.3	30.77±4.53	*t(315)*=3.303 *d*=-0.451	0.001**
PHQ-9	15.49±6.01	9.33±5.55	*t(315)*=-7.393 *d*=1.092	<0.001***
RRS-Other	25.92±6.75	20.49±5.75	*t(315)*=-5.878 *d*=0.912	<0.001***
RRS-W	24.13±7.31	19.86±5.8	*t(315)*=-4.309 *d*=0.697	<0.001***
FMPS-CM	24.3±5.8	20.2±6.24	*t(315)*=-4.946 *d*=0.666	<0.001***
FMPS-PS	23.92±6.23	22.65±5.06	*t(315)*=-1.507 *d*=0.24	0.135
FMPS-PE	14.95±5.08	13.5±5.11	*t(315)*=-2.034 *d*=0.285	0.045
FMPS-PC	10.52±3.7	8.62±3.62	*t(315)*=-3.667 *d*=0.523	<0.001***
FMPS-DA	12.73±4.01	10.76±3.61	*t(315)*=-3.549 *d*=0.532	<0.001***
FMPS-Ord	22.4±5.26	22.7±4.24	*t(315)*=0.425 *d*=-0.068	0.672
	Major Depressive Disorder			
	Yes (n=88)	No (n=229)		
	Mean±SD	Mean±SD	Statistics	p
MBI-EE	36.49±6.2	27.81±6.67	t(315)=-10.925 *d*=1.326	<0.001***
MBI-DP	15.43±4.25	11.68±3.85	t(315)=-7.215 *d*=0.946	<0.001***
MBI-PA	28.86±3.89	30.94±4.66	t(315)=4.026 *d*=-0.466	<0.001***
PHQ-9	18.44±3.8	7.52±3.69	t(315)=-23.101 *d*=2.936	<0.001***
RRS-Other	26.92±6.28	19.51±5.02	t(315)=-9.91 *d*=1.372	<0.001***
RRS-W	26.5±6.11	18.48±4.87	t(315)=-11.04 *d*=1.53	<0.001***
FMPS-CM	24.83±5.65	19.55±6.01	t(315)=-7.322 *d*=0.893	<0.001***
FMPS-PS	25.11±5.73	22.05±4.91	t(315)=-4.43 *d*=0.595	<0.001***
FMPS-PE	14.62±5.35	13.46±5.01	t(315)=-1.762 *d*=0.227	0.08
FMPS-PC	10.12±4.23	8.57±3.4	t(315)=-3.093 *d*=0.427	0.002**
FMPS-DA	13.06±3.91	10.42±3.46	t(315)=-5.545 *d*=0.734	<0.001***
FMPS-Ord	23.24±4.68	22.41±4.36	t(315)=-1.438 *d*=0.186	0.152
Suicide risk n (%)				
Yes	35 (55.6)	28 (44.4)	$\chi 2$=30.2981 *V*= 0.309	<0.001
No	53 (20.9)	201 (79.1)		

MBI-EE: Emotional exhaustion subscale of Maslach burnout inventory, MBI-DP: Depersonalization subscale of MBI, MBI-PA: Personal accomplishment subscale of MBI, PHQ-9: Patient Health Questionnaire-9, FMPS-CM: Concern over mistakes subscale of Frost multidimensional perfectionism scale, FMPS-DA: Doubts about actions subscale of FMPS, FMPS-PE: Parental expectations subscale of FMPS, FMPS-PC: Parental criticism subscale of FMPS, FMPS-PS: Personal standarts subscale of FMPS, FMPS-Ord: Order/organization subscale of FMPS, RRS: Ruminative Responses Scale.

*p<0.05,**p<0.01, ***p<0.001

Table S2. Correlations between work-related variables and burnout, depressive symptoms and rumination

	Age	Financial satisfaction	Years of experience	Daily Examined Patients	Number of NSs	Number of OCSs	Working Hours
MBI-EE	r=-0.199 p<0.001***	r=-0.326 p<0.001***	r=-0.15 p=0.008**	r=0.207 p<0.001***	r=0.267 p<0.001***	r=-0.096 p=0.089	r=0.26 p<0.001***
MBI-DP	r=-0.296 p<0.001***	r=-0.164 p=0.003**	r=-0.278 p<0.001***	r=0.121 p=0.031*	r=0.223 p<0.001***	r=-0.199 p<0.001***	r=0.242 p<0.001***
MBI-PA	r=0.215 p<0.001***	r=0.182 p=0.001**	r=0.223 p<0.001***	r=-0.04 p=0.479	r=-0.202 p<0.001***	r=0.188 p=0.001	r=-0.181 p=0.001**
PHQ-9	r=-0.214 p<0.001***	r=-0.198 p<0.001***	r=-0.145 p=0.01*	r=0.058 p=0.3	r=0.212 p<0.001***	r=-0.079 p=0.161	r=0.206 p<0.001***
RRS-Other	r=-0.176 p=0.002**	r=-0.117 p=0.037*	r=-0.125 p=0.026*	r=0 p=0.995	r=0.111 p=0.049*	r=-0.07 p=0.216	r=0.102 p<0.001***
RRS-Work	r=-0.163 p=0.004**	r=-0.173 p=0.002**	r=-0.109 p=0.053	r=0.109 p=0.054	r=0.202 p<0.001***	r=-0.084 p=0.137	r=0.204 p<0.001***

MBI-EE: Emotional exhaustion subscale of Maslach burnout inventory, MBI-DP: Depersonalization subscale of MBI, MBI-PA: Personal accomplishment subscale of MBI, PHQ-9: Patient Health Questionnaire-9, RRS: Ruminative Responses Scale.

*p<0.05,**p<0.01, ***p<0.001

Table S3. Correlations between burnout, depressive symptom severity, rumination and perfectionism

	MBI-EE	MBI-DP	MBI-PA
PHQ-9 Total	r=0.638 p<0.001***	r=0.45 p<0.001***	r=-0.365 p<0.001***
RRS-Other	r=0.449 p<0.001***	r=0.367 p<0.001***	r=-0.327 p<0.001***
RRS-Work	r=0.584 p<0.001***	r=0.423 p<0.001***	r=-0.324 p<0.001***
FMPS-CM	r=0.357 p<0.001***	r=0.274 p<0.001***	r=-0.315 p<0.001***
FMPS-PS	r=0.204 p<0.001***	r=0.178 p=0.001**	r=-0.032 p=0.569
FMPS-PE	r=0.194 p=0.001	r=0.126 p=0.025*	r=-0.076 p=0.177
FMPS-PC	r=0.24 p<0.001***	r=0.2 p<0.001***	r=-0.172 p=0.002**
FMPS-DA	r=0.342 p<0.001***	r=0.288 p<0.001***	r=-0.295 p<0.001***
FMPS-Ord	r=0.11 p=0.049*	r=0.045 p=0.424	r=0.007 p=0.897

MBI-EE: Emotional exhaustion subscale of Maslach burnout inventory, MBI-DP: Depersonalization subscale of MBI, MBI-PA: Personal accomplishment subscale of MBI, PHQ-9: Patient Health Questionnaire-9, FMPS-CM: Concern over mistakes subscale of Frost multidimensional perfectionism scale, FMPS-DA: Doubts about actions subscale of FMPS, FMPS-PE: Parental expectations subscale of FMPS, FMPS-PC: Parental criticism subscale of FMPS, FMPS-PS: Personal standarts subscale of FMPS, FMPS-Ord: Order/organization subscale of FMPS, RRS: Ruminative Responses Scale

*p<0.05,**p<0.01, ***p<0.001