

# Epidemiological Aspect of Physical and Mental Fatigue among Greek Employees in Pharmaceutical Companies: the role of Organizational Commitment and Work Satisfaction

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## Abstract

The purpose of the current study was to investigate the association of organizational commitment and job satisfaction with physical and mental fatigue among employees working in pharmaceutical companies. The research involved 102 employees of different specialties (medical visitors, administrators, laboratory staff, etc.) with an average age of 43 years. Participants completed the Fatigue Assessment Scale (FAS), the Meyer and Allen Organizational Commitment Questionnaire, and the Employee Satisfaction Inventory (ESI). The results showed that satisfaction from nature of work as well as continuous commitment predicted fatigue ( $B=-0,428$ , sig. 0,001,  $B=0,170$ , sig. 0,008 respectively). Moreover, the results indicated that working hours per week predicted negatively physical and mental fatigue ( $B=-0,033$ , sig. 0,034). In conclusion, research on fatigue or interventions aimed at reducing it should take organizational commitment and job satisfaction into highly consideration.

**Keywords:** Fatigue, Organizational Commitment, Work Satisfaction, Pharmaceutical Companies.

## Introduction

Work is a basic parameter of life humans. It is not just a means livelihood and source of income for humans, but also a source of self-esteem, self-control, satisfaction and other positive feelings that arise either from socializing with colleagues or from the employment with this object of the work. Job satisfaction is inextricably linked to the work environment and conditions of work, the relationships created with colleagues, as well as with parameters concerning everyday life and functions at work space. The issue of professional satisfaction, of factors affecting it as well as the relationship of workers' health and efficiency they are at the center of research throughout time and in the labor sector of services and organizations [1].

Job satisfaction is multidimensional concept, which represents the overall attitude of a person towards his work. A number of theoretical models have been developed to describe and to explain the concept and its individual dimensions professional satisfaction. According to Locke, job satisfaction is the pleasant or positive

emotional state resulting from evaluation that one feels about one's work or tasks experiences arising from it. The professional satisfaction refers to the extent to which people express positive or negative feelings about their work. Job satisfaction is an indicator of the general satisfaction and well-being of the individual but also of his mental health, as well as the participation at work is a key indicator of the individual's mental level [2]. According to newer one's views, the concept of job satisfaction includes multidimensional psychological responses to person's work.

These dimensions are colored with evaluative, emotional and behavioral elements [3, 4]. Job satisfaction has a positive effect on both their physical and mental health workers, but also in their social well-being [5-8]. Lots of research in this field highlight its relationship professional satisfaction with the health of the workers, their efficiency and their quality of services provided [9-13]. According to the results of surveys, employees who are satisfied with their working conditions, they have positive relations with their colleagues and feel that the work they are recognized by their

superiors, they experience lower work stress, they are less prone to occupational burnout and tend to express more positive emotions with physical and spiritual way. Conversely, workers with low they usually have lower job satisfaction work engagement and are more likely to occur physical, mental and emotional withdrawal with psychosomatic manifestations, absences from work and low job performance [14-20].

The number of studies conducted in Greece and those mainly that concern the impact of organizational commitment and job satisfaction on physical and mental fatigue among employees working in pharmaceutical companies are insufficient. Therefore, the purpose of the current study was to investigate the association of organizational commitment and job satisfaction with physical and mental fatigue in the population under study. The main research hypothesis was that there will be a statistically significant effect of organizational commitment and job satisfaction on fatigue.

## Method

### Research Design and Sample

The independent variables examined in this quantitative cross-sectional study were organizational commitment and job satisfaction of employees in pharmaceutical companies while the dependent variable was physical and mental fatigue. The present research involved personnel of different specialties (e.g. medical visitors, administrative staff, laboratory staff, managers etc.) working in Athens. For the selection of the sample were set as admission criteria people to be over 18 years old, to work at least one year in this field and to know the Greek language fluently.

### Questionnaires

Initially, participants filled out a form with their demographic and professional details. Participants then completed the "The Fatigue Assessment Scale (FAS)", which is a tool for assessing perceived fatigue and consists of 10 questions on a five-point Likert scale (1 = never to 5 = always), with a score of ranges between 10-50. Five questions are about physical and five questions are about mental fatigue. This scale is considered a reliable tool for measuring fatigue for both healthy people and people with diseases [21-23].

Respondents also completed the Organizational Commitment Questionnaire, which includes 18 statements based on the three-dimensional model of organizational commitment, according to Meyer, Allen and Smith [24]. This tool evaluates both organizational commitment and its three dimensions (affective, continuance, normative). For each dimension the tool includes 6

statements. The employee responds using the Likert 5-point scale [25]. The Employee Satisfaction Inventory - ESI was used to measure job satisfaction. This questionnaire was chosen because it explores all the dimensions that compose the concept of staff satisfaction, but also because its validity and reliability have been examined in similar surveys in Greece [26, 27]. The recording scale consists of a total of 24 items and has the following six subscales: Working Conditions, Salary, Nature of Work, Direct Supervisor, Organization as a whole and Promotion. To answer whether respondents considered each ability important, they used a five-point scale (1 = strongly disagree to 5 = strongly agree).

### Procedure

The researchers turned to various pharmaceutical companies to participate in the research. Questionnaires were distributed to all those who showed interest and wanted to participate. All participants in the survey were informed in detail about the purpose of the survey through the consent form they were asked to sign. In this form there was also a clear description of their right to withdraw data. The anonymity of the participants was ensured, as well as the confidentiality of the data. Completion of the questionnaires took approximately 10-15 minutes.

### Statistical analysis

The socio-demographic profile of the sample was presented and in particular the quantitative variables were described with mean and standard deviation ( $M \pm SD$ ) and the categorical variables with frequencies and percentages. Logistic regression analysis was performed to investigate the relation of organizational commitment and job satisfaction to fatigue. All questionnaires demonstrated very good reliability (Cronbach  $\alpha$ ), that is 0.896 for the fatigue questionnaire, 0.814 for the organizational commitment questionnaire and 0.781 for the job satisfaction questionnaire. The value  $p < 0.05$  was considered to indicate statistical significance.

## Results

### Sample characteristics

In the present study the total sample consisted of 102 people, of whom 52.9% were men and 47.1% women. The majority was university graduates (58.8%), married or with a cohabitation agreement (58.8%), medical visitors (35.3%) and having a position of responsibility (61.8%) (Table 1).

The mean age of the study participants was 43.3 years ( $\pm 7.66$ ). The average total working years was  $13 \pm 7.8$ , the average working years in the current department was  $8.17 \pm 6.54$  and the average weekly working hours was  $38.5 \pm 14.3$  (Table 1).

**Table 1: Demographic and occupational characteristics of the participants**

	N	%	M(SD)
<b>AGE</b>	102		43,3 (± 7.66)
<b>GENDER</b>			
MALE	54	52.9	
FEMALE	48	47.1	
<b>EDUCATION</b>			
LYCEUM	9	8.8	
UNIVERSITY	60	58.8	
POSTGRADUATE / DOCTORAL	33	32.4	
<b>MARITAL STATUS</b>			
UNMARRIED	33	32.4	
MARRIED - COHABITATION AGREEMENT	60	58.8	
DIVORCED	6	5.9	
WIDOWED	3	2.9	
<b>SPECIALTY</b>			
RESEARCH / LABORATORY STAFF	15	14.7	
MEDICAL VISITORS	36	35.3	
ADMINISTRATIVE STAFF	18	17.6	
SENIOR EXECUTIVES (MANAGERS)	33	32.4	
<b>POSITION OF RESPONSIBILITY</b>			
YES	63	61.8	
NO	39	38.2	
<b>TOTAL WORKING YEARS</b>	102		13 (± 7.8)
<b>WORKING YEARS IN THE CURRENT DEPARTMENT</b>	102		8,17 (± 6.54)
<b>WEEKLY WORKING HOURS</b>	102		38,5 (± 14.3)

Also, 52.9% of the sample did not have fatigue, while 47.1% did. The mean of physical fatigue was 11.6±3.3, of mental fatigue was 8.97±2.65 and the mean of total fatigue was 20.6±5.4. The mean of affective commitment was 20.7±4.8, continuance commitment was 18.9±4.6, normative commitment was 17.7±4.7 and total commitment was 57.3±10.9. The average satisfaction with

the working conditions was 18.9±3.9, the satisfaction with the salary 12.4±3.3, the satisfaction with the promotion 9.3±2.3, the satisfaction with the nature of the work 15.7±3, by the immediate supervisor 15.1±4.1 and the satisfaction from the organization 13.1±3.7 (Table 2).

**Table 2: Demographics of fatigue, commitment and work satisfaction**

	N	Minimum	Maximum	Mean	Std. Deviation	%
FAS PHYSICAL	102	5,00	17,00	11,6471	3,26896	
FAS MENTAL	102	5,00	14,00	8,9706	2,65306	
FAS TOTAL	102	10,00	29,00	20,6176	5,38984	
<22 NON-FATIGUED	54					52,9
HIGHER OR EQUAL TO 22 FATIGUED	48					47,1
COMMITMENT AFFECTIVE	102	7,00	28,00	20,7353	4,77188	

COMMITMENT CONTINUITY	102	8,00	28,00	18,8824	4,55830	
COMMITMENT NORMATIVE	102	6,00	25,00	17,6765	4,74949	
COMMITMENT TOTAL	102	29,00	77,00	57,2941	10,89880	
WORKING CONDITIONS	102	8,00	23,00	18,8824	3,85965	
SALARY	102	6,00	19,00	12,4118	3,28016	
PROMOTION	102	4,00	13,00	9,3235	2,26974	
NATURE OF WORK	102	9,00	20,00	15,7059	3,01017	
DIRECT SUPRVISOR	102	4,00	20,00	15,1176	4,12741	
ORGANIZATION	102	5,00	20,00	13,0588	3,69593	

### Main results

A series of logistic regression analysis was then performed. Initially to test whether the dimensions of organizational commitment and job satisfaction could significantly predict participants' ratings of physical and mental fatigue (Table 3). The results showed that satisfaction from nature of work as well as continuous commitment predicted fatigue ( $B=-0,428$ , sig. 0,001,  $B=0,170$ , sig. 0,008 respectively).

**Table 3: Organizational commitment and job satisfaction predicting fatigue**

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B) Lower Upper
a	COMMITMENT AFFECTIVE	,028	,089	,097	1	,756	1,028	(,863 - 1,225)
	COMMITMENT CONTINUITY	,170	,064	7,020	1	,008	1,185	(1,045 - 1,343)
	COMMITMENT NORMATIVE	-,019	,088	,046	1	,830	,981	(,827 - 1,165)
	WORKING CONDITIONS	,087	,107	,661	1	,416	1,091	(,885 - 1,344)
	SALARY	-,039	,095	,166	1	,684	,962	(,799 - 1,159)
	PROMOTION	,099	,140	,500	1	,480	1,104	(,839 - 1,452)
	NATURE OF WORK	-,428	,128	11,214	1	,001	,652	(,507 - 0,837)
	DIRECT SUPERVISOR	-,013	,074	,030	1	,862	,987	(,854 - 1,141)
	ORGANIZATION	-,184	,131	1,973	1	,160	,832	(,643 - 1,076)
Constant	3,605	2,131	2,863	1	,091	36,797		

a. Variable(s) entered on step 1: COMMITMENT AFFECTIVE, COMMITMENT CONTINUITY, COMMITMENT NORMATIVE, WORKING CONDITIONS, SALARY, PROMOTION, NATURE OF WORK, DIRECT SUPERVISION, ORGANIZATION

Moreover, the results indicated that working hours per week predicted negatively physical and mental fatigue ( $B=-0,033$ , sig. 0,034) (Table 4).

**Table 4: Demographic and occupational factors predicting fatigue**

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B) Lower Upper
a	AGE	-,029	,034	,743	1	,389	,971	(,909 - 1,038)
	TOTAL YEARS OF WORK	-,062	,037	2,880	1	,090	,940	(,875 - 1,010)
	YEARS OF WORK IN THE DEPARTMENT	,032	,039	,695	1	,404	1,033	(,957 - 1,114)
	WORKING HOURS PER WEEK	-,033	,016	4,503	1	,034	,967	(,938 - ,997)
	Constant	2,946	1,477	3,980	1	,046	19,037	(,799 - 1,159)

a. Variable(s) entered on step 1: AGE, TOTAL YEARS OF WORK, YEARS OF WORK IN THE DEPARTMENT, WORKING HOURS PER WEEK

Finally, the results showed that gender (male) and educational level (lyceum) negatively predicted fatigue ( $B=-1,252$ , sig. 0,040,  $B=-1,930$ , sig. 0,027 respectively) while specialty (research/laboratory staff) positively predicted fatigue ( $B=2,629$ , sig. 0,019) (Table 5).

**Table 5: Demographic and occupational factors predicting fatigue**

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B) Lower Upper
a	GENDER (1)	-1,252	,610	4,205	1	,040	,286	(,086 - ,946)
	EDUCATIONAL LEVEL			4,892	2	,087		
	EDUCATIONAL LEVEL (1)	20,042	13163,967	,000	1	,999	506138783,284	(,000)
	EDUCATIONAL LEVEL (2)	-1,930	,873	4,892	1	,027	,145	(,026 - ,803)
	MARITAL STATUS			3,927	3	,269		
	MARITAL STATUS (1)	-2,102	1,209	3,024	1	,082	,122	(,011 - 1,306)
	MARITAL STATUS (2)	-,948	1,085	,763	1	,382	,388	(,046 - 3,249)
	MARITAL STATUS (3)	-20,791	23205,422	,000	1	,999	,000	(,000)
	SPECIALTY			5,570	3	,135		
	SPECIALTY (1)	2,629	1,124	5,471	1	,019	13,854	(1,531 - 125,357)
	SPECIALTY (2)	1,073	1,158	,859	1	,354	2,924	(,302 - 28,273)
	SPECIALTY (3)	,466	,733	,405	1	,524	1,594	(,379 - 6,700)
	POSITION OF RESPONSIBILITY (1)	-,836	1,240	,455	1	,500	,433	(,038 - 4,921)
	Constant	2,533	2,225	1,296	1	,255	12,594	

a. Variable(s) entered on step 1: GENDER, EDUCATIONAL LEVEL, MARITAL STATUS, SPECIALTY, POSITION OF RESPONSIBILITY

### Discussion

The purpose of the current study was to investigate the association of organizational commitment and job satisfaction with physical and mental fatigue among employees working in pharmaceutical companies. Our research hypothesis is confirmed as physical and mental fatigue seems to be predicted by satisfaction from nature of work as well as continuous commitment, working hours per week, gender (male), educational level (lyceum) and specialty (research/laboratory staff). Consequently, we see that as satisfaction from nature of work, working hours per week, gender (male) and educational level (lyceum) get higher in their values, the probabilities of fatigue are less. On the contrary, as continuous commitment and specialty (research/laboratory staff) get higher in their values, the probabilities of fatigue are more.

Jung and Kim examined the association between organizational commitment and fatigue among newspaper firm employees in Korea. Results presented that employees who were fatigued reported diminished commitment to the organization as well as increased turnover intention (28). Cisticola studied the association of fatigue with occupational commitment among accountants in Istanbul. She found that mental fatigue had a partial mediating effect between occupational turnover intention and affective commitment [29].

Moreover, the impact of demographic as well as occupational factors on level of fatigue is in line with other research findings [30,31]. Last but not least, this study had some limitations due to its small sample. It is noted that the results can be further investigated in larger samples from other pharmaceuticals allowing future

comparisons. In future research there may be the possibility of investigating other factors that are related to or affect the levels of fatigue.

### References

1. Locke E.A. (1976). The nature and causes of job satisfaction. In: M.D. Dunnette (Eds), Handbook of Industrial and Organizational Psychology. Chicago: Rand McNally
2. Spector P.E. (1997). Job Satisfaction: Application, Assessment, Causes, and Consequences. Thousand Oaks, Calif: Sage Publications.
3. Hulin C.L. & Judge T.A. (2003). Job attitudes. In: W.C. Borman, D.R. Ligen & R.J. Klimoski (Eds), Handbook of psychology: Industrial and organizational psychology. Hoboken, NJ: Wiley
4. Taris T.W., de Lange A.H. & Kompier M.A.J. (2010). Research methods in occupational health psychology. In: S. Leka & J. Houdmont (Eds), Occupational health psychology. Chichester, UK: WileyBlackwell
5. Van der Klink J.J., Blonk R.W., Schene A.H. & Dijk F.J. (2001). The benefits of interventions for work-related stress. American Journal of Public Health 91: 270-276.
6. Grant A.M., Christianson M.K. & Price R.H. (2007). Happiness, Health, or Relationships? Managerial Practices and Employee WellBeing Tradeoffs. Academy of Management Perspectiv
7. Rothman S. (2008). Job satisfaction, occupational stress, burnout and work engagement as components of work-related wellbeing. SA Journal of Industrial Psychology 34: 11-16.
8. Barnay T. (2016). Health, work and working conditions: a



- review of the European economic literature. *The European Journal of Health Economics* 17: 693-709.
9. Rowe A.K., de Savigny D., Lanata C.F. & Victora C.G. (2005). How can we achieve and maintain high-quality performance of health workers in low-resource settings? *Lancet* 366: 1026-1035.
  10. Lee M.S., Lee M.B., Liao S.C. & Chiang F.T. (2009). Relationship between mental health and job satisfaction among employees in a medical center department of laboratory medicine. *Journal of the Formosan Medical Association* 108: 146-154.
  11. Papataniasiou I., Damigos D. & Mavreas V. (2011). Burnout in Greek Medical and Mental Health Care Workers. *Global Journal of Health Science* 3: 206-210.
  12. Kelesi M., Fasoi G., Papageorgiou E.D., Tsaras K., Kaba E., Stavropoulou A., Polykandriotis T. & Vlachou E. (2016). An Investigation of Factors Determining the Level of Job Satisfaction Among Nurses in Six General Public Hospitals in Greece. *International Journal of Medical Science and Clinical Inventions* 3: 1705-1716.
  13. Labrague L.J., Gloe D.S., McEnroe-Petitte D.M., Tsaras K. & Colet P.C. (2018). Factors influencing turnover intention among registered nurses in Samar Philippines. *Applied Nursing Research* 39: 200-206.
  14. Milliken T., Clements P. & Tillman H. (2007). The impact of stress management of nurse productivity and retention. *Nursing Economics* 25: 203-210
  15. Healy C.M. & McKay M.F. (2008). Nursing stress: the effects of coping strategies and job satisfaction in a sample of Australian nurses. *Journal of Advanced Nursing* 31: 681-688.
  16. West C.P., Dyrbye L.N., Rabatin J.T., Call T.G., Davidson J.H., Multari A., Romanski S.A., Hellyer J.M., Sloan J.A. & Shanafelt T.D. (2014). Intervention to promote physician well-being, job satisfaction, and professionalism: a randomized clinical trial. *JAMA Internal Medicine* 174: 527-533.
  17. Khamisa N., Oldenburg B., Peltzer K. & Ilic D. (2015). Work Related Stress, Burnout, Job Satisfaction and General Health of Nurses. *International Journal of Environmental Research and Public Health* 12: 652-666.
  18. Labrague L.J., McEnroe-Petitte D.M., Gloe D., Tsaras K., Arteche D.L. & Maldia F. (2017). Organizational politics, nurses' stress, burnout levels, turnover intention and job satisfaction. *International Nursing Review* 64: 109-116.
  19. Papataniasiou I.V., Tsaras K., Kleisiaris C.F., Fradelos E.C., Tsaloglidou A. & Damigos D. (2017). Anxiety and Depression in Staff of Mental Units: The Role of Burnout. *Advances in Experimental Medicine and Biology* 987: 185-197.
  20. Berta W., Laporte A., Perreira T., Ginsburg L., Dass A.R., Deber R., Baumann A., Cranley L., Bourgeault I., Lum J., Gamble B., Pilkington K., Haroun V. & Neves P. (2018). Relationships between work outcomes, work attitudes and work environments of health support workers in Ontario long-term care and home and community care settings. *Human Resources for Health* 16: 15.
  21. Michielsen, H. J., De Vries, J., & Van Heck, G. L. (2003). Psychometric qualities of a brief self-rated fatigue measure: The Fatigue Assessment Scale. *Journal of psychosomatic research*, 54(4), 345-352.
  22. Michielsen, H. J., De Vries, J., Van Heck, G. L., Van de Vijver, F. J., & Sijtsma, K. (2004). Examination of the dimensionality of fatigue. *European Journal of Psychological Assessment*, 20(1), 39-48.
  23. Zyga, S., Alikari, V., Sachlas, A., Fradelos, E., Stathoulis, J., Panoutsopoulos, G., Georgopoulou, M., Theophilou, P., Lavdaniti M. (2015). Assessment of Fatigue in End Stage Renal Disease Patients Undergoing Hemodialysis: Prevalence and Associated Factors. *Medical Archives*, 69(6), 376-380.
  24. Meyer, J. P., Allen, N. J., & Smith, C. A. (1993). Commitment to organizations and occupations: Extension and test of a three-component conceptualization. *Journal of applied psychology*, 78(4), 538.
  25. Allen, N. J., & Meyer, J. P. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of occupational psychology*, 63(1), 1-18.
  26. Koustelios, A. D., & Bagiatis, K. (1997). The Employee Satisfaction Inventory (ESI): Development of a scale to measure satisfaction of Greek employees. *Educational and psychological measurement*, 57(3), 469-476.
  27. Koustelios, A., & Kousteliou, I. (1998). Relations among measures of job satisfaction, role conflict, and role ambiguity for a sample of Greek teachers. *Psychological Reports*, 82(1), 131-136.
  28. Jung J, Kim Y (2012). Causes of newspaper firm employee burnout in Korea and its impact on organizational commitment and turnover intention. *The International Journal of Human Resource Management*, 23(17): 3636-51.
  29. Ciftcioglu A (2011). Investigating occupational commitment and turnover intention relationship with burnout syndrome. *Business and Economics Research Journal*, 2(3): 109-19.
  30. Carvajal, M. J., & Popovici, I. (2018). Gender, age, and pharmacists' job satisfaction. *Pharmacy Practice (Granada)*, 16(4).
  31. Pourmovahed, Z., & Nasiriani, K. (2016). Perception of fatigue in female nurses employed in hospitals. *Women Health Open J*, 3(1), 1-7.

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