

Academic Staff Satisfaction with their Work: A Cross-Sectional Study in a Medical University

Rositsa Dimova¹, Romyana Stoyanova^{2*}, Stanislava Harizanova¹, Miglena Tarnovska¹, Donka Keskinova³

¹Department of Healthcare Management, Section of Medical Ethics and Law, Faculty of Public Health, Medical University of Plovdiv, Plovdiv, Bulgaria; ²Department of Health Management and Health Economics, Faculty of Public Health, Medical University of Plovdiv, Bulgaria; ³Department of Applied and Institutional Sociology, University of Plovdiv Paisii Hilendarski, Plovdiv, Bulgaria

Abstract

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***Correspondence:** Romyana Stoyanova. Department of Health Management and Health Economics, Faculty of Public Health, Medical University of Plovdiv, Bulgaria. E-mail: rumi_stoqnova@abv.bg

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BACKGROUND: Employees' work satisfaction, combined with democratic management, are important predictors of future productivity in any organisation.

AIM: The aim of this study is to investigate job satisfaction in academic staff as well as the associated working environment factors, using an original self-administered questionnaire.

METHODS: A cross-sectional survey was conducted using an original standardised questionnaire. It involved 370 academic staff members at one of the five medical universities in Bulgaria. The questionnaire consists of 17 items (including occupational hazards, management style, conflict solving and demographic characteristics) rated on a 5-point Likert scale.

RESULTS: The results revealed that the majority of academic staff (71.7%) works in a risky environment. Employees indicate that "mental strain", "work with chemical agents and dust" and "work with biological hazards" are the most common risk factors. Democratic leadership and cooperation are most commonly applied management styles.

CONCLUSION: The instrument for the measurement of job satisfaction revealed high values of psychometric characteristics for reliability and validity. The study found a high level of satisfaction of academics with their working conditions. It is necessary to conduct similar studies periodically to detect more precisely the decrease in academic staff work satisfaction and take timely and adequate measures to improve it.

Introduction

The work environment consisted of multiple factors, including a company's workplace culture, management styles, hierarchies and motivation for participation in the decision-making process of the organisation, good relations with co-workers, job security, autonomy given to employees and wages [1]. These factors influence job satisfaction and are the key to developing a high-performance workforce [2].

In the literature on organisational behaviour and organisational psychology, job satisfaction is considered the most extensively researched area [3],

[4]. Most investigations have been performed among university and hospital employees [5], [6], [7]. Few types of research have been conducted among medical academic staff members as an occupational group characterised by overcrowded classrooms, the presence of unhealthy factors, time pressures and increased workload [8], [9], [10]. Job satisfaction is regarded as an essential component of employee's motivation among academic staff and is believed to be their basic inner feeling regarding their job as it reflects the degree to which employees feel personally fulfilled and content in their job roles [10].

Some researchers have found out that internal motivators, support from supervisors and

authority play a greater role in academic staff job satisfaction than wages and working conditions [11], [12]. Similarly, other study documents that personal relationships play a more dominant role in the overall job satisfaction compared to payment [1]. Further, a Polish study revealed that income did not influence the professional satisfaction of the dentists [9]. Therefore, novel management skills, time and energy are necessary to improve the overall work performance. Abugre J. indicates that academics were most satisfied with work nature, supervision and communication, and job security [11]. Recent researches reveal that academics find the nature of work, supervision, communication, and job security more satisfying [13], [14].

No single conceptual model can completely and accurately portray the construct between working environment and job satisfaction. Establishing accurate tools to monitor and improve job satisfaction should be adopted by the university as its main organisational policy [15]. For Bulgaria, the problem is comparatively new as all research in this area was carried out following the country's economic transition. Therefore, there is a need for such studies to provide more public knowledge of this issue, train both employees' and employers in this area, aid and encourage both parts to increase work satisfaction. Similar studies in Bulgaria are few, even fewer have been conducted among academic staff. The continuous efforts of the Medical University, Plovdiv to improve the working environment and the employee's satisfaction along with the management system standards of ISO 9001:2015 provided the grounds for conducting the present research.

The aim of this study is to investigate academics' job satisfaction and working environment factors associated with it using an original self-administered questionnaire.

Material and Methods

Design

A cross-sectional survey was conducted among the academic staff (full professor, associate and assistant professor) at the Medical University in Plovdiv (one of the five Medical Universities in Bulgaria). The sample is representative with regards to the Medical University, Plovdiv. Our standardised questionnaire was specially prepared to achieve our goal in studying different aspects of satisfaction with the working environment. This study was carried out with the co-operation of the Committee on Working Conditions and an Occupational Health and Safety expert. It was approved by the Vice-Rector for Quality and Accreditation of the University

Participants and procedures in the pilot study

A pilot survey was conducted among 20 academic employees to assess the reliability and validity of the prepared tools before the main study. A convenience type sampling was used with equal gender representation. Following instruction briefing, the participants in the pilot survey filled out the questionnaire twice over two weeks. In the process of repeated filling, participants had no access to the original completed forms.

Participants and procedures in the main study

The questionnaires were distributed among 370 academic staff members out of a total of 738 colleagues from six departments at the Medical University in Plovdiv. The Committee on Working Conditions and an expert in Occupational Health and Safety (OHS) also co-operated in our research. The questionnaire consisted of 22 specific questions. Seventeen of the items evaluated the academic staff satisfaction with the working conditions in four aspects including: management and ensuring health and safety working conditions (job safety, presence of System for Quality Control and continuous monitoring of work environment conditions) superior-subordinate communication (free horizontal and vertical communication, receiving feedback for the introduced changes), teamwork (support and respect for each other) and work organization (working hours and rest balance, intensity of the daily work, interchangeability of the staff and daily workload). Additionally, several occupational hazards (physical, chemical, biological, ergonomic and psychological) were investigated as well as the management style, the manner of conflict solving and demographics.

The independent variable in this research is the working environment in which the employees work within an organisation. The dependent variable is the employee job satisfaction with the working environment.

A 5-point Likert scale was used ranging from "complete disagreement" to "complete agreement". A scale of 1 to 5 was used to evaluate different aspects of job satisfaction. The value of index 1 or 2 corresponds to dissatisfaction; the value of index 3 shows neutral value of satisfaction and the value of index 4 or 5 indicates satisfaction of respondents.

The questionnaire included questions on workplace, presence and type of risk factors, management styles and how conflicts are handled in the working place. Information on the sex and age of respondents is also present. To determine the impact of the above factors on the overall respondent satisfaction, the items related to the satisfaction of the received remuneration were excluded.

The study was conducted from December 2015 to March 2016 at the Medical University in Plovdiv.

Reliability and construct validity of the questionnaire

Internal consistency of the questionnaire was evaluated through Cronbach's Alpha (α). To evaluate reliability, we used the split-half-reliability model and calculated the Spearman-Brown coefficient (r_{sb}) for each item. The Wilcoxon Signed Ranks Test was applied to compare the two related samples (in this study – to compare the results between the two moments of evaluation).

Exploratory factor analysis with principal axis factoring extraction was used to assess the underlying structure of the items as well as orthogonal rotation, using the Varimax method. Initially, sampling adequacy was assessed by the Keiser-Meyer Olkin test (KMO) and Bartlett's test of sphericity. Severely violated the assumption of multivariate normality distribution of the data excludes the application of confirmatory factor analysis.

Assessment of academic staff's job satisfaction

Job satisfaction among staff was assessed by descriptive analysis, analysis of variance and analysis for hypothesis testing and dependencies. Criterion χ^2 was used for the comparison of the results in two-dimensional distributions and Spearman rank correlation to measure the degree of association between two variables. The level of significance for the null hypothesis was $P < 0.05$. Data were processed with the help of the statistical product SPSS version 22.0.

Results

Assessment of the reliability of the questionnaire

The pilot survey consisted of 9 (45.0%) males and 11 females (55.0%), aged from 27 to 68 years (mean age 48.58 ± 11.60).

Table 1 presents the mean values for each scale for the first and second measuring, the values for the Wilcoxon test and Spearman-Brown (r_{sb}) coefficient for each item. The obtained high values for r_{sb} (> 0.6) and Cronbach's α for the whole panel (0.749) show that the questionnaire has very good reliability.

Table 1: Results from the test re-test of the questionnaire among lecturers (n = 20)

	Mean score of I-st measurement	Mean score of II-nd measurement	Wilcoxon test*	r_{sb}
Q1. The management of the unit you work in feels responsible for complying with health and safety working conditions.	4.45	4.45	0.00*	0.64
Q2. The system of quality management assists in solving problems related to health and safety at your workplace.	4.00	3.80	1.63*	0.92
Q3. Health and safety working conditions are observed in your unit.	4.25	4.20	0.27*	0.58
Q4. When there is a problem/negligence related to the health and safety of the employees, it is discussed directly in close co-operation with the superior.	4.40	4.35	1.00*	0.95
Q5. Each employee can offer proposals for improving the working conditions in the unit.	4.32	4.16	1.34*	0.86
Q6. After alterations for improving the working conditions are applied, you receive feedback from the management on their efficiency.	3.95	3.70	1.67*	0.82
Q7. When a problem/ negligence is signalled, there is a feeling that the person is criticised and not the causes of the problem.	2.70	3.05	1.84*	0.85
Q8. The staff does not feel uneasy to discuss openly the acts of people at a higher hierarchical level at the organisation	3.45	3.10	1.44*	0.69
Q9. The employees inform and consult their superior when they have a problem.	4.45	4.05	1.84*	0.55
Q10. You receive feedback on the results of your working activity when you finish a certain task or a project.	4.20	4.00	1.41*	0.74
Q11. You are satisfied with the hours for the beginning and end of the working day.	4.30	4.25	0.33*	0.75
Q12. You are satisfied with the distribution of work and rest within the working day.	3.90	3.85	0.28*	0.83
Q13. You are satisfied with the intensity of the assigned work.	4.00	3.85	0.79*	0.49
Q14. You are satisfied with the system for substitution at the department (interchangeability).	3.95	3.40	2.23	0.82
Q15. You are satisfied with the number of staff to cope with the daily workload.	3.90	3.45	2.33	0.77
Q16. People support each other.	3.55	3.45	0.52*	0.70
Q17. People treat each other respectfully.	3.85	3.60	1.41*	0.59

* $P > 0.05$.

Construct validity of the questionnaire

To confirm the construct validity of the questionnaire, exploratory factor analysis (EFA) was performed (Table 2). Result analysis was performed based on the 365 respondents who had answered all the 15 questions included in the EFA (out of a total of 370 validly completed questionnaires). The respondents represent 48.4% of the academic staff of the university.

Based on principal axis factoring and extraction with listwise deletion of missing values, exploratory factor analysis revealed evidence for a 4-factor structure related to perceived employees' satisfaction (Table 2). The KMO test and Bartlett's test of sphericity showed that the data were adequate for factorial analysis (KMO = 0.878 and Bartlett's test $P = 0.000$).

Two questions from Table 1, (Q7) "When a problem/negligence is signalled, there is a feeling of personal criticism or devaluation, not that the causes of the problem are addressed" and (Q8), "The staff does not feel uneasy to discuss openly the acts of people at a higher hierarchical level at the organization", were deleted from the factor matrix.

Table 2: Factor analysis (Method: Principal Axis Factoring) with factors and factor loadings (sorted by weight of coefficients)

	1 (organisation of the working activity)	2 (superior-subordinate communication)	3 (teamwork)	4 (healthy and safe working conditions)
Q (13)	0.766			
Q (12)	0.721			
Q (11)	0.628			
Q (15)	0.529			
Q (14)	0.431			
Q5		0.730		
Q4		0.640		
Q (9)		0.563		
Q6		0.550		
Q (10)		0.543		
Q (17)			0.834	
Q (16)			0.819	
Q1				0.641
Q3				0.538
Q2				0,537
% of Variance after Rotation: Varimax with Kaiser Normalization	17.10	15.40	13.93	11.27

This was due to low Extraction commonalities, which indicate that these variables do not have a direct correlation to the remaining panel of questions. All other items were organised into four sub-scales including, ensuring health and safety working conditions (3 items), superior-subordinate communication (5 items), teamwork (2 items) and organisation of the working activity (5 items). The level of factor-loadings for all items was > 0.4 . The relative weight of the four factors is evenly distributed. Using the Varimax rotation method, we demonstrate that these factors account for 57.7% of the studied dependent variable, "Satisfaction of lecturers with the working conditions".

Demographic characteristics of respondents

The response rate was 50.1%. Demographic data of the respondents are presented in Table 3. Comparison between the sample structure and all academics at the Medical University in Plovdiv revealed no statistically significant differences ($\chi^2 = 0.534$, $P = 0.602$).

Table 3: Demographic characteristics of respondents (n = 370)

	n (%)
Age	
Under 30	39 (10.5)
31-40	74 (20)
41-50	85 (23)
51-60	81 (21.9)
Over 61	35 (9.5)
Mean age (SD)	46.13 (11.68)
Total	314 (84.9)
Missing	56 (15.1)
Gender	
Male	85 (24)
Female	269 (76)
Department	
Faculty of Dental Medicine	81 (21.9)
Faculty of Medicine	96 (25.9)
Faculty of Pharmacy	71 (19.2)
Faculty of Public Health	56 (15.1)
Medical College	40 (10.8)
Department of Languages and Specialized Training	26 (7.0)

Academic teachers' opinion of work environment factors and their general satisfaction with the working conditions

The answers to respondent's show that a considerable number of them-263 (71.7%) work in a

risky work environment. Out of 15 listed risk factors, the respondents have indicated mental strain in the first place-146 (39.5%), followed by 'work with chemical agents and dust'-140 (37.8%), and 'work with biological hazards'-133 (35.9%). The nonparametric analysis confirmed the relationship between the working environment risk factors and the workplace of the employees. Staff working at the Pharmacy and Dental Faculties are most frequently exposed to chemical factors ($\chi^2 = 61.389$, $P = 0.00$); regarding exposure to biological hazards-employees from the Faculties of Dental Medicine and Medicine are at greater risk ($\chi^2 = 83.916$, $P = 0.00$).

Academic staff at the University receives SNAP benefits as main compensation for working in an unsafe environment (41, 11.1%). The opinion of respondents regarding their general satisfaction with the working conditions, assessed based on guaranteed OHS, superior-subordinate communication, teamwork, and working process organisation at the workplace is presented in Table 4.

Table 4: Descriptive statistics and percentages of respondents' ratings regarding their job satisfaction (n = 370). Responses to subscales are provided

Questions	Mean of responses	Totally disagree [1] n (%)	Disagree- [2] n (%)	Agree/ disagree [3] n (%)	Agree [4] n (%)	Totally agree [5] n (%)
Questions related to the satisfaction with the OHS management system						
Q1 The management of the unit, where you work is responsible for compliance with the health and safety working conditions.	4.32	5 (1.4)	8 (2.2)	31 (8.4)	145 (39.2)	161 (48.9)
Q2 The system of quality management assists in solving problems related to health and safety at your workplace.	3.95	12 (3.2)	21 (5.7)	49 (13.2)	179 (48.4)	109 (29.5)
Q3 In your unit, the health and safety of the working conditions are observed.	4.27	4 (1.1)	13 (3.5)	26 (7.0)	164 (44.3)	163 (44.1)
Questions related to the satisfaction with superior-subordinate communication						
Q4 When there is a problem/negligence related to health and safety of the employees, it is discussed directly in close cooperation with the superior.	4.25	4 (1.1)	12 (3.2)	34 (9.2)	156 (42.2)	164 (44.3)
Q5 Each employee can offer proposals on improving the working conditions in the unit.	4.18	5 (1.4)	18 (4.9)	36 (9.7)	156 (42.2)	155 (41.8)
Q6 After alterations for improving the working conditions are applied, you receive feedback from the management on their efficiency.	3.88	8 (2.2)	32 (8.6)	68 (18.4)	148 (40)	114 (30.8)
Q9 The employees inform and consult their superior when they have a problem.	4.14	8 (2.2)	19 (5.1)	32 (8.6)	165 (44.6)	146 (39.5)
Q10 You receive feedback on the results of your working activity when you finish a certain task or a project.	3.95	8 (2.2)	22 (5.9)	64 (17.3)	164 (44.3)	112 (30.3)
Questions related to the satisfaction with working activity organisation						
Q11 You are satisfied with the hours for the beginning and end of the working day.	4.20	10 (2.7)	19 (5.1)	15 (4.1)	171 (46.2)	155 (41.9)
Q12 You are satisfied with the distribution of work and rest within the working day.	4.14	11 (3.0)	20 (5.4)	25 (6.7)	165 (44.6)	149 (40.3)
Q13 You are satisfied with the intensity of the assigned work.	3.98	13 (3.5)	30 (8.1)	32 (8.6)	170 (45.9)	125 (33.9)
Q14 You are satisfied with the system for substitution at the department (interchangeability).	3.91	19 (5.1)	28 (7.6)	44 (11.9)	157 (42.4)	122 (33.0)
Q15 You are satisfied with the number of staff to cope with the daily workload.	3.66	32 (8.6)	39 (10.5)	55 (14.9)	141 (38.1)	103 (27.8)
Questions related to satisfaction with teamwork						
Q16 People support each other.	3.78	20 (5.4)	40 (10.8)	58 (15.7)	134 (36.2)	118 (31.9)
Q17 People treat each other respectfully.	3.86	18 (4.9)	34 (9.2)	49 (13.2)	148 (40.0)	121 (32.7)

The results ascertained relatively high respondent evaluations of satisfaction with working activity organisation, including work and rest balance, working day duration, work intensity, communication and teamwork (Table 4). The respondents' most common answer is 'agree' regarding questions, related to satisfaction with working activity organisation (Table 4). A relation between satisfaction with assigned work intensity and satisfaction with number of staff at the departments was ascertained ($r_s = 0.529$, $P = 0.00$).

The respondents' opinion on the management style and on the manner of solving conflicts at the departments is presented in Figure 1. It compares the theoretical background for the applied management

style and methods of conflict management with the results of the study [16].

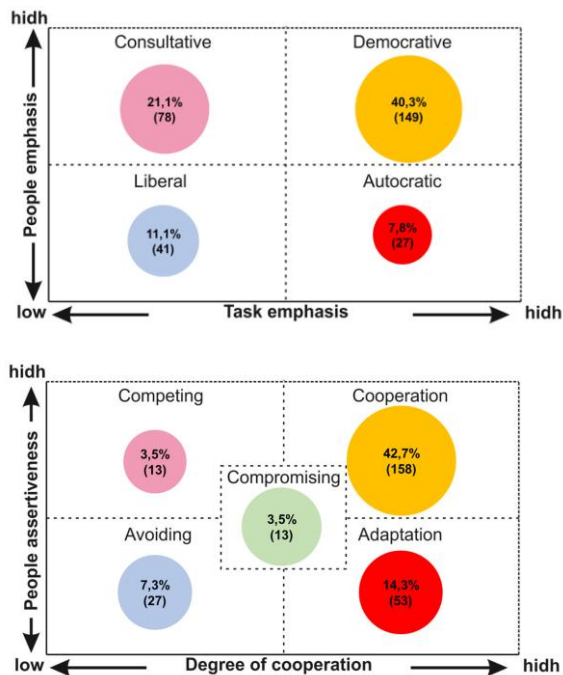


Figure 1: Percentage distribution of answers in terms of applied management style and methods of conflict management at the departments*(*Adapted from Robert Blake and Jane Mouton in *The Managerial Grid* (Houston: Gulf Publishing, 1964, 1994)) "Conflict and Conflict Management" by Kenneth Thomas in *The Handbook of Industrial and Organizational Psychology*, edited by Marvin Dunnette (Chicago: Rand McNally, 1976); Thomas, K. W., and Kilmann, R. H. "An Overview of the Thomas-Kilmann Conflict Mode Instrument (TKI)." *Kilmann Diagnostics Website* (2009), available on <http://www.kilmanniagnostics.com/overview-thomas-kilmann-conflict-mode-instrument-tki>; and Rahim, M. A. (1983). A measure of styles of handling interpersonal conflict. *Academy of Management Journal*, 26(2), 368-376.

Result analysis indicates that democratic leadership is the most commonly applied management style at the workplace (40.3%, $n = 149$) and cooperation is the most common approach to handle conflicts (42.7%, $n = 158$) according to the answers of respondents (Figure 1). Nonparametric analysis confirms that the management style ($P = 0.000$) and the methods for conflict solving at the workplace ($P = 0.000$) exert influence on satisfaction with feedback from working activity results; satisfaction with the system of substitution ($P = 0.000$); and satisfaction with teamwork ($P = 0.000$).

Discussion

Main findings

The analysis of our results showed that the studied working environment is relatively free of risk factors except for excessive mental strain, exposure

to biological agents, chemical hazards and dust. An important aspect to be considered in the environment domain is the mentally demanding nature of the work. There are few studies on the psychology of work nature of university teachers. One of them was conducted with university teachers in China. In this study, a larger number of participants (22.3%) reported experiencing occupational stress [12].

Similarly, our results are comparable to those of other authors. They documented that occupational stress is considered a major hazard for employees [14], [17], [18]. The most stressful characteristics of clinical teacher's work, related to the psychologically demanding nature of their job, are intense concentration on the same task for an extended period, excessive workload, time pressure, conflicts with work colleagues and students.

Furthermore, patients refusing to consent, insufficient resources and lack of "teacher-friendly" clinical environment also contribute to stress. Foreign researchers argue that supervisory support and co-worker's involvement have a positive impact on work stress [19]. The present study establishes that positive college environments produce important positive outcomes and a high level of faculty's job satisfaction.

The factor analysis of our data confirmed that working activity organisation, superior-subordinate communication and healthy environment are the most significant factors for work satisfaction. It is worth mentioning, the respondents' trust in the certified System of Quality Management of Medical University Plovdiv, which assists in solving problems related to the health and safety working conditions at the workplace. Another study confirmed that job safety (as elements of the working environment) have an impact job satisfaction [20]. Interestingly as in other studies, important values for the academic staff are autonomy, academic freedom and flexible working hours [14], [21].

In case, employees feel dissatisfied and underestimated in their jobs; their attitude towards the job and their performance are adversely affected. Therefore, it is beneficial for an organisation to provide a flexible working environment for employees and ensure that their opinions are respected. It is important for employees to feel that they play a part in the decision-making process of the organisation [22]. Other authors noted that employees are willing to be a part of the decision-making process, especially regarding issues that affect them directly. This contributes to their sense of belonging [23]. This results in congenial work environment, where both the management and the workers will voluntarily contribute to a healthy occupational atmosphere. Also, the present study found lower satisfaction with the system of substitution and with the number of staff in the departments. This could be explained with the nature of the teacher's work.

Our results showed that top management

support is positively related to job satisfaction. Teamwork was found to be of crucial importance in evaluating respondents' satisfaction. Mutual respect, trust, and support are essential for teamwork, shared sense of community, and empathy. It has been demonstrated that academic staff members receive greatest satisfaction from their relationship with their supervisor. The supervisor satisfaction factor was the one, among 14 other factors examined in another Bulgarian study [24].

The findings of our study provide further evidence to the thesis that job satisfaction is more dependent on internal traits (for instance: superior-subordinate communication) than on the external environment (for instance: healthy and safe working conditions) [14], [25]. Overall, our study shows that surveyed academics are satisfied with their job (positive average ratings are seen in Table 2) even though the majority of the interviewed consider that they work under significant mental strain. It is worth noting that another study revealed that occupational stress of faculty members at a tertiary education institution in Cyprus had a negative impact on the degree of satisfaction with their achievements, value and growth [26]. These researchers also reveal dissatisfaction of faculty with the organisational design, structure and processes (communication, change implementation, motivation, supervision style, participation in decision-making) [26].

Similar to our results, other studies have also proven that friendly relationships between the manager and other staff members are important reflections of job performance, regardless of the need to perform under pressure and overloaded work schedule [14], [27].

The relevance to company culture, elements involving conflict handling and predominant communication styles were also addressed in our study. Based on the respondents' opinion, the most commonly applied management style is democratic leadership. The results of the current study revealed that democratic management style and good effective supervision results in high employee satisfaction level. The management style in the departments reflects the characteristic behaviour and attitude of the immediate manager towards his or her subordinates.

In the process of decision-making and exerting authority, an indirect measure of working activity satisfaction is presented. Other researches have also proved that the management style in an organisation is an important feature which affects job-related stress in employees and thus jobs satisfaction [26]. Fletcher [27] in his study on how the presence of staff development management system program affects staff performance, commented on the development of a management system program for providing feedback to the employees in areas that needed improvement.

Moreover, further training for the staff was

suggested, as an attempt to handle the improvement and development criteria systematically. Also, the author asserted that the manager's expectations in terms of the work performance by his or her subordinates should be unambiguous and communicated to the subordinates. Employees should be made familiar with what is expected from them [27].

Limitations: The nature of the cross-sectional design of our research is subject to certain limitations. The study depicted the situation only at a specific point in time. As a result, data were collected only from present workers and excluded those that were absent for health reasons. Another limitation was the lack of information about remuneration satisfaction. We did not ask our respondents about pay satisfaction since we speculated that they, being of higher social standing, would be more concerned about other factors such as communication with their superiors, peers and workload, i.e. with satisfying their higher-level needs as defined in Herzberg Two Factor theory. Furthermore, the study was based on a single institution. Hence, results that were seen may not be representative for all academic medical staff in Bulgaria.

Similarly designed studies should be conducted in other universities to clarify whether the collected data from various universities will present a different scenario.

In conclusion, the tool used to measure job satisfaction revealed high values of psychometric characteristics for reliability and validity. The questionnaire allows us to explore job satisfaction of academic medical staff and could be readily used by the Committee on Working Conditions and Occupational Health to establish and maintain acceptable working conditions and suitable work atmosphere.

The study found a high level of satisfaction of university teachers with their working conditions. To improve continuously employee satisfaction, it is necessary to conduct similar studies periodically to detect decrease in academic staff work satisfaction and take timely and adequate measures to improve it.

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