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The Mediating Role of Anxiety in the Relationship between Job Satisfaction and Psychosocial Functions of Nurses and Pediatricians in PICUs

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ABSTRACT

Background: Job satisfaction refers to an individual's overall attitude towards their job. It is influenced by various factors such as work environment, job role, work-life balance, compensation, anxiety, opportunities for growth and development. However, low levels of job satisfaction can have a significant impact on an individual's mental health and overall well-being. **Objective:** We contacted this study in order to assess the effect of PICU nurses' and pediatricians' job satisfaction on their psychosocial functioning and to examine the role of anxiety as a mediating factor in this relationship. **Methods:** A sample of 155 nurses and pediatricians at 7 University Hospitals in Greece has consented to participate in the study. Socio-demographic data, Hamilton Rating Scale for Anxiety, Minnesota Satisfaction Questionnaire -short form and a Brief Inventory of Psychosocial Functioning were used to evaluate anxiety, job satisfaction and psychosocial functions. **Results:** According to our results, participants with moderate or severe levels of anxiety showed moderate or low job satisfaction, while moderate or severe anxiety was also associated with low levels of participants' psychosocial functioning. Job satisfaction is a dynamic situation that is affected by the levels of anxiety of each worker in PICU. **Conclusion:** The presence of anxiety may be related to comorbid mental health disorders since it affects the psychosocial functions of the worker. We propose a longer rest period, a change of department in case an employee wishes it or shows symptoms of increased stress or another mental health disorder, regular assessments by mental health experts for all PICU's staff and support after a diagnosis of a mental health problem.

Keywords: Job satisfaction, pediatric nurses, pediatricians, anxiety, psychosocial functions.

1. BACKGROUND

Job satisfaction is one of the most highly studied topics and receives worldwide attention due to the significant effects it can have on the functioning of an organization and on the mental health of employees (1). Locke (1976) defined job satisfaction as positive and pleasant emotions that are associated with "the evaluation of one's job or work experiences" (2). Theoretically, there are four important frameworks for job satisfaction – the theory of human capital, the structural theory, the self-determination theory, and the relationship between work performance and job satisfaction (3).

The job satisfaction in a work health environment is highly important because in addition to increasing the satisfaction of health care workers, it also contributes to the highest level of patient satisfaction (4). Job satisfaction in health care organizations is related to the working conditions, the management's attitude towards solving problems, the effective

communication between leader and staff and the possibility to participate in the decision-making process (4, 5). Furthermore, it can decrease as a result of burnout, leading nurses and doctors to leave their specialty or profession (6). The relationship between job dissatisfaction and job burnout is bibliographically linked and many times their relationship is bidirectional. However, anxiety is considered to be the main trigger of job dissatisfaction and can lead to burnout (7). This effect can be explained through cortisol. It is well known, that cortisol increases with anxiety, and high levels of anxiety increase cortisol levels (8).

On the other hand, low levels of job satisfaction have been found to have a detrimental impact on an individual's psychosocial functioning (9). Research has shown that anxiety, in particular, is a significant contributor to lost working days, accounting for 50-60% of all such instances (10). This highlights the grave consequences of anxiety in the workplace. Anxiety becomes harmful when it manifests as physical and emotional reactions due to a disparity between job demands and employees' skills, available resources, or personal requirements (11).

This dissatisfaction and resulting anxiety can deplete an individual's mental coping resources, leading to fatigue, somatization (physical symptoms with no known medical cause), and social withdrawal (12). These symptoms then spill over into other aspects of a person's life, such as their relationships with family and friends, their ability to be an effective parent, their educational pursuits, and their self-care practices (13). Specifically in the context of pediatric healthcare, studies have shown that working in high-stress environments such as Pediatric Intensive Care Units (PICUs) and pediatric emergency departments can exacerbate job dissatisfaction and lead to burnout syndrome and secondary traumatic stress (14, 15, 16). These units are characterized by their care for young patients with life-threatening conditions and the high levels of morbidity and mortality they encounter. The added stress of dealing with the emotional needs of parents further contributes to the burden on healthcare professionals in these settings (17). In addition, the shift scheduling (18), the overworking (19) and the workforce (20) strengthen the already burdened mental health of PICU's staff. This chronic stress often leads to emotional exhaustion, burnout symptoms, increased rates of sick leave, substance abuse, and chronic physical pain among nurses and pediatricians. Overall, job dissatisfaction and the resulting burnout and anxiety have wide-ranging effects on an individual's health and well-being, impacting both their professional and personal lives (21).

So far, several studies that assessed the job satisfaction of pediatric staff, have shown that pediatric nurses, as well as pediatricians have low or moderate job satisfaction and high levels of anxiety (22, 23). The role of burnout and anxiety has also been investigated and seems to be high in the staff of the Intensive Care Units (ICU) (24) and especially in the PICUs (25-27).

2. OBJECTIVE

However, we still do not know the effect of job satisfaction on the psychosocial functions of the PICU's staff and we also do not know if anxiety is a factor affecting this relationship. In order to investigate this, a survey was conducted to assess the effect of PICU nurses' and pediatricians' job satisfaction on their psychosocial functioning and to examine the role of anxiety as a mediating factor in this relationship, that contribute to the psychosocial functioning of the staff.

3. MATERIAL AND METHODS

This study took place from October 2021 to June 2022, at PICUs of 7 University Hospitals in Greece. The hospitals that had PICUs and participated in the survey were: Children's Hospital Agia Sofia in Athens, "Pan. & Aglaia Kyriakou" Children's Hospital in Athens, Attikon University General Hospital in Athens, General Children Hospital of Penteli in Athens, General Hospital Hippokration, in Thessaloniki, General University Hospital of Patras, in Patra and University General Hospital of Heraklion "PAGNI" in Heraklion Crete. Therefore, the study was approved by Ethics Commission of each hospital. More specifically, we received approval from by the: 1) Children's Hospital Agia Sofia in Athens Ethics Commission: 14972/30-07/2021, 2) "Pan. & Aglaia Kyriakou" Children's Hospital in Athens Ethics Commission: 12652/14-07-2021, 3) Children's Hospital in Athens, Attikon University General Hospital in Athens Ethics Commission: 6/7-7-2021, 4) General Children Hospital of Penteli in Athens Ethics Commission: 6425/25-06-2021, 5) General Hospital Hippokration, in Thessaloniki Ethics Commission: 23566/23-09-2021, 6) General University Hospital of Patras Ethics Commission: 330/06-07-2021, 7) University General Hospital of Heraklion "PAGNI" in Crete Ethics Commission: 16246/21-9-21.

Participants

Survey participants were all nurses and pediatricians from the above University hospitals in Greece. A basic condition for participating in the research for health professionals was that they had worked for at least one year in the PICU. An additional condition was the sufficient knowledge of the Greek language, so they could understand the questions of the psychometric tools.

Measures

The data were collected after the researcher made personal contact with the nurses and doctors and after informing them about the purpose of the research and obtaining their written consent that would ensure their participation in the research. The contact of the researcher with the workers was made during a break from their work. The measures used for the needs of this study were:

Socio-demographic Questionnaire

It is a self-made questionnaire created by the researcher in order to obtain the necessary information about the personal, social, demographic and professional life of the participants.

		n	%
Gender	Man	25	16.1%
	Woman	130	83.9%
Specialty	Medical staff	58	37.4%
	Nursing staff	97	62.6%
Family status	Single	53	34.2%
	Married/In relationship	94	60.6%
	Divorsed	8	5.2%
Education level	High school	8	5.2%
	University	40	25.8%
	Master/ PhD	68	43.9%
	Specialty/Expertise	39	25.2%
Shift	Morning shift	47	30.3%
	Circular shift	108	69.7%

Table 1. Demographic-occupational sample data.

Minnesota Satisfaction Questionnaire (MSQ)-short form (28)

This tool of 20 items, measures the degree of job satisfaction. It was produced by the University of Minnesota in 1977 and is available in many languages, including Greek and it is freely available from the University for research purposes. The MSQ provides more specific information about aspects of a job than corresponding measures and it also explores the professional needs of employees. The short form of MSQ, takes about 5 minutes to complete.

Hamilton Rating Scale for Anxiety (HAM-A) (29)

This psychometric tool created by M Hamilton in 1957, consists of 14 questions measuring psychological and physical stress. The intensity of the symptoms is evaluated through a five-point scale (0-1-2-3-4), where 0 corresponds to the absence of symptoms and 4 to the existence of very severe symptoms. The HAM-A was obtained by the University of Florida (30) for free. No license was required for the scale as it is available for use in a public domain in Greek version. For the needs of this research, we used it without the last question regarding the individual's behavior during the interview, in order to create a new self-report scale that will be addressed to the general population (cronbach α = 0.904).

The Brief Inventory of Psychosocial Functioning (B-IPF) (31)

This shorter 7-item instrument assesses PTSD-related functional impairment over the previous 30 days in the same domains assessed by the 80-item version of the IPF. Each element of the B-IPF corresponds to an IPF functional domain. The B-IPF, assigns a score ranging from 0-100, with higher scores indicating greater impairment. The areas examined by the scale concern the person's relationship with his partner and children or his extended family, his relationship with friends, colleagues or work in general, with education and with more general daily activities such as the household or the correct intake of any daily medication. The scale is available without permission from the National Center for PTSD and was translated and weighted in the Greek population by the researcher (cronbach α =0,852).

4. RESULTS

The demographic data of the 155 PICU's workers participated in the research are detailed in Table 1. From the analysis it emerged that 83.9% (*n*=130) were women, while 62.6% (*n*=97) of the sample consisted of nursing staff and 37.4% (n=58) of the sample consisted of pediatricians. The data concerning the marital status of the sample show that 60.6% (*n*=94) of the sample were married or in relationship and 34.2% (*n*=53) were single. The data on the level of education of the participants show that 43.9% (*n*=68) held a master's/doctorate, 25.8% (*n*=40) were university graduates and 25.2% (*n*=39)) were in a specialty/specialization. Finally, from Table 1, it appears that 69.7% (*n*=108) of the participants worked in circular shift and 30.3% (*n*=47) worked in morning shift. The mean age of the participants was 41.5 years (SD=9.5) while they had an average of 15.2 (SD=9.1) years of total work experience.

	M	MD	SD	Min	Max	Scale Range
Job Satisfaction	70.5	71.0	11.9	33.0	98.0	20-100
Psychosocial function	6.5	5.0	7.3	0.0	42.0	0-49
Anxiety	12.4	12.0	8.9	0.0	42.0	0-52

Table 2. Descriptive statistics. Notes: A higher value on the psychosocial functioning scale indicates more psychosocial functioning problems.

		Anxiety							
		Mild		Mild to moderate severity		Moderate to severe		Severe	
		n	%	n	%	n	%	n	%
Job satisfaction	Low	0	0.0%	2	66.7%	0	0.0%	1	33.3%
	Moderate	16	57.1%	9	32.1%	0	0.0%	3	10.7%
	High	103	83.7%	10	8.1%	5	4.1%	5	4.1%

Table 3. The relationship between anxiety and job satisfaction.

	Job Satisfaction	Anxiety	Psychosocial function
Job Satisfaction	1	-.448**	-.496**
Anxiety		1	.700**
Psychosocial function			1

Table 4. Correlation analysis results.Notes: Correlation is significant at the 0.01 level (2-tailed)

The results showed that the mean value of the job satisfaction scale was equal to 70.5 (SD=11.9). The majority of PICU workers had a mean score on the scale higher than 60 (corresponding to a moderate level of satisfaction). Accordingly, the findings show that the mean value of the anxiety scale was found equal to 12.4 (SD=8.9). The majority of workers in PICUs had an average score on the scale of less than 17 (which is the cutoff for a diagnosis of anxiety). Finally, the mean value of the psychosocial functioning scale was found to be 6.5 (SD=7.3). The majority of workers in pediatric fields had a mean score on the scale of less than 21 (which is the moderate level of difficulties in psychosocial functioning) (Table 2).

Predictor	b	p	95% CI	
Job Satisfaction	-.034	.626	-.153	.093
Anxiety	1.059	< .001	.575	1.545
Job Satisfaction x Anxiety	-.008	.021	-.015	-.001

Table 5. Regression model for psychosocial function predicted by job satisfaction and anxiety.

Anxiety	b	p	95% CI	
One SD below mean	-.054	.325	-.163	.054
At the mean	-.126	.003	-.209	-.043
One SD above mean	-.190	<.001	-.284	-.096

Table 6. Conditional effect of anxiety on relationship between job satisfaction and psychosocial function.

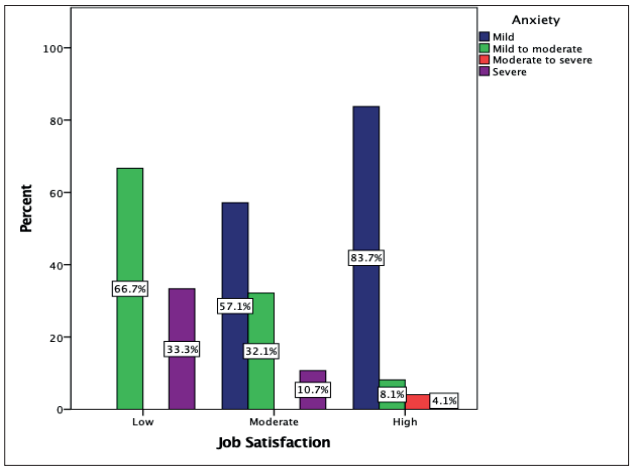

Figure 1. Job satisfaction and anxiety rates.

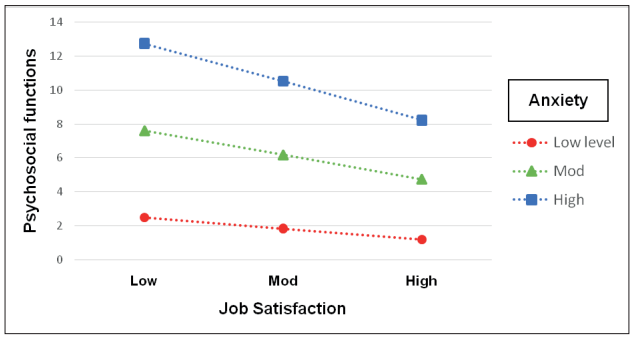

Figure 2. Moderation analysis graph.

The results of the correlation analysis show that job satisfaction is negatively related to the level of psychosocial functions (r = -.496, p< .01) and to the level of stress (r = -.448, p< .01) of ICU workers (Table 4). Accordingly, it appears that the level of stress of ICU workers is positively related to the level of psychosocial functions (r = .700, p< .01).

As we can see from Table 5, job satisfaction does not significantly predict the level of psychosocial functions of PICU workers (β = -.034, p = .626). On the contrary, it was recorded that stress is an important predictive factor of the psychosocial functions of PICU workers (β = 1.059, p< .001). Finally, it emerged that stress is an important mediating factor in the relationship between job satisfaction and psychosocial functions (β = -.008, p= .021). Overall the model predicts 54.1% of the variability in psychosocial functioning (F(3, 145) = 57.0, p< .001).

As shown in Table 6, job satisfaction significantly predicts psychosocial functioning when anxiety is one standard deviation above the mean (β = -.190, p < .001) and when it is at the mean (β =–.126, p = 0.003). In contrast, job satisfaction does not significantly predict psychosocial functioning when anxiety is one standard deviation below the mean (β = -.054, p = .325).

These findings show that job satisfaction negatively affects psychosocial functioning when PICU workers have a moderate level of stress, and this negative effect is greater when PICU workers have a high level of stress. Conversely, the findings show that job satisfaction does not significantly affect psychosocial functioning when ICU workers have a low level of stress (Figure 2). Taken together, the findings show that stress is an important mediating factor in the relationship between job satisfaction and psychosocial functioning, with the effect of job satisfaction on psychosocial functioning becoming stronger as employee stress increases.

5. DISCUSSION

The aim of the study was to investigate the impact of job satisfaction on the psychosocial functioning of PICU nurses and pediatricians, and to explore the role of anxiety as a mediator in this relationship. The study found that the mean job satisfaction score of nurses and pediatricians in the PICU was 70.5 (SD=11.9), while 20% (n=31) of them had moderate to low job satisfaction.

These findings are consistent with previous studies conducted by Kaya et al. (32, 33), and Meyer et al. (34) which also reported moderate levels of job satisfaction among nurses and pediatricians in pediatric clinics. However, there are some studies that have reported lower job satisfaction scores among pediatric nurses and pediatricians (35), while others have reported very high levels of job satisfaction (36, 37). It is clear from our results that the challenges of meeting the extensive needs of critically ill children and supporting their families can have a negative impact on the job satisfaction of PICU staff.

There are several studies that indicated high anxiety levels between healthcare workers (38, 39) and especially, between pediatric workers (40, 41, 42). Nurses and doctors who provide care to pediatric patients face increased stress which comes from factors such as death, parental reaction and the heavy burden of care (43). However, anxiety can have negative effects on the health and quality of life of healthcare workers (44). The majority of participants in our results had mild or low anxiety (less than 17 which is the cutoff for an anxiety diagnosis), however 83% (n=103) of the participants with higher levels of job satisfaction had mild anxiety while 4.1% (n=5) of the participants had severe anxiety.

The results of our study suggest that the workers in the PICU have a mean score on the psychosocial functioning scale that is below the moderate level of difficulties. This indicates that they are experiencing some level of difficulties in psychosocial functioning. However, we observe that as the anxiety levels of the staff increase, the level of their psychosocial functions decreases. Therefore, anxiety acts as a mediator and can determine the relationship between job satisfaction and the level of psychosocial functioning of the staff. According to the

literature (44, 45), stress causes physical and psychological symptoms, usually accompanied by fatigue, and leads to negative behaviors and attitudes towards self, family, and work. In terms of PICU staff, the negative impact of anxiety affects the care of young patients and causes job dissatisfaction as well. In addition, the presence of anxiety has been associated with comorbidity mainly with depression (46)and PTSD (47), therefore, the quality of psychosocial functioning is reduced.

It's clear that the mental well-being of the PICU staff is a crucial aspect of their ability to handle the stress and trauma of their work. (48). Therefore, the worker's mental well-being also increases the control of stressors. Results of corresponding studies have also shown that anxiety is related to low job satisfaction and burnout syndrome in response to work stressors (49, 50). Family and social life are also negatively affected resulting in problems with the worker's relationship with family and friends, isolation from the social environment, problems in work relationships, and finally, problems in all the daily habits of the worker (51).

6. CONCLUSION

The presence of anxiety in nurses and pediatricians in PICUs was associated with low job satisfaction and low psychosocial functioning and low job satisfaction. The presence of anxiety may be related to comorbid disorders such as PTSD and burnout, considering that psychosocial functions are affected by the above disorders. Job satisfaction is therefore a dynamic situation that is affected by the mental health of each worker. Health policy-makers should take measures for the mental health of nurses and pediatricians working in PICUs, given the daily exposure of these workers to mental injury. More specifically, More specifically, we propose a longer rest period, a change of department in case an employee wishes it or shows symptoms of increased stress or another mental health disorder, regular assessments by mental health experts for all staff and support after a diagnosis of a mental health problem. We also suggest that research be continued in this special population of healthcare workers around the world to evaluate the risk factors of occupational stress and reduced job satisfaction, as well as other socio-demographic factors that have an impact on the psychosocial functioning of the worker.

- **Patient Consent Form:** Informed consent was obtained from all subjects involved in the study.
- **Authors contribution:** Conceptualization, N.R. and E.A.; methodology, N.R.; software, Z.K.; validation, K.G., M.D. and A.S.; formal analysis, Z.K.; investigation, N.R.; resources, E.O.; data curation, Z.K.; writing—original draft preparation, N.R.; writing—review and editing, E.A.; visualization, E.O.; supervision, E.A.; project administration, N.R. All authors have read and agreed to the published version of the manuscript.
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