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Job satisfaction among anesthetic and intensive care nurses – multicenter, observational study

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Abstract

Background: It is known that job satisfaction has an important impact on efficacy or burnout syndrome of medical personnel. Many studies have concerned job satisfaction among critical care nurses. Not as many have focused on anesthesia nurses working in operating theaters. In Poland, anesthesia and intensive care is a combined specialty for nurses. However, nurses work in an intensive care unit (ICU) or in an operating room (OR), and very rarely in both settings. We would like to compare satisfaction between ICU and OR nurses.

Methods: It was a multicenter cross-sectional study. 406 nurses from thirteen hospitals participated in this study. All respondents filled in the questionnaire that contained fifteen Likert-like questions reflecting different aspects of job satisfaction. Demographic data were also collected.

Results: We did not find a significant difference between ICU and OR nurses in the overall job satisfaction. Furthermore, the type of hospital did not significantly influence satisfaction of our study participants. The most important factor which differentiated the level of satisfaction among nurses was the region of Poland in which they worked. Interestingly, nurses who worked in ICUs were significantly younger in comparison to their colleagues from ORs.

Conclusion: The results of our study suggest that the region of the country in which nurses work might play a very important role in their satisfaction.

Key words: job satisfaction, intensive care, nurses, burnout, qualification.

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Satisfaction is a multidimensional factor, or rather combinations of factors, which affects peoples' attitude towards activities, things, and other people [1]. Job satisfaction is a well-known element which influences efficacy of personnel [2, 3]. Profit is not the main aim of the health care system (in most cases), and the main product (health) is often difficult to quantify [4]. Under these circumstances, measuring healthcare staff quality and efficacy might involve some intricacies [5]. From employees' point of view, ill-defined targets may lead to dissatisfaction and burnout syndrome [6, 7]. These issues can lead healthcare workers to quit their jobs [8]. Many studies regarding burnout syndrome, nurse satisfaction or intent to leave have been published for two decades [6, 7, 9–11]. Moreover, the intent to leave problem seems to be very apparent among critical care staff, especially nurses [9, 10]. In many cases, this phenomenon is directly connected to nurse dissatisfaction with their position [12]. Conversely to critical care staff, not as many studies have focused on anesthetist nurses who work in operating room (OR) [12, 13].

Nurses in Poland have three levels of education: diploma in nursing, bachelor of science in nursing, master of science in nursing. This scientific background has no direct impact on their practical qualification. Similarly as physicians, nurses have to finish a specialty. Nurses in Poland have a two-stage specialization system, a primary course in anesthesia and intensive care (one year) and a specialty in anesthesia and intensive care (two years). Anesthesia and intensive care is a common specialty for nurses who work in an intensive care unit (ICU) or OR. Theoretically, nurses can work in an ICU or OR. Practically, it is very uncommon for them to work in

both positions, especially in the same hospital. To our knowledge, there have been no studies regarding the satisfaction of anesthesia nurses in Poland.

Our study aimed to compare satisfaction between ICU and OR nurses. We hypothesized that individuals who worked in an OR should be more content with their job. The secondary goals were to detect any differences according to type of hospital, country region, educational level or nurse qualification.

METHODS

Ethical approval

Ethical approval for this study (permit number KE-0254/39/2018) was provided by the Medical University of Lublin Ethics Committee. This was a prospective, observational, multi-center study, which involved nurses who worked in an ICU and/or OR in four regions of south-eastern Poland. The data were collected by medical students, after obtaining written consent from participants.

Survey

The questionnaire consisted of 2 sections. The first one contained demographic data which included age, sex, type of hospital, the main place of work, level of education, qualifications, the weekly number of work hours, and length of work. The second part included fifteen Likert-style questions reflecting different aspects of job satisfaction. Respondents rated the questions from 1 to 5 (strongly disagree to strongly agree), revealing their current level of job satisfaction. More points in the survey reflected more positive answers. In this part, participants were asked about their salary satisfaction, level of stress at work, the interaction between members of the team and general job satisfaction (Appendix A). This survey was adapted from the study of McDonald *et al*. which was conducted among neonatal intensive care nurses [14].

Statistical analysis

The *t*-test was used for parametric data analysis, Mann-Whitney *U* and Kruskal-Wallis test by ranks for nonparametric data. Results were presented as means and confidence intervals (CI) or medians and interquartile ranges. All measurements were performed using Statistica 13.1 software (StatSoft Inc., Tulsa, USA).

Outcomes

The primary outcome measured was the difference between OR and ICU nurses in job satisfaction. The secondary outcomes included variables which could affect nurse satisfaction such as age, educational level, type of hospital or country region.

RESULTS

The study was conducted between April and June 2018 in thirteen hospitals which included three primary, five secondary, and five tertiary centers. The approximate response rate was 75%. Questionnaire forms were collected from 505 nurses. However, in 63 cases some data were missing. These nurses were not included for further analysis. According to leading nurses, some subordinates were afraid to be identified, even though survey collection was anonymous. Furthermore, we decided to remove from the analysis 36 individuals, because they stated that they worked in both an ICU and an OR. The survey presented good internal consistency with a 0.87 result of Cronbach's α.

Demographics

Participant demographics are presented in Table 1. Unsurprisingly, the majority of nurses were women. A significant difference was found between ICU and OR personnel according to age, working period and number of work hours (Table 1).

Primary outcome

The maximum sum for all answers in the questionnaire was 75. Subsequently, the mean results for ICU nurses were 46.85 (45.62–48.09) and 46.10 (44.79–47.42) for OR nurses. A significant difference was found between ICU and OR nurses in three questions (numbers 6, 9 and 13, appendix A). Of three significantly different answers, all were to the advantage of ICU nurses (more satisfied than OR staff). ICU personnel were more satisfied with their medical knowledge ($P = 0.033$), staffing levels ($P = 0.013$), and were more concerned about their patients ($P = 0.004$).

Type of hospital

No significant difference was found in overall satisfaction between personnel from different types of hospitals. However, in many specific questions,

TABLE 1. Demographics of participants

Workplace (*n*)	Age	Working period in ICU or OR	Weekly number of work hours	Female (%)
ICU (252)	37.93 (36.86–39.01)*	11.99 (10.87–13.10)*	43.71 (42.75–44.67)*	90.88
OR (154)	42.42 (40.75–44.09)*	18.66 (16.88–20.44)*	39.43 (38.91–42.07)*	93.85

Statistics were analyzed with *t*-test. Data are presented as means and confidence intervals. *n* – number of participants, ICU – intensive care unit, OR – operating room. *$P < 0.05$

TABLE 2. Comparison of nurse satisfaction according to type of hospital

Queries (number)	Type of hospital			Probability
	Primary	Secondary	Tertiary	
Monetary compensation (1)	3	1	2	0.024
Level of job stress is not overwhelming (2)	1	3	2	0.045
Caring for patients in stressful situations is satisfactory (5)	2	3	1	0.047
Team spirit (8)	1	3	2	0.001
Communication between physicians and nurses (10)	1	3	2	0.001
Communication between nurses and other members of hospital staff (11)	1	2	3	0.036

Statistical analysis was performed with Kruskal–Wallis test by ranks. Outcomes from different types of hospitals were ordered according to ranks results (sum of ranks not shown). 1 – the most satisfied, 3 – the most dissatisfied. Numbers in brackets represent questions from our questionnaire form (Appendix A).

TABLE 3. Comparison of nurse satisfaction according to the region of Poland

Queries (number)	Region of Poland				Probability
	Lublin	Rzeszów	Kraków	Radom	
Monetary compensation (1)	1	2	3	4	0.001
Level of job stress is not overwhelming (2)	1	2	3	4	0.003
Co-workers' support (4)	2	4	3	1	0.005
Medical knowledge (6)	2	4	3	1	0.038
Working conditions (7)	1	4	2	3	0.001
Communication between physicians and nurses (10)	1	2	4	3	0.008
Responsibilities do not exceed my physical ability (12)	2	3	4	1	0.019
Concerning about patients (13)	1	2	4	3	0.039
Overall satisfaction	1	4	2	3	0.012

Statistical analysis was performed with Kruskal–Wallis test by ranks. Outcomes from different types of hospitals were ordered according to ranks results (sum of ranks not shown). 1 – the most satisfied, 4 – the most dissatisfied. Numbers in brackets represent questions from our questionnaire form (Appendix A).

such differences were found (Table 2). Nurses from primary hospitals were less satisfied with monetary compensation than secondary and tertiary hospital staff. Conversely, the primary hospital staff was more pleased with communication and team spirit at their workplace than participants from bigger facilities.

Level of education

Level of education had an impact on two answers in our survey. Nurses with a better scientific background, who had a university degree, were the least content with team support ($P = 0.036$) and communication with staff members (0.033). The reason for the difference might be that nurses who had the bachelor/master of science title were younger (35.22 (34.10–36.34)) in comparison to diploma-holding nurses (49.12 (47.62–50.62)).

Qualification in anesthesia

An overall difference in satisfaction between study participants was not found. Nurses without a specialty were more content with communication with other members of staff ($P = 0.032$), and surprisingly, more satisfied with their medical knowledge ($P = 0.004$).

Satisfaction according to country region

A significant difference was found in job satisfaction between nurses according to regions of Poland. The most satisfied nurses worked in Lublin and the least satisfied ones in Rzeszów ($P = 0.123$). A detailed description of the differences between nurse satisfaction in different regions of Poland is shown in Table 3.

DISCUSSION

Our study did not reveal a difference between ICU and OR nurses in job satisfaction. However, the obtained results showed dissimilarity in demographics between participants of the study. Nurses who worked in ORs were significantly younger in comparison to ICU staff. This outcome is consistent with our partial results presented during the European Society of Anaesthesiology meeting in Copenhagen (June 2018) (EJA 2018 abstract book still was not available). However, during the poster presentation, the data collected from only 171 nurses were shown, and all participants worked in the Lublin region. We cannot fully explain the reason for this difference. Once more, as with our primary hypothesis, we can only presume that nurses may

TABLE 4. Comparison of job satisfaction among nurses from different countries

Country (references)	Type of hospital/department	Type of questionnaire	Number of points on Likert-like scale	Mean satisfaction results	Adjusted mean satisfaction results
Netherlands [12]	All types of hospitals/OR	Revised Causal Model of Job Satisfaction	7	2.79	1.99
Saudi Arabia [18]	General hospitals/ICU	Job Satisfaction Survey	6	3.03	2.52
Brazil [19]	University hospital/ICU	Index of Work Satisfaction	7	3.66	2.61
USA [17]	General hospital/ICU	Stamps and Piedmonte's Index of Work Satisfaction	7	4.1	2.93
Present study	**All types of hospitals/ICU, OR**	**Modified Neonatal Nurse Satisfaction Survey**	**5**	**3.10**	**3.10**
Norway [11]	University hospital/ICU	Job Satisfaction Scale	7	4.39	3.14
UK [9]	General and University Hospitals/ICU	Visual Analogue Scale	11	7.66	3.48
USA [13]	All types of hospitals/OR	Nursing Work Index – Revised	4	2.89	3.61
USA [16]	General hospital/ICU	Job in General scale	3	2.63	4.39
Saudi Arabia [15]	General hospitals/ICU, OR	Job Satisfaction Scale	5	4.4	4.4

The table presents studies in which a Likert-like scoring system was used. To compare with our outcomes we divided or multiplied the number of possible answers to obtain 5. ICU – intensive care unit, OR – operating room

prefer to work in an OR than an ICU. However, this presumption needs to be verified in the future.

Type of hospital did not influence the overall level of satisfaction in our study. Interestingly, monetary compensation was negatively correlated with other aspects of the job. Nurses who worked in secondary hospitals were the most satisfied with their wages, but the least contented with other features of their current position such as communication and team spirit.

Other results of our study showed slight differences in the level of education and nurse qualification. However, the most significant difference regarding job satisfaction was related to the region of Poland where nurses worked. We tried to identify any significant reasons to explain that difference as a number of residents in cities or regions, the presence of a medical university, the average wages in the region, and others. Nevertheless, we could not identify a cause of this distinction.

We attempted to find answers in the literature. In Table 4 we have summarized different satisfaction survey which had a Likert-like scoring system. We did a simple adjustment by dividing or multiplying the number of possible answers to obtain 5 (as in our study). Interestingly, the most satisfied nurses seemed to work in Saudi Arabia, the least satisfied ones in the Netherlands [12, 15]. Almost as happy as nurses in Saudi Arabia were their colleagues from New York [16]. However, this result is in discrepancy with other outcomes obtained in the USA, but in different regions of this country [13, 17]. It is possible that local differences play an important role in job satisfaction. Moreover, the study of Alostaz regarding satisfaction of nurses in Saudi Arabia might be biased by the small sample size (only 60 participants) [15]. The more recent study by Alharbi *et al*. from that country presented only a moderate satisfaction level of critical care nurses [18]. According to these data, we could not find any scheme or correlation to understand job satisfaction of nurses in different countries. It seems that this issue is extremely complex.

This study has some limitations. Of sixteen Polish regions, the survey was collected in four regions of Poland. Results could differ if collected in other/all parts of our country. The questionnaire form consists a limited number of questions (Appendix A). In our opinion, a longer survey could discourage nurses from filling in the form.

CONCLUSIONS

We did not find a significant difference in overall satisfaction between ICU and OR nurses in Poland. Furthermore, the type of hospital did not significantly influence satisfaction of our study participants. Interestingly, nurses who worked in an ICU were significantly younger in comparison to their colleagues from an OR. The most important factor which differentiated level of satisfaction was the region of the country in which participants worked. It is possible that this element plays a very important role not only in Poland but also in other countries.

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Appendix A. Questionnaire

- Demographics:
  - Sex
  - Age
  - Type of hospital (primary, secondary, tertiary)
  - Current workplace (ICU, OR)
  - Working period in ICU or OR in years
  - Weekly number of work hours
- Questions: (strongly disagree, disagree, neutral, agree, strongly agree)

1. I am satisfied with the monetary compensation that I receive in my current position.
2. I am satisfied with the level of job stress that I encounter in my current position.
3. In my current position, I am satisfied with the level of autonomy in my current position.
4. I am satisfied with the level of co-workers' and leaders' support that I receive in my current position.
5. I am satisfied with caring for patients in stressful situations.
6. I am satisfied with my medical knowledge.
7. I am satisfied with working conditions.
8. I am satisfied with the level of team spirit that currently exists at my workplace.
9. I am satisfied with the staffing levels currently in my workplace.
10. I am satisfied with communication between physicians and nurses at my current workplace.
11. I am satisfied with communication between nurses and other members of hospital personnel (physiotherapists, clerks, consultants, priests) at my current workplace.
12. My responsibilities do not exceed my physical ability.
13. I am concerned about patients I take care of each day.
14. I like going to my work.
15. Overall, I am satisfied in my current position.