

# Comparison of Psychological Well-Being of Surgical and Non-Surgical Specialty Physicians Working in a Hospital using the General Health Questionnaire-28 (GHQ-28)

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## ABSTRACT

**Purpose:** Psychological well-being of a physician affects the physician's mental and physical health, even the patient-physician relationship. This article aims to evaluate and compare the psychological well-being of surgeons and internists in a hospital and to investigate the relationship with relevant variables.

**Method:** Full-time physicians working in a private hospital in Istanbul between 15-30 April 2019 participated in this study. With General Health Questionnaire-28 (GHQ-28), the frequency of Probable Psychiatric Cases (PPCs) was determined. The GHQ-28 results were compared with the physician's specialty, demographic information, and answers to the job satisfaction questions that we prepared. Moreover, the relationship between these answers and the physician's specialty was evaluated.

**Results:** 84 (37.3%) of 225 physicians (Confidence Level= 95%, Margin of Error= 8%) participated in the study. 19 (22.6%) physicians were found a PPC with a GHQ-28 score of  $\geq 5$ . Of these 19 people, 11 were surgeons and 8 were internists. The frequency of PPCs was found as 25.6% in surgeons and 19.5% in internists ( $p>0.05$ ). While 90.8% of non-PPCs were satisfied with their working environment, this rate was 68.4% in PPCs ( $p=0.038$ ). There was no significant difference in the answers to job satisfaction questions between the surgeons and internists ( $p>0.05$ ).

**Conclusion:** There was no relationship between the physician's specialty and being a PPC. A relationship was found between not being a PPC and being satisfied with the physician's working environment and it should be considered in the evaluation of the mental health of the physicians.

**Keywords:** Physician, Specialty, Psychological Well-Being, General Health Questionnaire-28, Probable Psychiatric Case, Job Satisfaction

## Bir Hastanede Çalışan Cerrahi ve Dahili Branş Hekimlerinin Psikolojik İyi Oluşlarının Genel Sağlık Anketi 28 (GSA-28) ile Karşılaştırılması

### ÖZET

**Amaç:** Hekimin psikolojik iyi oluşu, hekimin ruh ve beden sağlığını, hatta hasta-hekim ilişkisini etkiler. Bu makale, bir hastanede cerrahların ve dahili branş hekimlerinin psikolojik iyi oluş hallerini değerlendirmeyi, karşılaştırmayı ve ilgili değişkenlerle ilişkisini araştırmayı amaçlamaktadır.

**Yöntem:** Bu çalışmaya 15-30 Nisan 2019 tarihleri arasında İstanbul'da özel bir hastanede tam zamanlı çalışan hekimler katılmıştır. Genel Sağlık Anketi-28 (GSA-28) ile Olası Psikiyatrik Vakaların (OPV) sıklığı belirlendi. GSA-28 sonuçları hekimin uzmanlık alanı, demografik bilgileri ve hazırladığımız mesleki tatmin sorularına verilen yanıtlar ile karşılaştırıldı. Ayrıca bu yanıtların hekimin uzmanlığı ile ilişkisi değerlendirilmiştir.

**Bulgular:** Çalışmaya 225 hekimden 84'ü (%37,3) (Güven Aralığı= %95, Hata Marjisi= %8) katıldı. 19 (%22,6) hekim GSA-28 skoru  $\geq 5$  olarak OPV bulundu. Bu 19 kişiden 11'i cerrah, 8'i dahiliye uzmanıydı. OPV sıklığı cerrahlarda %25,6, dahiliyecilerde %19,5 olarak bulundu ( $p>0,05$ ). OPV olmayan hekimlerin %90,8'i çalışma ortamlarından memnun iken, OPV olan hekimlerde bu oran %68,4'di ( $p=0,038$ ). Cerrahlar ve dahili branş hekimleri arasında mesleki tatmini sorularına verilen yanıtlar arasında anlamlı farklılık yoktu ( $p>0,05$ ).

**Sonuç:** Hekimin uzmanlık alanı ile OPV olması arasında bir ilişki bulunmamıştır. OPV olmak ile hekimin çalışma ortamından memnun olması arasındaki ters ilişki göz önüne alındığında, hekimlerin ruh sağlığı değerlendirilirken bu ilişkinin sorgulanması önerilmektedir.

**Anahtar Kelimeler:** Hekim, Uzmanlık, Psikolojik İyi Oluş, Genel Sağlık Anketi-28, Olası Psikiyatrik Vaka, Mesleki Tatmin

Psychological well-being has an impact on physicians' health, which influences physicians' job satisfaction, quality of patient care, and safety (1). Such negative impacts can have an adverse effect on a clinician's work performance and decision-making capacity and may threaten patient safety (2). Furthermore, physicians' personal life may be adversely affected by substance abuse, damaged relationships, and disrupted family life (2). Varieties in medicinal service strategies, increased workload, clinical responsibilities, making choices in clinically questionable situations, and the possibility of malpractice due to natural stressors already influence physicians' stress levels which affect their psychology (3). Consequently, other mental diseases, such as anxiety, depression, and burnout might develop as a result of a delay in recognizing and treating precursor conditions (2). Studies assessing the psychosocial aspects of work stress show that burnout is frequent among healthcare workers (1,4,5). Additionally, physician burnout rates change between medical specialties (6). There are other variables possibly affecting physicians' psychological well-being: age, gender, marital status, years in medicine and specialty, and years in the working environment. When physicians' job satisfaction decreases, a vicious cycle of disruptions in physicians' professional practice, poorer healthcare services, and lower job satisfaction might be created. Concerns about the mental health effects of this condition on physicians cannot be ignored, in addition to the pressure on the healthcare system. Therefore, examining the psychological well-being and job satisfaction of physicians might be significant to be aware of the ongoing situation. These suggestions for implementation should prompt an increase in physicians' mental health which is necessary to define a physician as healthy (1,3,5).

This study aims to demonstrate the difference between the psychological well-being in surgical and non-surgical departments (surgeons and internists, respectively) because of professional differences between them, and demographic characteristics comparatively by using General Health Questionnaire-28 (GHQ-28). Questions related to job satisfaction were prepared to study whether there is an association between the physician's psychological well-being and job satisfaction. With the results, it will be possible to classify the physicians into probable psychiatric cases (PPC) and probable non-psychiatric cases (non-PPCs) groups regarding their psychological well-being

status, discuss the relationship between other variables and emphasize ongoing stressor factors.

## MATERIALS AND METHODS

A descriptive study design (cross-sectional) was designed to detect the frequency of probable psychiatric cases (PPCs) and the job satisfaction of surgeons and internists. This study was approved by\_(blinded)\_. The research was conducted between 15-30 April 2019. The target population was defined as all of the medical physicians who work full-time in a private hospital in Istanbul. Among 252 physicians, 225 were found suitable for the study. It was planned to reach all specialties with at least 1 physician from each specialty. Questionnaires were handed over to all physicians by the researchers or physician's assistants. Physicians were delivered an informed consent form, a structured questionnaire about demographic characteristics, job satisfaction questions, and GHQ-28 (Turkish version). Participants were asked to fill out a self-administered questionnaire anonymously.

The first part of the questionnaire included general socio-demographic questions (gender, age, marital status, number of children), questions about their profession (specialty, years as a specialist, years at this hospital), and 8 job satisfaction questions. The independent variables were determined as those sociodemographic data and data on occupational characteristics. The second part is the General Health Questionnaire-28 itself. The dependent variables were the GHQ-28 results and answers to job satisfaction questions.

**Job satisfaction questions** were prepared by the researchers, directed to find how satisfied the physicians were with their job. As given in Table 3, there were 8 independent questions. Participants responded to each question by selecting one of the five choices: 1=*Strongly Agree*, 2=*Agree*, 3=*Unsure*, 4=*Disagree*, 5=*Strongly Disagree*. Choices 1 and 2 are accepted as *I Agree*. Choices number 3, 4, and 5 are accepted as *I Disagree*. Each question was evaluated independently from each others to explore whether there is a significant relationship with the General Health Questionnaire-28 scores (7).

**The General Health Questionnaire-28 (GHQ-28)** was developed by Goldberg in 1978 and adapted to Turkish by Kılıç in 1996 (7-9). The GHQ-28 is comprised of 28 items, 7

of which are formulated in a positive manner (e.g., Do you feel perfectly well and in good health?), and 21 of which are formulated in a negative manner (e.g., Do you feel sick?). In the case of the positive items, the following scale is used: 1=*more than usual*, 2=*as usual*, 3=*less than usual*, 4=*much less than usual*. In the case of the negative items, the following scale is used: 1=*not at all*, 2=*not more than usual*, 3=*a little more than usual*, 4=*much more than usual*. The remaining 3 items use two other different types of response scales. The traditional scoring method of GHQ-28 is by giving 0 points for the 1st, 2nd choices and 1 point for the 3rd, 4th choices (8). Even though a high GHQ-28 score indicates a probable psychiatric case, the threshold for being or not being a probable psychiatric case varies. The User's Guide for the GHQ recommends that the best threshold score is determined in each country or setting in which it is intended to be used. The cut-off point that will be used in this study is 5, as it is reported to be 73.7% sensitive by Kiliç (9). The items were summed and participants with a score equal to or greater than 5 were considered a probable psychiatric case, and score less than 5 were considered a probable non-psychiatric case.

### Statistical Analysis

In order to understand whether the physician's specialty affects the frequency of probable psychiatric cases, the Chi-Square Test of Independence was used because the variables were nominal and the distribution is non-parametric. Similarly, whether the frequency of PPCs depends on the physician's gender, marital status, and the number of children was analyzed by the Chi-Square Test of Independence. To determine the difference between the ages, years as a specialist, and years in this particular hospital of the PPCs and non-PPCs, the Mann-Whitney U test was used. Relationships between answers to job satisfaction questions to i) GHQ-28 results, and ii) physicians' specialty were analyzed with the Chi-Square Test of Independence. Analyses were done at R Studio and Mini-Tab programs.

## RESULTS

Among 225 physicians working at this hospital, 84 (37.3%) of the physicians participated in the study. Some physicians could not be reached during the 2 weeks and some of them were discarded from the study because they did come to the hospital every working day and it was thought that this could affect the GHQ-28 scores and answers

to job satisfaction questions. 49 (58.3%) of these 84 participants were male and 35 (41.7%) were female. The mean age of all the participants was 47.1; the mean age of males was 47.9, and females was 45.9. 43 (51.2%) participants were surgeons and the other 41 (48.8%) were internists. 68 (81.0%) of the participants were married, 10 (11.9%) were single and 6 (7.1%) were divorced. 16 (19.1%) participants had no children, 36 (42.9%) had 1 child, 29 (34.5%) had 2 children and 3 (3.5%) had 3 children. These results were given in Table 1.

The mean GHQ-28 score of the participants was calculated as 2.90 and the maximum GHQ-28 score was found as 16. 19 (22.6%) physicians out of 84 had a GHQ-28 score  $\geq 5$  which were interpreted as PPCs and their mean GHQ-28 score was 9. On the other hand, the mean GHQ score of non-PPCs was 1.1. Among the 19 PPCs, 11 of them were surgeons and 8 from internists. In surgeons, the frequency of PPCs was higher, at 25.6% compared to 19.5% in internists. This difference was not found to be significant ( $p > 0.05$ ). It was found that females had a higher PPCs frequency (22.9%) than males (22.5%) however this difference is not statistically significant ( $p > 0.05$ ). The frequency of PPCs for married participants was 22.1%, 40.0% for single, and 0.0% for divorced. The highest frequency of PPCs was found in single physicians, but this difference was not found to be statistically significant ( $p > 0.05$ ). The frequency of PPCs was highest for participants without children, 31.3%, and was lowest, 0.0% in participants with 3 children; physicians with 1 child had a frequency of 22.2% and 2 children had 20.7% probable psychological case frequency. This difference was not found significant ( $p > 0.05$ ).

The median ages of the PPCs and non-PPCs were 43 and 48 years respectively. Even though younger physicians had a higher frequency of PPCs, this difference is not significant ( $p$ -value = 0.056). The median number of years at this hospital of physicians is 5 years for both PPCs and non-PPCs. Mann-Whitney U test did not demonstrate a statistical significance ( $p > 0.05$ ). The median numbers of years as a specialist were 4 and 9 years for PPCs and non-PPCs respectively. Even though the non-PPCs worked longer as a specialist, this difference is not significant ( $p > 0.05$ ). These results were shown in Table 2.

	GHQ-28 $\geq$ 5 (Possible Psychiatric Cases)	GHQ-28 < 5 (Possible Non-Psychiatric Cases)	TOTAL	Chi-Square p-value
Surgeons	11 (25.6%)	32 (74.4%)	<b>43 (51.2%)</b>	X: 0.442 p: 0.621
Internists	8 (19.5%)	33 (80.5%)	<b>41 (48.8%)</b>	
<b>TOTAL</b>	19 (22.6%)	65 (77.4%)	<b>84</b>	
Female (mean age:45.9)	8 (22.9%)	27 (77.1%)	<b>35 (41.7%)</b>	X: 0.717x10 <sup>-32</sup> p:1.000
Male (mean age: 47.9)	11 (22.5%)	38 (77.5%)	<b>49 (58.3%)</b>	
Married	15 (22.0%)	53 (78.0%)	<b>68 (81.0%)</b>	X: 3.492 p: 0.198
Single	4 (40.0%)	6 (60.0%)	<b>10 (11.9%)</b>	
Divorced	0 (0.0%)	6 (100.0%)	<b>6 (7.1%)</b>	
No children	5 (31.3%)	11 (68.8%)	<b>16 (19.1%)</b>	X: 1.623 p: 0.677
1 child	8 (22.2%)	28 (77.8%)	<b>36 (42.9%)</b>	
2 children	6 (20.7%)	23 (79.3%)	<b>29 (34.5%)</b>	
3 children	0 (0.0%)	3 (100.0%)	<b>3 (3.5%)</b>	

		Minimum	First Quartile	Median	Third Quartile	Maximum	MWU p-value
Age	GHQ-28 $\geq$ 5	26.0	35.5	43.0	49.5	65.0	0.056
	GHQ-28 < 5	28.0	40.0	48.0	56.0	71.0	
Years in this hospital	GHQ-28 $\geq$ 5	0.2	1.8	5.0	15.0	23.0	0.838
	GHQ-28 < 5	0.1	2.0	5.0	12.0	23.0	
Years as a specialist	GHQ-28 $\geq$ 5	0.0	4.0	14.0	20.5	40.0	0.095
	GHQ-28 < 5	2.0	9.0	18.0	25.0	42.0	

Table 3 demonstrated 8 job satisfaction questions and relationships with GHQ-28 results and physicians' specialties. Among the 8 questions, it was found that there was a statistically significant relationship between job satisfaction and being a PPC in the 8th question (I am generally satisfied with my work environment.) with the Chi-Square Test of Independence analysis. The non-PPCs more agreed in frequency (90.8%) that they were satisfied with their work environment than the PPCs (68.4%) (p-value = 0.038). Other questions (2-7) did not demonstrate a statistically significant relationship between answers to job satisfaction questions and being a PPC. Table 3 also demonstrated the specialty of the participants and their answers to these 8 questions. By Chi-Square Test of Independence, it was found that there was no statistically significant relationship between the specialties and answers to any job satisfaction questions.

## DISCUSSION

People with possible psychological disorders can be evaluated with GHQ-28, which is capable of detecting acute mental changes for 2 weeks and a measure of current mental health (9). GHQ-28 is proved to be a valid and trustworthy instrument across cultures including Turkey, and it detects a wide range of psychiatric problems, primarily on the anxiety/depression spectrum (9). Patients are classified by the GHQ-28 or its variant GHQ-12 as "probable psychiatric cases" or "probable non-psychiatric cases" which we preferred to use for class names (10). Some researchers used other descriptions for the term "probable psychiatric case" as "high risk of acute distress", "psychological morbidity", "having mental health issues", or "GHQ $\geq$ 5" (11-14).

Table 3: Relationship Between Physicians' GHQ-28 Scores, Specialty and Job Satisfaction Questions (Chi-Square)

Job Satisfaction Questions		Being a Possible Psychiatric Case		p-value	Physicians' Specialties		p-value	Total (%)
		GHQ-28 $\geq$ 5 (%) (n:19)	GHQ-28 < 5 (%) (n:65)		Surgeons (%) (n:43)	Internists (%) (n:41)		
1. If I could go back in time I would choose to be a doctor again.	Agree	12 (63.2)	51 (78.5)	0.290	28 (65.1)	35 (85.4)	0.059	63 (75.0)
	Disagree	7 (36.8)	14 (21.5)		15 (34.9)	6 (14.6)		21 (25.0)
2. My current job meets my dreams in college.	Agree	12 (63.2)	47 (72.3)	0.630	32 (74.4)	27 (65.8)	0.536	59 (70.2)
	Disagree	7 (36.8)	18 (27.7)		11 (25.6)	14 (14.2)		25 (29.8)
3. My job is satisfactory enough.	Agree	13 (68.4)	55 (84.6)	0.211	35 (81.4)	33 (80.5)	1.00	68 (81.0)
	Disagree	6 (31.6)	10 (15.4)		8 (18.6)	8 (19.5)		16 (18.0)
4. I am very satisfied that I have chosen this specialty.	Agree	16 (84.2)	54 (83.0)	1.000	38 (88.4)	32 (78.1)	0.329	70 (83.3)
	Disagree	3 (15.8)	11 (17.0)		5 (11.6)	9 (21.9)		14 (16.7)
5. If I could go back in time I would choose this specialty again.	Agree	10 (52.6)	49 (75.4)	0.105	32 (74.4)	27 (65.8)	0.536	59 (70.2)
	Disagree	9 (47.4)	16 (24.6)		11 (25.6)	14 (34.2)		25 (29.8)
6. I do my job with the pleasure I had on my first day.	Agree	11 (57.9)	51 (78.5)	0.134	34 (79.0)	28 (68.3)	0.382	62 (73.8)
	Disagree	8 (42.1)	14 (21.5)		9 (21.0)	13 (31.7)		22 (26.2)
7. My workload is too heavy to spend time for other things	Agree	14 (73.7)	46 (70.8)	1.000	32 (74.4)	28 (68.3)	0.704	60 (71.4)
	Disagree	5 (27.3)	19 (29.2)		11 (25.6)	13 (31.7)		24 (28.6)
8. I am generally satisfied with my work environment.	Agree	13 (68.4)	59 (90.8)	<b>0.038*</b>	37 (86.0)	35 (85.4)	1.000	72 (85.7)
	Disagree	6 (31.6)	6 (9.2)		6 (14.0)	6 (14.6)		12 (14.3)

The overall frequency of probable psychiatric cases was found to be 22.6% in the sample by using GHQ-28, which is lower than other studies using GHQs. In a study done on emergency physicians using the GHQ-28, a higher frequency, 36.8%, of mental health issues was found (12). Another study found that physicians with GHQ $\geq$ 5 compromised 41.2% of the sample (13). By using GHQ-12 scores, a study on military physicians found psychological morbidity at 28.3% (14). In addition to studies using GHQs, different questionnaires were used in other research focusing on physicians' psychological well-being. A study done in China with a great response rate (overall response rate of 96.46% from 59 hospitals), estimates the frequency at 25.7% in 2641 participants with the anxiety and depression questionnaire they created and additional questionnaires (15). Being a probable psychiatric case (PPC) was linked to the onset of a variety of psychological and mental disorders, including anxiety, sadness, and substance dependence (2). These can have severe emotional and professional effects, as well as major issues for healthcare organizations which are aforementioned (2).

Another important aspect of this study is establishing a relationship between job satisfaction and specialty. The frequency of PPCs was found to be higher in surgeons (25.6%) than in internists (19.5%); although the lack of statistical significance and low response rate may suggest

the need for a study having a larger sample size. Similar to this finding, there was no statistically significant difference in burnout or stress between the scores of 79 internal medicine and surgical specialists in another study done in a hospital in Istanbul ( $p>0.05$ ) (16). Using the Maslach Burnout Inventory (MBI), Shanafelt et al. examined 7905 members of the American College of Surgeons and discovered that 40% of the surgeons were at high risk of burnout and the United Kingdom Ear, Nose and Throat surgeons' burnout prevalence rate was determined as 28.9% with GHQ-12 (17,18). Accordingly, it can be interpreted that the frequency of cases in the surgical specialties in our study is lower.

Our study found a relationship between age and psychological well-being on borderline significance ( $p=0.056$ ). The median age of the PPCs, 43, is lower than the non-PPCs, 48. Further studies can be done on physicians to understand why younger physicians have higher GHQ scores compared to older. Stone et al. found that the decline in the percentage of respondents reporting stress begins in the mid-40s, accelerates downward at about age 57, and continues at slower rates at around age 75 (19). Shanafelt et al. (20) discovered a negative relation between burnout and professional experience time. The higher proportions of burnout levels in young specialists could be ascribed to their generally lower work understanding and lack of experience in coping with work stress (21).



According to statistical analysis, there is a significant relationship between being a PPC and work environment satisfaction. Non-PPCs were more likely (90.8%) to state that they are satisfied with their work environment than the PPCs (68.4%) ( $p$ -value= 0.038, highlighting a relationship. This relationship might become important in terms of awareness of ongoing conditions. Various professional organizations have set up programs to encourage awareness and assist in early treatment to address such common illnesses in the UK (18).

Our research was done in April 2019, and today physicians need to cope with the COVID-19 pandemic as well as the usual stressors of the medical profession. World Health Organization declared COVID-19 a global pandemic in early March 2020 (WHO, 2020). This is noteworthy since a recent systematic review and meta-analysis of 33,062 participants found that healthcare workers during the outbreak had high rates of depression (22.8%) and anxiety (23.2%) (22). Interestingly, our frequency was 22.6%, nearly the same as the current depression rate, however because of our limitations there can not be a direct comparison.

In this study, the number of participants is limited (84 people out of 225 were enrolled in this study (37.3%)). It is mainly a result of having limited time and the busyness of the physicians. Lower response rates of physicians (37.5%, among 173 physicians) were encountered in other studies as well (14). Additionally, this study only enrolls private hospital physicians, not state or university hospitals. As a result, this study is not an ideal presentation of the population and cannot be generalized. Another limitation of this study was the heterogeneous structure of the sample group in contrast to its low response rate. Since the sample group included physicians from over 20 specialties, it was not possible to reach inferences concerning explicit specialties or working conditions. Questionnaire questions were completely dependent on personal statements. However, in further studies, it might be interesting to go in-depth in exploring psychological well-being and job satisfaction of individual specialties. Methodological limitation stems from the study's descriptive nature and data collection method, which makes trouble in finding out causality and generalizability of the results to the entire population. We were concerned that to reach a higher sample size, one would need a questionnaire that is shorter and can detect psychological changes lasting more than 2 weeks to reach all of the physicians, which could increase the response rate. We believe that our study's results will be valuable in following up on the aftereffects of

basic changes in Turkey, and it is one of the few examples of GHQ-28 being used on physicians. Generation and sharing of reliable data on physicians' psychological well-being are significant and valuable to execute healthcare changes shortly. The study and the journal are in the same institution and do not include any supporting findings other than this statement.

## CONCLUSION

Being a PPC is an important issue for physicians' overall health and eventually affects public health. PPCs can be detected by GHQ-28, and the frequency of the PPCs was within normal limits in this study. There was no significant difference determined between the frequency of PPCs in surgeons and internists; on the other hand, a relationship between work environment satisfaction and being a PPC was found. Improvements in workplace conditions might be valuable to augment the mental health of physicians.

## DECLARATIONS

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### *Ethics Approval*

Ethical approval that the study was ethically appropriate was obtained with decision number 2019-04/33 on 28.02.2019 from the Medical Research Evaluation Board of Acibadem Mehmet Ali Aydınlar University.

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