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Psychological Distress and Job Satisfaction Among Resident Physicians Working in Tertiary Care Hospitals

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Abstract

This study intended to see the association between physicians' psychological distress and job satisfaction and how multiple factors like speciality and duty duration affect mental health and job satisfaction. This research was based on a cross-sectional research design along with a quantitative approach. The survey method was used to collect data from the targeted population, including resident physicians in public and private hospitals. The sample was designed using the snowball sampling technique. The Sample was comprised of 175 participants from multiple tertiary care hospitals. The age range of participants was 25-45 years. Self-reported measures, including the Kessler Psychological Distress Scale (K10) and Job Satisfaction Survey (JSS), were used. Data was analysed statistically and findings revealed a significant weak negative association between psychological distress and job satisfaction. In studying demographic differences, Female residents have more psychological distress and less job satisfaction than male residents. The present study shows significant differences in education, type of employment, salary and marital status. Besides the limitations of the study, these findings could assist healthcare professionals and policymakers in using techniques and assessments that help residents improve their health.

Keywords

Job satisfaction

Psychological distress

Resident physician

Tertiary care hospitals

INTRODUCTION

Residency is a demanding phase for doctors pursuing training in any speciality. A lot of resident doctors go through various levels of stress during their training and this persistent stress can lead to feelings of discouragement and dissatisfaction which could make doctors desire to drop out of a residency program (Shahi et al., 2022). To understand this, Workforce health can be measured in two ways. One is through self-assessment of health status that includes the physical or mental status of the individual (Song et al., 2014). The other way of measuring workforce health is through measuring individuals' activities of daily living (Collin et al., 1988). Psychological distress and low job satisfaction can come from various factors including low salaries, high workload, more job demands and communication etc. Barger et al., (2023) concluded that working for more than 60 to 70 hours is typically associated with making medical errors. When two factors like long weekly work hours and extended shifts are combined, it not only affects patient safety but also increases the risk of damaging physician health. Women experienced greater psychological distress. Work-family conflicts were found to be the factor linked to psychological distress. Distress in women was also linked to ignoring family because of being preoccupied with work (Viertio et al., 2021).

Lebares et al., (2018) concluded that throughout general surgery training, trainees who experienced high levels of stress and burnout were more likely to experience depression and suicidal ideation. Household economic well-being and annual income were also positively correlated with job satisfaction, while age, gender, marital status, and level of education had no significant impact on any kind of satisfaction (Tarcan et al., 2017). Antoniou et al., (2016) concluded that hospital doctors gradually had low job satisfaction with regards to salary, working hours, opportunities for promotion and general working conditions. Factors like age, specialization, and prevalence of physical symptoms were also strongly associated with job satisfaction when they were used as predictors of job satisfaction. All these research factors point to the importance of psychological health and job satisfaction of resident physicians for making fewer medical errors and patient care outcomes.

They offer a strong starting point to investigate the relationship between distress and job satisfaction and to look forward on factors that plays importance in one's distress and dissatisfaction. This study can

help in the formulation of effective strategies and policies for improving resident's health and motivation with their work. With the ever-increasing patient burden in tertiary care hospitals, resident physicians get to see loads of patients in their duty hours hence, long duty hours coupled with increased burden of patients adds to the psychological stress of resident physicians. This study must look at the factors that affect their competence, practice and skills. Through this study, we better understand their current health. This study aims to investigate the relationship between psychological distress and job satisfaction among resident physicians This study also examines how gender influences study variables and how it is influenced by workload, work environment and other factors that contribute to their distress and dissatisfaction and who is more prone to develop symptoms of psychological distress and dissatisfaction with jobs.

Objectives

- To study the relationship between psychological distress and job satisfaction among resident physicians
- To examine the level of psychological distress and job satisfaction the resident physicians have in accordance with the education, duty duration, speciality and year of training
- To examine the psychological distress and job satisfaction in accordance with gender, marital and income differences

Hypotheses

H_1: There is a negative relationship between psychological distress and job satisfaction among resident physicians working in tertiary care hospitals

H_2: Female resident physicians exhibit more psychological distress and less job satisfaction as compared to male residents working in tertiary care hospitals

H_3: There is a significant difference in psychological distress and job satisfaction among residents working with different educational and income levels

H_4: There is a significant difference in psychological distress and job satisfaction among residents working in public and private hospitals

H_5: Physicians with longer duty durations exhibit higher levels of psychological distress and less job satisfaction as compared to those with shorter duty durations.

H_6: There is a significant difference between psychological distress and job satisfaction among residents working with different specialities and years of training

H_7: There is a significant difference in psychological distress and job satisfaction among residents with different marital status

LITERATURE REVIEW

Research has proven multiple factors that play a crucial role in reducing one's psychological health and satisfaction with their job. These factors include long-duration duties, salary, education, type of employment etc. A significantly higher proportion of doctors working in India report feeling stressed, and depressed which is linked to long working hours, negative outcomes for patients, adverse doctor-patient relationships, and interpersonal interactions among colleagues (Grover et al., 2018). One of the studies showed that resident physicians are more prone to developing depression and anxiety due to long hours of work. The results also suggested that if residents worked more than 64 hours a week, it was significantly associated with increasing anxiety and depression that was shown in their behaviours as compared to residents who worked for 40 hours per week and adjusted their sleep amount and exposure to injustice (Bondagji et al., 2022). PGY1 residents reported working an average of 83 hours a week versus PGY2 residents who worked 76.2 hours per week. Stress and hours of sleep were significantly correlated

with total duty hours per week. Residents who work an average of more than 80 hours per week are more prone to be involved in a personal accident or injury, conflict with other staff members, and make significant medical errors (Baldwin et al., 2003). Both men and women experience a significant increase in depression symptoms throughout their internship year, with women experiencing a larger increase. The study also finds that work-family conflict is a significant and potentially modifiable factor linked to heightened depression symptoms. Reducing the disproportionate burden of depression disease among female physicians and improving physician mental health may be achieved by systemic changes aimed at reducing conflict between work and home life (Guille et al., 2017).

Resident physicians at the four Southern Nigerian tertiary hospitals that were chosen had low job satisfaction, which was accompanied by a decline in their psychological wellness. Furthermore, there was a noteworthy negative linear dose-response connection between psychological health and job satisfaction (Bello et al., 2019). Results of one study demonstrated that job satisfaction will improve with the decreased percentage of time spent in clinical domains while an increased percentage of time spent in the clinical and administrative domains was associated with significant declines (Chapman et al., 2023). One of the studies highlighted that among the sociodemographic factors, occupation, educational background, professional position, years of service, annual salary, and frequency of night shifts had a significant impact on the degree of job satisfaction. Reducing workload, keeping a moderate level of stress, and balancing work-family conflict are all strategies to improve job satisfaction (Lu et al., 2016).

Theoretical Framework

Job Demands-Resources (JD-R) Model

The Job Demands-Resources (JD-R) Model was developed by Bakker and Demerouti (2007). This model addresses the two categories of work, one is Job Demands and the other is job resources/positives. According to this model, job demands are defined as the physical or emotional stressors in your role. These include time pressures, a heavy workload, a stressful working environment, role ambiguity, emotional labour, and poor relationships. Job Resources/Positives are defined as the physical, social or organizational factors that help you to achieve goals and reduce stress. They include autonomy, strong work relationships, opportunities for advancement, coaching and mentoring, and learning and development. The JD-R model states that when the person does a highly demanding job the resources are low. This commonly causes burnout and stress. On opposite when people have high resources at work it offsets the effect of job demands and encourages motivation (Bakker & Demerouti, 2007).

METHODOLOGY

This study was based on a correlational research design along a quantitative approach was used to statistically examine the relationship between study variables. The sample was recruited through the snowball sampling technique. The sample was comprised of 175 participants with the age range of 25 to 45 years from different tertiary care hospitals. Categories of the sample were made as the following; working male resident physicians (n=86) and working female resident physicians (n=89). The participants who are willing to participate in the study are selected.

Inclusion Criteria

- Residents who were currently doing their training
- The trainee residents with any year of speciality were included in the study.
- Resident physicians in different departments of the hospital (Surgery, Gynae, Medicine and Dentistry etc.) were invited.

Exclusion criteria

- A resident whose age was more than 45.

- Medical officers or house officers were excluded from the study.
- The doctors who recently passed their part 1 exam and did not start their duties were excluded from the study.

Instrumentation

The Kessler Psychological Distress Scale (K10) is a simple measure of psychological distress. It was developed by Professors Ron Kessler and Dan Mroczek (as cited by Andrews & Slade, 2001). It is a psychological screening tool for identifying adults with significant levels of psychological distress. The K10 scale involves 10 questions about emotional states. It is a five-point Likert scale. Scores range from 10 to 50 with higher scores indicating a higher severity of psychological distress. Each item is scored from one 'none of the time' to five 'all of the time'. The Cronbach's alpha reliability of the Kessler Psychological Distress Scale is 0.88 (Andrews & Slade, 2001). The job Satisfaction Survey (JSS) was developed by Spector (1985). It consists of 36 items with nine dimensions to assess employees' attitudes about the job and aspects of the job. Each dimension of the questionnaire contains 4 items. Out of 36, 19 items are reverse scored. JSS is a 6-point Likert scale from strongly disagree to strongly agree. The Cronbach alpha reliability of the global scale is 0.89. The scale is translated into many languages and norms are also established for each version (Spector, 1985).

Operational Definitions

Psychological Distress

Psychological distress refers to the set of painful mental and physical symptoms that are associated with normal fluctuations of mood in most people. To measure psychological distress, the Kessler psychological distress scale (K10) was used as a brief screen to identify the level of distress. This includes 10 items about the emotional state of a person. A higher score on this scale showed a higher level of psychological distress (Andrews & Slade, 2001).

Job Satisfaction

Job satisfaction refers to employees' positive or negative emotions regarding their employment. It includes the extent to which expectations match reality, representing how much people like or detest their jobs. JSS is a 36 item with nine different aspects to assess employee attitude about their job. The job satisfaction survey was applicable to all organizations. The scores indicated both higher and lower job satisfaction with higher scores indicating high job satisfaction (Spector, 1985).

Ethical Consideration

Before data collection, the informed consent of each resident was taken at the start of the study. In informed consent, they were informed about the confidentiality of their data. The Research purpose was explained to them. They were also told about the right to withdraw from study at any point. They were assured that their respect and dignity would be the priority in the study. They were also assured that any communication regarding research queries and research results would be done with honesty and clearness. In case of any queries, the researcher provided an email to participants through which they would contact.

Procedure

The selected hospitals were approached. Permission was taken from MS of hospitals. The participants were contacted and informed consent was taken from them. The participants were requested to respond to the instruments that were presented while keeping in mind their own feelings and thoughts. They were also instructed about the goal of the study. Each research questionnaire was given to a subject individually. The survey took about 10 minutes to complete.

RESULTS & FINDINGS

Table 1

Demographics of study variable (N=175)

Characteristics	Subcategories	f	%
Gender	Male	86	49.1
	Female	89	50.9
Education Level	MBBS	150	85.7
	BDS	25	14.3
Type of employment	Public hospitals	65	37.1
	Private hospitals	110	62.9
Year of Training	First-year trainee	51	29.1
	Second-year trainee	53	30.3
	Third-year trainee	39	22.3
	Fourth-year trainee	32	18.3
Specialty Training	General Medicine	40	22.9
	Obse & Gynae	25	14.3
	Surgery	36	20.6
	Peads	39	22.3
	Dentistry	24	13.7
	Others	11	6.3
Duty Duration Per Week	> 40 hours per week	69	39.4
	> 60 hours per week	64	36.6
	> 80 hours per week	42	24.0
Current Income	Unpaid	48	27.4
	Low	20	11.4
	Middle	50	28.6
	High	57	32.6
Marital Status	Single	75	42.9
	Engaged	40	22.9
	Married	58	33.1
	Divorced	2	1.1

Table 1 reveals that a greater number of women (50.9%) participated in the study compared to men (49.1%). A greater number of MBBS residents (85.7%) were participated compared to BDS residents (14.3%). Semi-government hospital residents (37.1%) participated more than government hospital residents (62.9%). A higher number of residents with second-year training (30.3%) participated in the study. A greater number of medicine speciality resident physicians (22.9%) participated as compared to peads (22.3%), surgery (20.6%), Obse & Gynae (14.3%), dentistry (13.7%) and other speciality physicians (6.3%) respectively. The majority of residents with a duration of> 40 hours (39.4%) took part in the study. The majority of people with high incomes (32.6%) participated compared to others. A greater number of single resident physicians (42.9%) participated in the study compared to married (33.1%), engaged (22.9%) and divorced physicians (1.1%).

Table 2
Descriptive statistics of the responses (N= 175)

Variables	M	SD	α	Skewness	Kurtosis
KPDS	27.01	8.66	.88	.09	-.65
JSS	128.21	19.66	.82	.18	.66
Pay	11.13	4.23	.68	.30	-.46
Promotion	12.64	3.41	.34	.03	-.17
Supervision	17.26	4.23	.71	-.72	.77
Fringe Benefit	11.82	4.04	.62	.33	-.10
C. Reward	13.45	3.86	.59	-.13	.18
Oper.Conditions	13.45	3.64	.35	-.24	-1.10
Coworkers	15.96	3.42	.44	-.44	.31
Nature of Work	17.54	3.74	.60	-.66	.92
Communication	14.97	4.16	.65	-.10	-.28

Note: KPDS= Kessler psychological distress scale, JSS= job satisfaction survey, c. reward= contingent reward, Oper.Conditions= operating condition

Table 2 shows the psychometric properties of the study variable. Kessler Psychological Distress Scale showed good internal consistency of .88. Job Satisfaction Survey showed good internal consistency of .82 and its subscales also showed good consistency for pay (α = .68), fringe benefits (α = .62), supervision (α = .71), contingent reward (α = .59), nature of work (α = .60) and communication (α = .65) and low internal consistency for promotion (α = .34), operating condition (α = .35), coworker (α = .44)

Table 3
Descriptive Statistics and Pearson correlations for Study Variables (N=175)

	Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1.	KPDS	27.01	8.66	-	-	-	-	-	-	-	-	-	-	-
2.	JSS	128.21	19.66	-.38**										
3.	Pay	11.13	4.23	-.37**	.75**	-	-	-	-	-	-	-	-	-
4.	Prom	12.64	3.41	-.23**	.63**	.55**	-	-	-	-	-	-	-	-
5.	SV	17.26	4.23	-.09	.59**	.17*	.17*	-	-	-	-	-	-	-
6.	F.B	11.82	4.04	-.32**	.69**	.65**	.51**	.14	-	-	-	-	-	-
7.	C.R	13.45	3.87	-.36**	.73**	.56**	.43**	.38**	.40**	-	-	-	-	-
8.	O.C	13.45	3.64	.40**	-.19*	-.28**	.14	-.16*	.13	-.29**	-	-	-	-
9.	Cow	15.96	3.48	-.32**	.52**	.27**	.14	.42**	.15	.43**	-.36**	-	-	-
10.	N.W	17.54	3.68	-.28**	.59**	.33**	.24**	.42**	.28**	.26**	-.28**	.34**	-	-
11.	Com	14.97	4.16	-.34**	.72**	.48**	.30**	.41**	.43**	.51**	-.28**	.31**	.38**	-

Note: *p<.05, **p<.01. Kpds= Kessler psychological distress scale; JSS= job satisfaction survey, Prom= promotion; SV= supervision; F.B= fringe benefits; C.R= contingent reward; O.C= operating conditions; Cow= coworker; N.W= nature of work; Com= communication

Table 3 revealed that Kessler psychological distress scale has significant negative correlation with job satisfaction survey (r = -.38, p <.01) and has significant negative correlation with all subscales of job satisfaction survey (r = -.37; -.23; -.32; -.36; -.32; -.28, -.34, p<.05, p<.01) respectively expect operating conditions (r = .36). Job satisfaction survey has negative significant correlation with operating condition.

Kessler's psychological distress scale has no association with supervision. Pay has a significant negative correlation with Kessler's psychological distress scale and operating conditions.

Table 4

Means, standard deviations and t-value of psychological distress and job satisfaction based on gender (N=175)

Variables	Male		Female				95% CL		Cohen's d
	M	SD	M	SD	t(173)	P	LL	UL	
KPDS	23.78	8.75	30.12	7.36	-5.18	.00	8.76	3.93	.78
JSS	131.51	21.94	125.01	16.69	2.20	.03	.67	12.33	.33
Pay	12.06	4.46	10.22	3.82	2.93	.01	.60	3.07	.44
Prom	13.12	3.43	12.18	3.34	1.83	.07	.07	1.94	-
SV	17.19	3.93	17.33	4.51	-.22	.83	1.40	1.13	-
F.B	12.17	4.38	11.47	3.67	1.15	.25	.50	1.90	-
C.R	13.80	3.90	13.10	3.83	1.20	.23	.45	1.85	-
O.C	12.72	3.81	14.16	3.33	-2.65	.01	2.51	.37	.40
Cow	16.67	3.04	15.27	3.74	2.72	.01	.39	2.42	.41
N.W	18.31	3.85	16.79	3.36	2.80	.01	.45	2.60	.42
Com	15.47	4.32	14.49	3.97	1.55	.12	.26	2.20	-

Note: *p<.05, **p<.01, ***p<.001. Kpds= Kessler psychological distress scale; JSS= job satisfaction survey, Prom= promotion; SV= supervision; F.B= fringe benefits; C.R= contingent reward; O.C= operating conditions; Cow= coworker; N.W= nature of work; Com= communication; M=mean; SD=standard deviation; p=significance level.

Table 4 revealed significant mean differences on the Kessler psychological distress scale and job satisfaction survey on gender (p<.001 and p<.05) respectively. It also revealed significant mean differences on 4 subscales of JSS including pay, operating conditions, coworker and nature of work. Findings showed that women exhibited higher scores on KPDS and JSS subscale operating conditions compared to men. Men scored high on the job satisfaction surveys and JSS subscales pay, coworker and nature of work compared to women.

Table 5

Means, standard deviations and t-value of psychological distress and job satisfaction based on resident's educational level (N=175)

Variables	MBBS		BDS				95% CL		Cohen's d
	M	SD	M	SD	t(173)	p	LL	UL	
KPDS	27.84	8.72	22.00	6.34	4.01	.00	2.90	8.77	.77
JSS	127.95	20.05	129.72	17.45	-.42	.68	10.17	6.64	-
Pay	11.04	4.31	11.64	3.77	-.66	.51	2.40	1.20	-
Prom	12.75	3.43	11.96	3.24	1.08	.28	.66	2.24	-
SV	17.31	4.38	16.92	3.20	.43	.67	1.41	2.19	-
F.B	11.81	4.13	11.84	3.54	-.03	.98	1.75	1.70	-
C.R	13.21	3.91	14.88	3.32	-2.02	.05	3.30	.04	.46
O.C	13.85	3.63	11.08	2.69	4.50	.00	1.53	4.01	.87
C.W	15.68	3.57	17.64	2.27	-3.63	.00	3.05	.87	.66
N.W	17.51	3.69	17.72	3.62	-.27	.79	1.78	1.36	-
Com	14.79	4.31	16.04	3.01	-1.79	.08	3.02	.52	-

Note: *p<.05, ***p<.001. Kpds= Kessler psychological distress scale; JSS= job satisfaction survey, Prom= promotion; SV= supervision; F.B= fringe benefits; C.R= contingent reward; O.C= operating conditions; Cow= coworker; N.W= nature of work; Com= communication.

Table 5 revealed a significant mean difference on the Kessler psychological distress scale and 3 subscales of JSS including contingent reward, operating conditions, and coworker (p< .01). Findings showed that MBBS residents exhibited higher scores on KPDS and JSS subscale operating condition as compared to BDS residents. BDS residents scored high on the JSS subscale contingent reward and coworker compared to MBBS residents. Findings also revealed a non-significant mean difference in the overall job satisfaction survey.

Table 6

Means, standard deviations and t-value of psychological distress and job satisfaction based on employment (N=175)

Variables	Public hospitals		Private hospitals				95% CL		Cohen's d
	M	SD	M	SD	t(173)	P	LL	UL	
KPDS	24.82	8.99	28.30	8.22	-2.56	.01	6.11	.86	.40
JSS	134.65	21.36	124.40	17.60	3.43	.00	4.35	16.14	.52
Pay	12.40	4.46	10.37	3.92	3.14	.00	.75	3.30	.48
Prom	13.40	3.36	12.19	3.37	2.30	.02	.17	2.25	.36
SV	17.77	3.61	16.95	4.54	1.23	.21	.48	2.11	-
F.B	12.91	4.81	11.17	3.37	2.56	.01	.39	3.08	.42
C.R	14.40	4.00	12.88	3.69	2.50	.01	.34	2.69	.40
O.C	13.00	3.89	13.72	3.47	-1.26	.21	1.84	.40	-
CW	16.20	3.40	15.82	3.53	.70	.48	.69	1.46	-
N.W	18.57	3.30	16.93	3.76	2.92	.00	.53	2.75	.46
Com	16.00	4.26	14.36	4.00	2.55	.01	.37	2.90	.40

Note: *p<.05, **p<.01, ***p<.001. KPDS= Kessler psychological distress scale; JSS= job satisfaction survey, Prom= promotion; SV= supervision; F.B= fringe benefits; C.R= contingent reward; O.C= operating conditions; Cow= coworker; N.W= nature of work; Com= communication; M=mean; SD=standard deviation; p=significance level.

Table 6 revealed significant mean difference on Kessler psychological distress scale (p< .01), total job satisfaction survey (p< .01) and 6 subscales of JSS including pay (p< .01), promotion (p< .05), fringe benefits (p< .05), contingent reward (p< .05), nature of work (p< .01) and communication (p< .05). Findings showed that private hospital residents exhibited higher score on KPDS compared to public hospital residents. The table also revealed that public hospital residents scored high on the job satisfaction survey and JSS subscales pay, promotion, fringe benefits, contingent reward, nature of work and communication compared to private hospital residents.

Table 7
Mean, Standard Deviation and One –Way Analysis of Variance in KPDS and JSS based on duration of work (N=175)

Variable	>40 hours per week		>60 hours per week		>80 hours per week				
	M	SD	M	SD	M	SD	F(2, 172)	η^2	Post-Hoc
KPDS	26.51	8.88	26.86	8.91	28.05	7.96	.43	-	3>2>1
JSS	129.49	19.27	128.50	21.37	125.64	17.71	.51	-	1>2>3
Pay	11.55	4.18	11.34	4.43	10.10	3.94	1.69	-	1>2>3
Prom	13.06	3.59	12.09	3.52	12.79	2.84	1.39	-	1>3>2
SV	16.70	4.25	17.38	3.84	18.00	4.70	1.29	-	3>2>1
F.B	12.22	3.75	11.91	4.55	11.02	3.63	1.17	-	1>2>3
C.R	13.68	3.61	13.61	4.44	12.81	3.32	.75	-	1>2>3
O.C	13.71	3.47	13.39	3.92	13.12	3.52	.36	-	1>2>3
CW	16.30	3.21	15.83	3.83	15.60	3.37	.61	-	1>2>3
N.W	17.61	3.64	17.58	3.82	17.36	3.60	.07	-	1>2>3
Com	14.67	3.94	15.38	4.18	14.86	4.54	.50	-	2>3>1

Note: KPDS= Kessler psychological distress scale; JSS= job satisfaction survey, Prom= promotion; SV= supervision; F.B= fringe benefits; C.R= contingent reward; O.C= operating conditions; Cow= coworker; N.W= nature of work; Com= communication; M=mean; SD=standard deviation; p=significance level.

Results indicated a non-significant mean difference across duration per week groups on KPDS and JSS. The table also showed a non-significant mean difference on all subscales of the Job satisfaction survey.

Table 8
Mean, Standard Deviation and One-Way Analysis of Variance in KPDS and JSS based on year of training (N=175)

Variable	1st year of training		2nd year of training		3rd year of training		4th year of training				
	M	SD	M	SD	M	SD	M	SD	F(3, 171)	η^2	Post-Hoc
KPDS	26.88	7.16	27.92	8.52	27.41	10.08	25.19	9.29	.698	-	2>3>1>4
JSS	126.92	15.59	126.42	15.73	130.38	22.18	130.56	27.19	.53	-	4>3>1>2
Pay	10.08	3.63	10.62	3.74	12.90	4.23	11.47	5.26	3.81**	.06	3>4>2>1
Prom	11.98	3.18	12.58	3.44	13.64	3.42	12.56	3.55	1.79	-	3>2>4>1
SV	17.73	3.81	17.45	3.51	16.72	4.01	16.84	5.95	.56	-	1>2>4>3
F.B	11.08	3.57	11.47	3.92	12.46	3.97	12.78	4.84	1.66	-	4>3>2>1
C.R	13.39	4.11	12.98	3.58	14.38	3.30	13.16	4.51	1.09	-	3>1>4>2
O.C	14.61	3.44	13.45	3.35	12.13	3.73	13.22	3.87	3.64**	.06	1>2>4>3
CW	15.82	3.39	15.77	3.22	16.28	3.24	16.09	4.33	.20	-	3>4>1>2
N.W	17.08	3.21	17.09	3.84	17.64	3.97	18.91	3.52	2.07	-	4>3>2>1
Com	15.16	3.79	15.00	4.06	14.23	4.55	15.53	4.47	.64	-	4>1>2>3

Note: **p<.01. Kpds= Kessler psychological distress scale; JSS= job satisfaction survey, Prom= promotion; SV= supervision; F.B= fringe benefits; C.R= contingent reward; O.C= operating conditions; Cow= coworker; N.W= nature of work; Com= communication; M=mean; SD=standard deviation; p=significance level.

Table 8 indicated a significant mean difference across years of training on JSS subscale pay (p<

.01). Findings revealed that 3rd-year trainee residents exhibited a higher level of satisfaction on pay as compared to others. The post-Hoc comparison indicated significant between group mean differences of third year residency group with first and second year residency group and non-significant between group mean differences with fourth year residency group. Results indicated a significant mean difference in JSS subscale operating condition (p< .01). Findings revealed that 1st-year trainee residents exhibited a higher level of satisfaction with operating conditions. The post-Hoc comparison indicated significant between-group mean differences in the first-year residency group with the third-year residency group and non-significant between-group mean differences with second and fourth-year residency groups.

Table 9

Mean, Standard Deviation and One –Way Analysis of Variance in KPDS and JSS based on income level (N=175)

Variable	Unpaid		Low		Middle		High				
	M	SD	M	SD	M	SD	M	SD	F(3, 171)	η^2	Post-Hoc
KPDS	28.79	7.84	30.90	8.94	27.54	8.87	23.67	8.09	5.29**	.08	2>1>3>4
JSS	126.00	14.17	120.25	15.57	127.18	19.48	133.75	23.65	2.95*	.05	4>3>1>2
Pay	9.92	3.90	9.85	3.03	10.94	4.13	12.75	4.51	5.09**	.08	4>3>1>2
Prom	12.21	2.98	10.90	3.66	12.94	3.28	13.35	3.59	3.06*	.05	4>3>1>2
SV	17.71	4.38	16.80	3.44	16.70	4.17	17.53	4.42	.62	-	1>4>2>3
F.B	10.94	3.30	10.00	4.32	11.92	3.76	13.11	4.39	4.28**	.06	4>2>3>1
C.R	13.79	3.86	12.35	3.76	13.30	3.43	13.67	4.27	.75	-	1>4>3>2
O.C	13.81	3.07	14.35	2.82	13.80	4.03	12.53	3.86	1.98	-	2>1>3>4
CW	16.25	3.56	15.10	3.02	16.10	3.02	15.89	3.93	.55	-	1>3>4>2
N.W	16.71	3.85	16.55	2.37	17.34	3.97	18.75	3.37	3.58**	.06	4>3>1>2
Com	14.6	3.61	14.35	4.33	14.14	4.03	16.18	4.48	2.56	-	4>1>2>3

Note: *p<.05, **p<.01. Kpds= Kessler psychological distress scale; JSS= job satisfaction survey, Prom= promotion; SV= supervision; F.B= fringe benefits; C.R= contingent reward; O.C= operating conditions; Cow= coworker; N.W= nature of work; Com= communication; M=mean; SD=standard deviation; p=significance level.

Table 9 showed a significant mean difference across income groups on KPDS (p< .01). Findings revealed that the low-income residents group exhibited higher levels of psychological distress. The post-Hoc comparisons indicated significant group mean differences between each group with other groups. Results also indicated a significant mean difference in JSS (p< .05). High-income resident group exhibited a higher level of satisfaction. The post-Hoc comparisons indicated significant between-group mean differences between the high-income group and with low-income resident groups. The significant mean difference was also shown on JSS subscale pay (p< .01), promotion (p< .05), fringe benefits (p< .01) and nature of work (p< .01). The post-Hoc comparison indicated significant between-group mean differences of high-income residency group with low and unpaid income groups and non-significant between-group mean differences with middle-income residency group.

Table 10

Mean, Standard Deviation and One –Way Analysis of Variance in KPDS and JSS based on marital status (N=175)

	Single		Engaged		Married		Divorced				
Variable	M	SD	M	SD	M	SD	M	SD	F(3, 171)	η^2	Post-Hoc
KPDS	27.77	7.64	23.68	8.67	27.90	9.24	39.00	9.90	3.84**	.06	4>3>1>2
JSS	123.15	17.85	135.95	19.55	130.07	20.29	109.00	7.07	4.83**	.08	2>3>1>4
Pay	10.53	3.71	12.88	4.24	10.81	4.59	7.50	3.54	3.51*	.06	2>3>1>4
Prom	12.27	3.35	13.28	2.95	12.69	3.77	12.50	3.54	.77	-	2>3>4>1
SV	16.11	4.78	18.18	2.91	18.16	3.98	16.00	1.41	3.57*	.06	2>3>1>4
F.B	11.20	3.35	13.00	4.86	11.90	4.12	9.00	4.24	2.10	-	2>3>1>4
C.R	12.75	3.70	14.88	3.34	13.52	4.14	9.00	4.24	3.69**	.06	2>3>1>4
O.C	14.39	3.31	11.55	3.48	13.67	3.70	10.00	1.41	6.53***	.10	1>3>2>4
CW	15.24	3.84	16.93	2.43	16.33	3.43	13.00	2.83	2.89*	.05	2>3>1>4
N.W	16.88	3.61	18.38	3.36	17.72	3.89	20.00	2.83	1.87	-	4>2>3>1
Com	13.79	4.00	16.90	3.47	15.28	4.35	12.00	2.83	5.77***	.09	2>3>1>4

Note: *p<.05, **p<.01, ***p<.001. Kpds= Kessler psychological distress scale; JSS= job satisfaction survey, Prom= promotion; SV= supervision; F.B= fringe benefits; C.R= contingent reward; O.C= operating conditions; Cow= coworker; N.W= nature of work; Com= communication; M=mean; SD=standard deviation; p=significance level.

Table 10 showed significant mean differences across marital status on KPDS and JSS (p< .01) respectively. Findings revealed that the divorced group exhibited a higher level of psychological distress and the engaged group exhibited a higher level of satisfaction as compared to other groups. The post-Hoc comparisons indicated significant group mean differences between each group with other groups. Results indicated significant mean differences on JSS subscale pay, supervision, contingent reward, operating condition and communication (p< .001, p< .01, p< .05) respectively. Findings revealed that the engaged group exhibited a higher level of satisfaction as compared to other marital status groups.

Table 11

Mean, Standard Deviation and One –Way Analysis of Variance in KPDS and JSS based on specialities (N=175)

Variable	Medicine		Obse & Gynae		Surgery		Peads		Dentistry		Others				
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	F (5, 169)	η^2	Post-Hoc
KPDS	28.23	8.11	29.76	6.52	25.72	10.02	27.79	9.82	22.29	6.31	28.00	6.97	2.44*	.07	2>1>6>4>3>5
JSS	122.90	20.08	125.04	19.45	134.61	16.44	129.51	21.89	129.08	17.53	127.18	21.80	1.55	-	3>4>5>6>2>1
Pay	10.60	4.67	9.56	3.93	12.67	3.63	10.79	4.62	11.33	3.52	12.27	4.03	2.04	-	3>6>5>4>1>2
Prom	11.65	3.51	12.32	2.75	13.92	3.55	12.85	3.32	11.75	3.13	14.00	3.57	2.55*	.07	6>3>4>2>5>1
SV	15.95	5.05	18.44	5.19	17.97	2.97	17.85	3.43	17.08	3.16	15.27	5.49	2.07	-	2>3>4>5>1>6
F.B	11.43	4.70	11.40	3.29	12.81	4.10	11.64	4.39	11.75	3.59	11.73	2.28	.57	-	3>5>6>4>1>2
C.R	11.98	4.17	13.88	2.92	14.17	3.00	13.72	4.50	14.79	3.36	11.55	4.18	2.76*	.07	5>3>2>4>1>6
O.C	14.93	3.56	13.84	3.35	12.44	3.58	13.23	3.75	11.17	2.71	16.27	2.15	5.89***	.15	6>1>2>4>3>5
CW	15.18	3.60	14.52	2.85	16.25	3.11	16.92	3.37	17.63	2.32	14.09	5.36	3.97**	.11	5>4>3>1>2>6
N.W	17.38	3.35	16.20	4.04	18.33	3.11	17.72	4.27	17.63	3.67	17.73	3.32	1.05	-	3>6>4>5>1>2
Com	13.83	4.37	14.88	4.54	16.06	3.85	14.79	4.48	15.96	3.04	14.27	3.95	1.46	-	3>5>2>4>6>1

Note. *p<.05, **p<.01, ***p<.001. KPDS= Kessler psychological distress scale; JSS= job satisfaction survey, Prom= promotion; SV= supervision; F.B= fringe benefits; C.R= contingent reward; O.C= operating conditions; Cow= coworker; N.W= nature of work; Com= communication; M=mean; SD=standard deviation; p=significance level.

Table 11 showed a significant mean difference across specialities on KPDS (p< .05). Findings revealed that Obse & Gynae residents exhibited a higher level of psychological distress as compared to other speciality groups. The post-hoc comparisons indicated significance between group mean differences of Obse & Gynae with the dental speciality. Results indicated significant mean differences across specialities on JSS subscale promotion, contingent reward, operating condition and coworker (p< .05, p< .001, p< .01) respectively. Findings revealed that dentistry and others exhibited higher levels of satisfaction as compared to other specialities.

Discussion

The present study is used to investigate the association between psychological distress and job satisfaction among resident physicians of tertiary care hospitals. This study also investigates various variables such as duration duties, different specialities and training levels. Results consistent with the first hypothesis indicated a negative association between psychological distress and job satisfaction among resident physicians. Past studies showed that a greater risk of psychological distress was linked with job dissatisfaction and family-work conflicts. Work dissatisfaction and psychological distress were strongly related and seemed to be bidirectional (Viertio et al., 2021). Hypothesis II was also consistent with the results in Table 4 that females exhibit higher psychological distress and less job satisfaction. Previous results of the study showed that in Europe, female health professionals reported low psychological need satisfaction and psychological well-being and increased health problems as compared to males (Gómez-Baya et al., 2018). The current study also reveals that male residents are more satisfied than females in job satisfaction. One of the studies showed that females seemed to be less satisfied with their jobs in comparison to males.

The study also revealed that physicians who did not know about the description of their jobs and those involved in writing reports were less satisfied with their jobs (Abdel-Salam et al., 2015). One of the hypotheses stated the significant difference in psychological distress and job satisfaction among resident physicians based on their educational level. Results show significant differences in psychological distress among both groups. MBBS residents have more psychological distress than BDS residents and this is consistent with previous studies which concluded that dental postgraduates had less stress level as compared to medical postgraduates (Tamilselvan et al., 2020). The results in Table 5 showed no significant mean difference in job satisfaction among resident physicians working with different educational backgrounds. Hassan et al., (2021) revealed no significant mean difference existed in the job satisfaction survey among both medical and dental specialties. The results in Table 6 suggest that public hospital doctors are less stressed than private hospital residents. Previous findings also concluded that Physicians working in private hospitals were more stressed as opposed to physicians in public hospitals, especially related to career riskiness and patient care (Hafiz et al., 2018). The results also showed that public hospital doctors are more satisfied with their jobs than private-sector doctors. It is inconsistent with previous findings that stated Job satisfaction was seen more in private hospital doctors as compared to public hospital doctors. Factors such as age, duration of posting and working experiences were positively associated with job satisfaction (Ali et al., 2018).

The results in Table 7 do not show any significant difference in the two variables based on duration hours. Previous studies including the study of Nagasaki et al., (2022) found that residents who worked for longer hours were more vulnerable to experiencing depression, burnout, and high levels of stress. Studies on job satisfaction suggested that factors such as social support, personal growth and work-family inflation were positively correlated to both life and job satisfaction. Stressors related to job and long duty durations were negatively associated with job satisfaction and life satisfaction (Hameed et al., 2018). Results in Table 8 do not show any difference in distress and job satisfaction as per increase in years of experience. It is inconsistence with previous findings that concluded that in anaesthesiology, during residency years and the first year after residency, one-third of residents seemed to be distressed and one in eight ratio experienced depression. It suggests that as the residency period increases the risk of burnout and distress also increases (Sun et al., 2019). Previous studies on job satisfaction are not consistent with the results. One study showed that in the psychiatry department, PGY-1 seemed to have

the highest level of job satisfaction as compared to other PGYs (Jiang et al., 2019). Current results also showed more satisfaction and less stress by higher-income residents. One of the studies extracted factors that are linked with psychological morbidity independently. These included low income, more night calls per month, burnout, job stressors and low levels of job satisfaction (Zhou et al., 2017). Another study showed satisfaction with factors such as pay, contingent rewards, operating systems, communication and being married was associated with overall job satisfaction among doctors (Bello et al., 2019).

Hypothesis VIII was accepted by current study results which show a significant difference in distress and job satisfaction in accordance with marital status. Results showed that divorced residents have higher psychological distress than others. It also reveals that residents who are engaged have high job satisfaction. It is consistent with previous findings about psychological distress that concluded 1 in 4 cardiologists experience psychological distress. Experiencing emotional persecution, discrimination, being divorced and age of more than 55 years were the major factors of mental health conditions (Sharma et al., 2023). The results of Table 10 appeared inconsistent with previous findings about job satisfaction that suggested significant differences in job satisfaction were shown among different age groups, salary, experience and different workplaces but did not observe marital status (Malik et al., 2019). Results indicated differences in psychological distress but not in job satisfaction among different specialities in Table 11. Results of this study linked with literature findings that suggested significant differences exist between medical specialities on psychological distress and were prone to experience occupational stress, depressive symptoms, high job demands and low job resources (Bernburg et al., 2016). No significant difference in job satisfaction is consistent with a previous study that showed no change in job satisfaction existed between the different specialities or between those who had or had not obtained post-graduate degrees (de Oliveira Vasconcelos Filho et al., 2016).

CONCLUSION

The current study aimed to investigate the relationship between psychological distress and job satisfaction among resident physicians. The results revealed that there is a significant negative correlation between psychological distress and job satisfaction among residents. The findings of the current study also suggested that female residents have more distress and less job satisfaction. The present study shows significant differences based on education, type of employment, salary and marital status. BDS residents showed less distress and more job satisfaction than MBBS residents. Low-income residents showed more distress and less satisfaction with their jobs than unpaid and high-income residents. Findings also revealed non-significant differences based on duty hours, speciality and year of training.

Implications

The results of this study help the hospital administrative department in making policies for resident physicians. It also helps hospital administrators to take steps and use techniques for better health of residents. The research should be conducted to large population so that it can be easily generalize to Resident Physicians of tertiary care hospitals. The Research should include other perspectives like work-family balance, work-family interaction and conflicts. It helps us understand more about factors that worsen residents' health and lower their satisfaction with jobs.

Limitations

The present study was limited to a small sample size comprised of 175 resident physicians, 86 males and 89 females which was less representation of the study sample. Multiple problems were seen during data collection like residents' busy schedules, multiple visits to single residents, and permission issues by government hospitals. Other limitations were that many other contributing factors impact the relationship between psychological distress and job satisfaction which were not discussed in this study. House officers and MOs are not included in the study so we cannot generalize the study to all the health care professionals. The study was conducted in a hospital setting so the findings will not be used in any other settings.

Competing Interest

The authors reported no potential conflict of interest.

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REFERENCES

Abdel-Salam, D. M., Abdallah, M. A., Sayed, W. S., & Ismail, N. A. (2015). Job satisfaction among resident doctors at Assiut University Hospitals, Egypt. *National Journal of Research in Community Medicine, 4*(2), 167-80.

Ali, F. S., Zuberi, B. F., Raheed, T., & Shaikh, M. A. (2018). Why doctors are not satisfied with their job current status in tertiary care hospitals. *Pakistan Journal of Medical Sciences, 35*(1).

https://doi.org/10.12669/pjms.35.1.72

Andrews, G., & Slade, T. (2001). Interpreting scores on the Kessler psychological distress scale (K10). *Australian and New Zealand Journal of Public Health, 25*(6), 494-497.

Antoniou, A., Cooper, C. L., & Davidson, M. J. (2016). Levels of job dissatisfaction and work-related stressors experienced by medical doctors in Greek hospitals. *Journal of Compassionate Health Care, 3*(1).

https://doi.org/10.1186/s40639-016-0021-z

Bakker, A. B., & Demerouti, E. (2007). The Job Demands‐Resources model: State of the art. *Journal of Managerial Psychology, 22*(3), 309–328.

https://doi.org/10.1108/02683940710733115

Baldwin Jr, D. C., Daugherty, S. R., Tsai, R., & Scotti Jr, M. J. (2003). A national survey of residents' self-reported work hours: thinking beyond specialty. *Academic Medicine, 78*(11), 1154-1163.

https://doi.org/10.1097/00001888-200311000-00018

Barger, L. K., Weaver, M. D., Sullivan, J. P., Qadri, S., Landrigan, C. P., & Czeisler, C. A. (2023). Impact of work schedules of senior resident physicians on patient and resident physician safety: nationwide, prospective cohort study. *BMJ Medicine, 2*(1), e000320.

https://doi.org/10.1136/bmjmed-2022-000320

Bello, S., Afolabi, R. F., & Adewole, D. A. (2019). Job satisfaction and psychiatric morbidity among resident doctors in selected teaching hospitals in southern Nigeria: a web-based survey. *Journal of Occupational Health and Epidemiology, 8*(4), 199-206.

http://dx.doi.org/10.29252/johe.8.4.199

Bernburg, M., Vitzthum, K., Groneberg, D. A., & Mache, S. (2016). Physicians' occupational stress, depressive symptoms and work ability in relation to their working environment: a cross-sectional study of differences among medical residents with various specialties working in German hospitals. *BMJ Open, 6*(6), e011369.

https://doi.org/10.1136/bmjopen-2016-011369

Bondagji, D., Fakeerh, M., Alwafi, H., & Khan, A. A. (2022). The effects of long working hours on mental health among resident physicians in Saudi Arabia. *Psychology Research and Behavior Management*, 1545-1557.

https://doi.org/10.2147/prbm.s370642

Chapman, J., Barrett, M., Thompson, M., Stehman, C., Hansen, M., & Wegman, M. (2023). A national survey of job satisfaction and workload among emergency medicine (EM) residency faculty. *Cureus, 15*(2).

https://doi.org/10.7759/cureus.34982

Collin, C., Wade, D. T., Davies, S., & Horne, V. (1988). The Barthel ADL Index: a reliability study. *International Disability Studies, 10*(2), 61-63.

https://doi.org/10.3109/09638288809164103

de Oliveira Vasconcelos Filho, P., de Souza, M. R., Elias, P. E. M., & D'Ávila Viana, A. L. (2016). Physicians' job satisfaction and motivation in a public academic hospital. *Human resources for health, 14*, 1-11.

https://doi.org/10.1186/s12960-016-0169-9

Gómez-Baya, D., Lucia-Casademunt, A. M., & Salinas-Pérez, J. A. (2018). Gender differences in psychological well-being and health problems among European health professionals: Analysis of psychological basic needs and job satisfaction. *International Journal of Environmental Research and Public Health, 15*(7), 1474.

https://doi.org/10.3390/ijerph15071474

Grover, S., Sahoo, S., Bhalla, A., & Avasthi, A. (2018). Psychological problems and burnout among medical professionals of a tertiary care hospital of North India: A cross-sectional study. *Indian Journal of Psychiatry, 60*(2), 175.

https://doi.org/10.4103/psychiatry.indianjpsychiatry_254_17

Guille, C., Frank, E., Zhao, Z., Kalmbach, D. A., Nietert, P. J., Mata, D. A., & Sen, S. (2017). Work-family conflict and the sex difference in depression among training physicians. *JAMA Internal Medicine, 177*(12), 1766-1772.

https://doi.org/10.1001/jamainternmed.2017.5138

Hafiz, A., Ima-Nirwana, S., & Chin, K. (2018). Comparison of stress levels between physicians working in public and private hospitals in Johor, Malaysia. *Journal of Taibah University Medical Sciences, 13*(5), 491–495.

https://doi.org/10.1016/j.jtumed.2018.01.004

Hameed, T., Masuadi, E., Asmary, N. a. A., Al-Anzi, F., & Dubayee, M. S. A. (2018). A study of resident duty hours and burnout in a sample of Saudi residents. *BMC Medical Education, 18*(1).

https://doi.org/10.1186/s12909-018-1300-5

Hassan, A. U., Jasmin, R., Asghar, F., Hannan, A., Rehm, H., Hassan, M., & Tariq, A. (2021). Evaluation of job satisfaction among freshly graduated doctors and dentists. *Pakistan Journal of Medical and Health Sciences, 15*(8), 1888-90.

Jiang, F., Zhou, H., Hu, L., Rakofsky, J., Liu, T., Wu, S., Liu, H., Liu, Y., & Tang, Y. (2019). Psychiatry Residents in China: Socio-Demographic characteristics, career satisfaction, and related factors. *Frontiers in Psychiatry, 10.*

https://doi.org/10.3389/fpsyt.2019.00177

Lebares, C. C., Guvva, E. V., Ascher, N. L., O'Sullivan, P., Harris, H. W., & Epel, E. S. (2018). Burnout and stress among US surgery residents: Psychological distress and resilience. *Journal of the American College of Surgeons, 226*(1), 80–90.

https://doi.org/10.1016/j.jamcollsurg.2017.10.010

Lu, Y., Hu, X., Huang, X., Zhuang, X., Guo, P., Feng, L., Hu, W., Chen, L., & Hao, Y. (2016). Job satisfaction and associated factors among healthcare staff: a cross-sectional study in Guangdong Province, China. *BMJ Open, 6*(7), e011388.

https://doi.org/10.1136/bmjopen-2016-011388

Malik, M., Haider, Z., & Hussain, A. (2019). Perceived emotional intelligence, work life balance and job satisfaction among healthcare professionals in Pakistan. *International Journal of Pharmaceutical Research & Allied Sciences, 8*(2), 80-86.

Nagasaki, K., Nishizaki, Y., Shinozaki, T., Shimizu, T., Yamamoto, Y., Shikino, K., Fukui, S., Nishiguchi, S., Kurihara, M., Kataoka, K., Tokuda, Y., & Kobayashi, H. (2022). Association between mental health and duty hours of postgraduate residents in Japan: A nationwide cross-sectional study. *Scientific Reports, 12*(1).

https://doi.org/10.1038/s41598-022-14952-x

Shahi, S., Paudel, D. R., & Bhandari, T. R. (2022). Burnout among resident doctors: An observational study. *Annals of Medicine and Surgery, 76*, 103437.

https://doi.org/10.1016/j.amsu.2022.103437

Sharma, G., Rao, S. J., Douglas, P. S., Rzeszut, A., Itchhaporia, D., Wood, M. J., Nasir, K., Blumenthal, R. S., Poppas, A., Kuvin, J., Miller, A. P., Mehran, R., Valentine, M., Summers, R. F., & Mehta, L. S. (2023). Prevalence and professional

impact of mental health conditions among cardiologists. *Journal of the American College of Cardiology, 81*(6), 574–586.

https://doi.org/10.1016/j.jacc.2022.11.025

Song, J. T., Lee, G., Kwon, J., Park, J. W., Choi, H., & Lim, S. (2014). The association between long working hours and self-rated health. *Annals of Occupational and Environmental Medicine, 26*, 1-12.

https://doi.org/10.1186/2052-4374-26-2

Spector, P. E. (1985). Measurement of human service staff satisfaction: Development of the Job Satisfaction Survey. *American Journal of Community Psychology, 13*(6), 693-713.

https://doi.org/10.1007/BF00929796

Sun, H., Warner, D. O., Macario, A., Zhou, Y., Culley, D. J., & Keegan, M. T. (2019). Repeated Cross-sectional Surveys of Burnout, Distress, and Depression among Anesthesiology Residents and First-year Graduates. *Anesthesiology, 131*(3), 668–677.

https://doi.org/10.1097/aln.0000000000002777

Tamilselvan, A. S., Thapa, R. I. Y. A., Sharma, A. D., Thapa, T. I. K. A., & Singh, S. H. A. I. L. E. S. H. (2020). How stressed are our postgraduate medical and dental postgraduate students in Southern Asia? A Cross-Sectional Survey. *International Healthcare Research Journal, 4*(9).

Tarcan, M., Hikmet, N., Schooley, B., Top, M., & Tarcan, G. Y. (2017). An analysis of the relationship between burnout, socio-demographic and workplace factors and job satisfaction among emergency department health professionals. *Applied Nursing Research, 34*, 40–47.

https://doi.org/10.1016/j.apnr.2017.02.011

Viertio, S., Kiviruusu, O., Piirtola, M., Kaprio, J., Korhonen, T., Marttunen, M., & Suvisaari, J. (2021). Factors contributing to psychological distress in the working population, with a special reference to gender difference. *BMC Public Health, 21*(1).

https://doi.org/10.1186/s12889-021-10560-y

Zhou, X., Pu, J., Zhong, X., Zhu, D., Yin, D., Yang, L., Zhang, Y., Fu, Y., Wang, H., Xie, P., Jia, J., Cui, L., Wang, Y., Chen, S., Zhao, G., Hong, Z., Yu, S., Wang, L., Wang, W., . . . Wu, X. (2017). Burnout, psychological morbidity, job stress, and job satisfaction in Chinese neurologists. *Neurology, 88*(18), 1727–1735.

https://doi.org/10.1212/wnl.0000000000003883