

Patient anxiety levels in orthopedic outpatient clinics at hospitals with different patient population densities

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Ethics Committee Approval

The study was reviewed and approved by the
Ethics Committee of Istinye University (Date:
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All procedures in this study involving human
participants were performed in accordance with
the 1964 Helsinki Declaration and its later
amendments.

Conflict of Interest

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Abstract

Background/Aim: Prolonged wait times for examination and delayed hospital appointment times can negatively affect patients. Increased anxiety in orthopedic outpatient clinic patients can disrupt diagnosis and treatment, and increase psychological tension in both patients and healthcare professionals. The aim of our study is to compare the anxiety levels of patients at institutions with different patient population densities.

Methods: This cross-sectional survey study included 189 patients who voluntarily completed the Beck Anxiety Scale while registering for treatment of non-traumatic conditions at the orthopedics and traumatology outpatient clinics of two tertiary health care hospitals. Patients were grouped by hospital attended. The study assessed patients' age, education level, estimated monthly income levels, and anxiety levels.

Results: 99 patients from the public hospitals and 90 from the private hospitals participated in the survey. A significant positive correlation existed between educational status and income level ($P<0.001$). No significant difference in income level existed between the two groups ($P=0.063$), but the education level of patients in the private hospital group was significantly higher than in the public hospital group ($P<0.001$). The anxiety levels of the patients in the private hospital group was significantly higher ($P=0.043$); this difference was correlated to education level rather than income level. Patients with higher education levels demonstrated significantly higher anxiety levels ($P<0.001$).

Conclusion: The study concluded that the anxiety levels of patients who applied to the orthopedic outpatient clinics were independent of facility patient density and related primarily to patient attributes. Prospective studies are needed examining the relationship between patient anxiety levels and waiting time.

Keywords: Anxiety, Outpatient clinics, Patient density, Orthopedics

Introduction

Mental and physical health are interrelated. Mental disorders are associated with patient-reported diminished functionality, increased pain, and less satisfaction with orthopedic treatment [1–4], but they are mostly modifiable and addressing them may directly improve orthopedic treatment outcomes. In routine orthopedic practice, it is not always possible to identify mental disorders. Public orthopedic outpatient clinics are characterized by high patient population density such that patients experience more frequent delays in evaluation and treatment compared to private hospitals with lower density. Our study aimed to compare the patient anxiety levels at the two types of hospitals, looking specifically at patient-specific factors like income, educational status, and demographic properties.

Materials and methods

This cross-sectional survey study evaluated 189 patients over the age of 18 who first applied to public and private hospital orthopedic outpatient clinics in the 6-month period between January 2020 and June 2020. The study excluded patients with acute traumatic conditions or history of psychiatric illness. Before being physically examined, patients were asked to complete the Beck Anxiety Scale and supply information regarding income level and educational status (Table 1). A research assistant uploaded the answers to the online database (Microsoft Forms).

Table 1: Questionnaire form (Beck Anxiety Scale, Income and Educational Status Levels)

Age: Male / Female	Not at all	Mildly, but it didn't bother me much	Moderately – it wasn't pleasant at times	Severely – it bothered me a lot	
1 Numbness or tingling	0	1	2	3	
2 Feeling hot	0	1	2	3	
3 Wobbliness in legs	0	1	2	3	
4 Unable to relax	0	1	2	3	
5 Fear of worst happening	0	1	2	3	
6 Dizzy or lightheaded	0	1	2	3	
7 Heart pounding / racing	0	1	2	3	
8 Unsteady	0	1	2	3	
9 Terrified or afraid	0	1	2	3	
10 Nervous	0	1	2	3	
11 Feeling of choking	0	1	2	3	
12 Hands trembling	0	1	2	3	
13 Shaky / unsteady	0	1	2	3	
14 Fear of losing control	0	1	2	3	
15 Difficulty in breathing	0	1	2	3	
16 Fear of dying	0	1	2	3	
17 Scared	0	1	2	3	
18 Indigestion	0	1	2	3	
19 Faint / lightheaded	0	1	2	3	
20 Face flushed	0	1	2	3	
21 Hot / cold sweats	0	1	2	3	
22 Estimated monthly income	Under 5.000 TL	5.000-10.000 TL	10.000-20.000 TL	20.000-30.000 TL	Above 30.000 TL
23 Educational status	Elementary	High	College	University	Postdoc

Above is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by circling the number in the corresponding space in the column next to each symptom.

Statistical analysis

The minimum number of patients in each group was determined as 83 before the study began. To prevent bias, an independent blind research assistant not working at either clinics performed the statistical analyses; these were performed by SPSS version 25 for MacOS. The effect size was calculated with the

power analysis program (G*Power) according to the reference study at a test power of 0.80 and a significance level of 0.05. An independent sample t-test compared the anxiety levels from the two types of outpatient clinics. Pearson Correlation analysis determined the correlation between educational status, mean monthly income, and anxiety levels. *P*-values smaller than 0.05 were considered statistically significant. The study was reviewed and approved by the Istinye University's ethics committee (Date: 05.03.2021, No: 2/2021.K12).

Results

There were 99 patients in the public hospital group and 90 in the private hospital group. Table 2 presents patient demographics. A significant positive correlation exists between education level and mean monthly income (*P*<0.001) (Figure 1). There was no significant difference in income level between the groups (*P*=0.063). The education level of the private hospital group was significantly higher (*P*<0.001) than the public hospital group. When the private and public hospital groups were compared, a significant difference was observed in patient anxiety levels (*P*=0.043) (Figure 2) and the study concluded that this difference was related to education status rather than income level, as anxiety levels of people with high educational status were found to be significantly higher (*P*<0.001). Although positively correlated with education levels (*P*<0.001), anxiety levels were not correlated with monthly income (*P*=0.624) (Table 3). When comparing the clinic types, significantly lower anxiety levels were found in the private clinics (*P*<0.001).

Table 2: Demographics, educational, Beck anxiety scale, and income levels of patients

		Private (n=90)	Public (n=99)	Total (n=189)	<i>P</i> -value
Sex	Male	38	39	77	0.283
	Female	52	60	112	
Age	18-24	5	11	16	0.116
	25-35	35	30	65	
	36-45	36	16	52	
	46-55	13	21	34	
	56-65	1	9	10	
Education	Above 66	0	12	12	<0.001
	Elementary	8	22	30	
	High	20	46	66	
	College	23	17	40	
	University	37	9	46	
Estimated monthly income	Postdoc	2	5	7	0.063
	Under 5.000 TL	51	75	126	
	5.000-10.000 TL	28	17	45	
	10.000-20.000 TL	8	3	11	
	20.000-30.000 TL	3	2	5	
Anxiety Level	Above 30.000 TL	0	2	2	0.043
	Mild	74	48	122	
	Moderate	12	41	53	
	Severe	4	10	14	

Figure 1: The relationship between educational status & monthly income

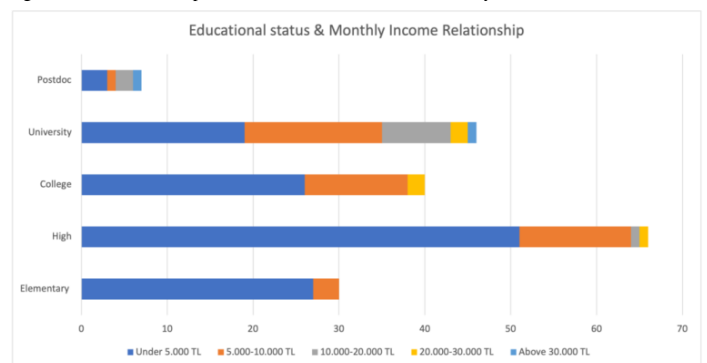


Figure 2: Anxiety level distribution of the groups

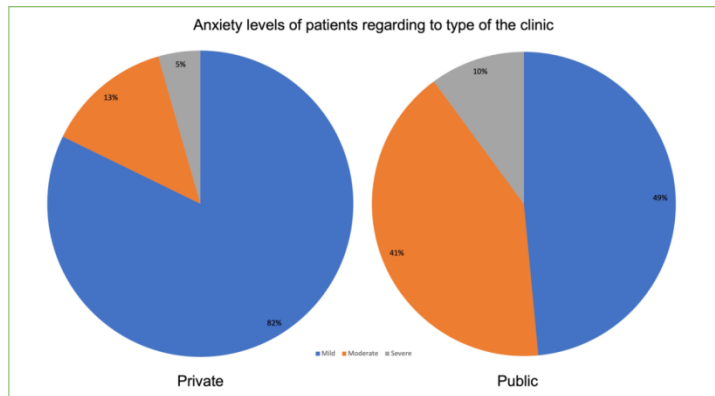


Table 3: Results of the correlation analysis

			Education Level	Monthly income	Anxiety
Spearman's rho	Education Level	Correlation Coefficient	1.000	0.388**	-
		P-value	-	<0.001	<0.001
		n	189	189	189
	Monthly Income	Correlation Coefficient	0.388**	1.000	0.036
		P-value	<0.001	-	0.624
		n	189	189	189
	Anxiety Scale Score	Correlation Coefficient	-0.323**	0.036	1.000
		P-value	<0.001	0.624	-
		N	189	189	189

Discussion

There are many studies of the increased rates of depression and anxiety resulting from orthopedic trauma [5, 6]. Anxiety symptoms emerge in the early stages following acute orthopedic trauma, but depressive symptoms appear in the later phases. Our primary aim was to determine the factors affecting the anxiety levels of patients who applied to the orthopedic outpatient clinic for non-traumatic conditions. The most important finding of our study is that anxiety levels are related to patient education level. Large-scale survey studies have associated higher education levels with lower long-term depression or anxiety [7, 8], but our study produced results to the contrary, and Demir et al. [9] also found a positive correlation between education level and stress in patients with chronic orthopedic disease. We believe the explanation for this phenomenon is that when highly educated people have a health problem, their anxiety level may be higher in relation to their awareness. We also suspect that lower income levels may be associated with higher anxiety levels, but we could not identify statistically significant differences between anxiety levels and mean monthly income levels. Ridley et al. [10] reviewed studies about anxiety and poverty and found that economic adversity may cause mental illness, which may be improved by anti-poverty programs.

Disorders like in-toeing or flexible pes planus in pediatric patients may cause increased anxiety levels in parents. Haberal et al. [11] found that mothers who take their children for orthopedic examination more than once a month have a history of psychiatric treatment and at age 20-40 years have significantly higher anxiety levels. Recurrent metacarpal fractures are also associated with higher anxiety. A recent study by Duramaz et al. [12] found that higher anxiety and impulsivity adversely affects the clinical outcome of metacarpal fracture treatment; the researchers suggest a psychiatric consultation for metacarpal fracture patients to improve treatment outcomes and prevent

recurrent injuries. Our study observed that patients with higher anxiety levels have problems adapting to treatment, reducing success rates. A prospective study assessing finger stiffness after volar plating of distal radius fractures found the defining factor to be catastrophic thinking six weeks after surgical treatment [13]. Skeppholm et al. [14] concluded that preoperative mental distress in patients undergoing surgical treatment for cervical radiculopathy resulted in worse outcomes. And patients undergoing total knee replacement who evidenced higher anxiety levels at preoperative evaluation exhibited marked dissatisfaction following surgical treatment [15]. A study comparing the psychological situations of patients with chronic shoulder pain suggests that psychological factors are associated with clinician and patient shoulder outcome expectations and advises that these patients undergo appropriate screening for psychological problems [2]. Bagheri et al. [4] showed that patients with frozen shoulder are more likely to have high pain and disability secondary to depression and anxiety than demographic features. Anxiety and similar psychological problems can cause increased postoperative pain intensity in the long term as well as the short term. Pinto et al. revealed the influence of psychological factors on acute pain and anxiety 48 hours after total hip and knee arthroplasty [16]. Referring patients with high levels of anxiety for psychiatric evaluation is a discrete problem. Vrancenu et al. [17] examined how orthopedic surgeons should address and manage the psychological aspects of orthopedics disorders. They found standardized questionnaires to be the least preferred method among surgeons for determining psychological condition; yet they are more rapid, accurate, easy to administer to patients awaiting visits, and more efficient than methods like medical records reviews or interviews. The most significant barriers to psychiatric consultation were lack of time, stigma, and patient discomfort.

Our study's greatest strength is that we conducted the evaluations in a prospective manner. Our study's most important limitation is the low sample sizes of the groups. Multicentered prospective studies with a greater number of patients are needed to determine the factors affecting the anxiety levels of patients who present to orthopedic outpatient clinics.

Conclusion

The anxiety levels of patients at orthopedic clinics are related to patient education level and clinic population density. We think anxiety levels of patients and physicians can be reduced by properly arranging appointments and developing health policies that do not put pressure on physicians to evaluate too many patients.

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