

Professional Satisfaction of Nurses in the Intensive Care Unit Environment

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ABSTRACT

Background: Job satisfaction of nurses is an issue that has focused intense attention in recent years, mainly due to the widespread reduction, worldwide, in the number of nursing personnel. Purpose to investigate the influence of the work environment of the intensive care unit on nurses and to identify the factors that plays a decisive role in job satisfaction.

Materials and Methods: Our study involved 100 intensive care unit nurses who completed a questionnaire focusing on nurses' job satisfaction. Tests used are T-test, Mann-Whitney U (test of two independent samples), Anova, KruskalWallis to test distributions. The non-parametric tests analyzed with two independent variables T-test, Anova, Pearson, one-sample t-Test respectively.

Results: Employees belonging to the age group of 40–49 are less satisfied with their work than employees from 30–39 years. Also, nurses with the most years of experience have statistically lower job satisfaction in terms of extrinsic job characteristics than groups with less work experience. Finally, nurses with more children are less satisfied with their work than those with fewer.

Conclusion: Definitions of job satisfaction include a global affective approach with an approach to determine the overall level of job satisfaction while taking into account different individual and organizational factors that influence nurses' job satisfaction.

Contributions to Practice: The findings of this study can contribute to the improvement of working conditions and factors affecting the job satisfaction of intensive care unit nurses.

Keywords: Intensive Care Units, Job Satisfaction, Nurses.

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1. INTRODUCTION

Nurses are essential members of the intensive care team and have a professional, legal and ethical obligation to work in continuous and close contact with patients [1]. ICU nurses have to respond at all times to the high demands they have to fulfill and the many roles assigned to them. Consequently, the burnout that can result from high levels of stress can lead to low job satisfaction [2].

Job satisfaction of nurses is an issue that has focused intense attention in recent years, mainly due to the widespread reduction, worldwide, in the number of nursing personnel [3]–[5]. The main cause of this decrease, as reported in the literature, is the change of occupation. Attrition rates in the US are between 35% and 55% during the first year of employment with 40% of nurses reporting dissatisfaction with their work environment [6].

Psychological support, professional opportunities, mentoring and support programs from experienced nurses contribute to job satisfaction [7]. A frequently cited factor negatively associated with job satisfaction is inadequate staffing of hospital units, leading to increased workload for nurses and ultimately job dissatisfaction [8]. In addition, the ratio of nurses to nursing assistants is crucial for nurses' job satisfaction. On the other hand, the factors positively associated with job satisfaction, are motivation, support from head nurses [9], normal working hours and increased level of autonomy during the exercise of the job [10], [11].

The factors that put ICU nurses at risk for job dissatisfaction are many, with stress occupying a prominent position and followed by the moral exhaustion of experienced nurses—especially women, burnout, depression and poor sleep quality. Regarding the factors related to

working as a team, supportive management [12] and open targeted communication with physicians seem to promote job satisfaction [13].

The purpose of the study is to investigate the influence of the work environment of the intensive care unit on nurses and to identify the factors that play a decisive role in job satisfaction.

2. MATERIAL AND METHODS

2.1. Sample

“Convenience” and “snowflake” sampling were chosen, with printed paper questionnaires. The sample size of the research amounted to 99 employees, who were ICU nurses of a large and versatile tertiary hospital during May to August 2021.

2.2. Research Tool

The questionnaire used was written by Paul E. Spector (Department of Psychology University of South Florida “Job Satisfaction Survey”) [14]. The questionnaire provides sufficient reliability, validity in data measurements and can give 10 scores. It assesses 9 aspects, including pay, promotion, supervision, fringe benefits, contingent rewards, working conditions, colleagues, nature of work and communication. Each of the subscales consists of four items. The total job satisfaction score is calculated by summing all 36 items. The items are presented as statements and are rated by marking the alternative that seems closest to one's experience on a scale of 1 to 6. Some of the items are stated in a positive and others in a negative direction. Positive items indicate job satisfaction and negative items indicate job dissatisfaction. The minimum total score that can be achieved is 36, while the maximum score that can be achieved is 216.

The inclusion criteria for the study were: permanent nursing staff, nursing staff who work on a rotating schedule and, ICU nurses only.

The process of translating the questionnaire into Greek was in accordance with the guidelines of the “Clinical adaptation group”.

3. STATISTICAL ANALYSIS

For statistical data analysis (hypothesis testing and correlations of responses), the SPSS program was used. Due to the nature of the data (a large amount of Likert scale data) and non-normal distribution of the resulting continuous variables, parametric and non-parametric tests were used to test the hypotheses of the sample. The tests used are as follows: T-test, Mann-Whitney U (test of two independent samples), Anova, KruskalWallis to test distributions.

3.1. Ethics

Participation in the research was voluntary and when completing the questionnaires, the participants maintained their anonymity. The data collected were kept private and confidential and used only for the purposes of this research. Also, following a relevant request, permission was requested and received from the Scientific

Council of a tertiary University Hospital for the participation of nurses from the Hospital's ICUs (Approval number: D3B/244488).

4. RESULTS

Women seem to dominate the sample, being the majority, with 76.77% compared to men (23.2%). The sample basically consists of workers of the older age groups (66.66%) from 40 to 60 years old, while workers under 40 years of age are the minority with 33.33%. Workers aged 22 to 29 made up 9.09% of the sample, 30 to 39 years old 24.24% of the sample, 40 to 49 years old 31.31% of the sample and 50 to 60 years old 35.35% of the sample.

The marital status distribution of the sample shows a dipole between unmarried and married respondents. 57.14% of them are nurses who are not married, with 12.24% widowed or divorced and 44.90% stating that they are single. On the other hand, 42.86% of the sample are married.

Regarding the educational level of the sample, it appears that more than half of the respondents (63.64%) have graduated from higher technological education, while only 12.12% are university graduates. About one sixth of them (16.16%) have graduated from a higher or higher level of education (Master's or Doctoral degree).

In the distribution of income, the largest percentage of respondents stated that they receive a salary from 1001 to 1500 euros (66.67%), while the remaining 33.33% consists of workers with a salary from 1500 to 2000 euros (1.01% of respondents) and those, who receive a salary of less than 1000 euros (32.32% of respondents).

Most respondents (60%) answered that they have only one child in their family, while the remaining 40% are distributed as follows: 36.67% from 2 to 3 children, 2.22% from 4 to 5 children and 1.11% more than 6 children. According to their answers, about half of the employees (54.54% of the respondents) have been working for more than 6 years, while about a quarter (26.26% of the respondents) have been employed for less than 2 years.

From the literature review, it appears that the factors that contribute to job satisfaction include employees' individual characteristics, internal job characteristics, and external job characteristics. Initially, individual characteristics play an important role when people form their judgment about their job. It is a psychological process where both cognition and emotion are well known to be involved. Individual characteristics include age, gender and education level. Internal characteristics of work are achievements and personal development. External elements are remuneration (salary) and working conditions.

4.1. Hypothesis A

Gender, age and level of education are not related to job satisfaction while professional experience showed a questionable relationship with job satisfaction, meaning it was inconsistently related to job satisfaction of critical care nurses.

To study the relationship between gender and job satisfaction of internal job characteristics, the T-test for independent samples was used. There was no statistically

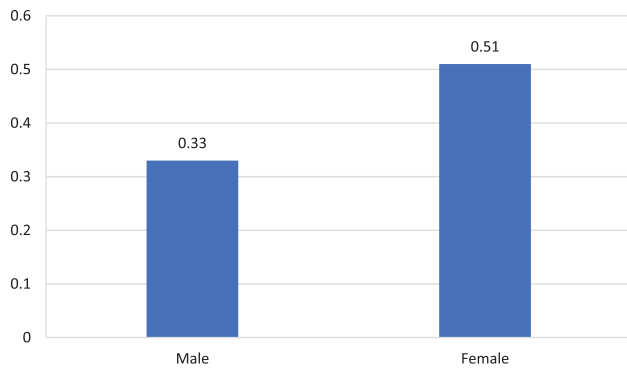


Fig. 1. Difference of sex in intrinsic characteristics.

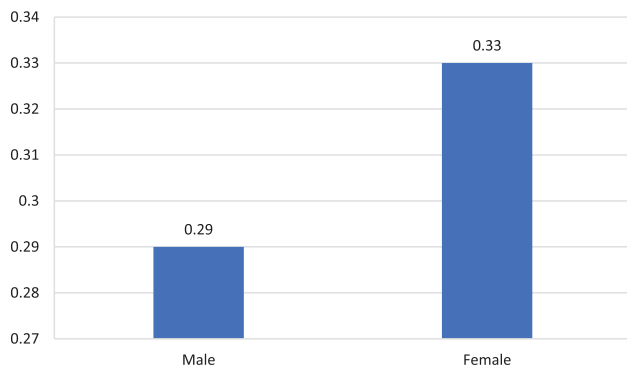


Fig. 2. Differences of sex in external characteristics.

significant difference with $t(90) = -1.404$ and $p\text{-value} = 0.164 > 0.05$ the null hypothesis is accepted, with null hypothesis (H_0): $\mu_{\text{males}} = \mu_{\text{females}}$ and alternative hypothesis (H_1): $\mu_{\text{males}} \neq \mu_{\text{females}}$ (Fig. 1). The same result was for external characteristics, gender did not play a role in job satisfaction related to external characteristics, using the Mann-Whitney U test for independent samples with $U = -0.277$ (normalized value) and $p\text{-value} = 0.782 > 0.05$ the null hypothesis is accepted with $H_0: \delta_{\text{males}} = \delta_{\text{females}}$ and $H_1: \delta_{\text{males}} \neq \delta_{\text{females}}$ (Fig. 2).

To test the relationship between the age of employees and job satisfaction, the One-way Anova test was used for internal characteristics and the corresponding non-parametric Kruskal-Wallis test for extrinsic characteristics. There was no statistically significant difference between the four age groups in terms of inherent characteristics, with $F(3,88) = 2.349$ and $p\text{-value} = 0.078 > 0.05$ the null hypothesis is accepted, with $H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4$ and H_1 : there

is at least one pair of groups that have a different mean value from each other. Regarding the relationship between age and job satisfaction in terms of external characteristics, it was found that age affects job satisfaction, with $H(3) = 8.052$, and $p\text{-value} = 0.045 < 0.05$, the null hypothesis is rejected with $H_0: \delta_1 = \delta_2 = \delta_3 = \delta_4$ and H_1 : there is at least one pair of groups that have a different median from each other. To find the differences, a post hoc analysis was performed with the Bonferroni correction. A difference was found between the groups from 40 to 49 years old ($\mu = -0.3241$, $\delta = -0.2857$, $\tau = 0.66011$) and from 30 to 39 years old ($\mu = 0.0684$, $\delta = 0.1429$, $\tau = 0.36325$) which however was at a significance level of 90% ($z = 16.942$, $p = 0.067 < 0.1$) (Fig. 3). Employees who belong to the age group of 40–49 are less satisfied with their work than employees from 30–39.

To test the relationship between the level of education of employees and job satisfaction, the One-way Anova test was used for internal characteristics and the corresponding non-parametric Kruskal-Wallis test for extrinsic characteristics. There was no statistically significant difference between the five levels of education in terms of inherent characteristics, with $F(4,94) = 0.389$ and $p\text{-value} = 0.816 > 0.05$ the null hypothesis is accepted, with $H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$ and H_1 : there is at least one pair of groups that have a different mean value from each other (Fig. 4). The same result, that the level of education does not affect job satisfaction, also existed for the external characteristics with $H(4) = 4.683$ and $p\text{-value} = 0.321 > 0.05$, the null hypothesis is accepted with $H_0: \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5$ and H_1 : there is at least one pair of groups that have a different median between them (Fig. 5).

To test the relationship between employees' professional experience and job satisfaction, the One-way Anova test was used for internal characteristics and the corresponding non-parametric Kruskal-Wallis test for extrinsic characteristics. There was no statistically significant difference between the five levels of experience in terms of inherent characteristics, with $F(4,88) = 1.701$ and $p\text{-value} = 0.157 > 0.05$ the null hypothesis is accepted, with $H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5$ and H_1 : there is at least one pair of groups that have a different mean value from each other. The result was differentiated for external characteristics, with education level affecting job satisfaction, with $H(4) = 21.147$ and $p = 0.000 > 0.01$, the null hypothesis is rejected with $H_0: \delta_1 = \delta_2 = \delta_3 = \delta_4 = \delta_5$ and H_1 : there is at least one pair

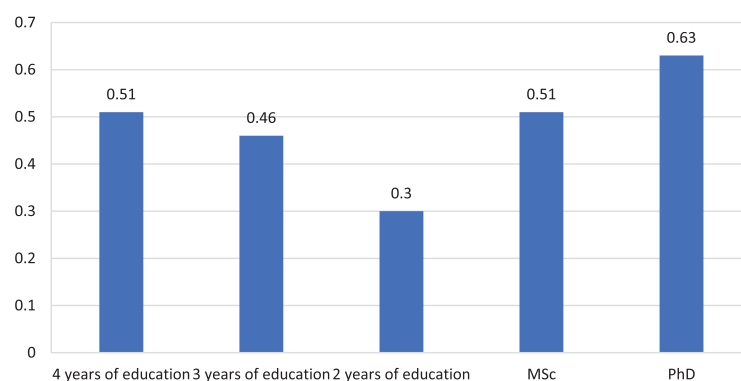


Fig. 3. Difference between ages in outliers.

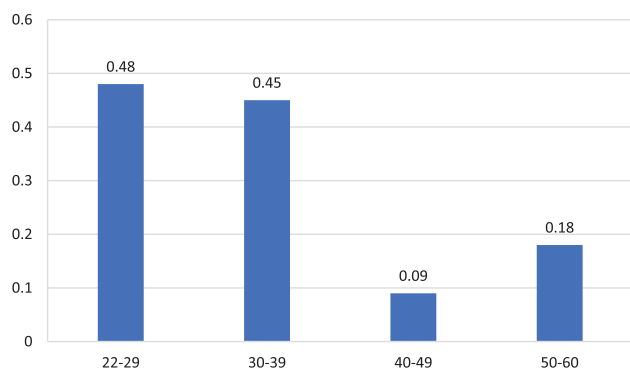


Fig. 4. Difference between education levels in intrinsic characteristics.

of groups that have a different median from each other. To find the differences, a post hoc analysis was performed with the Bonferroni correction. Differences were found between groups from 1 to 10 years of experience: 1–2 ($\mu = 0.0854$, $\delta = 0.0476$, $\tau = 0.47306$), 3–5 ($\mu = 0.1754$, $\delta = 0.1429$, $\tau = 0.44587$) and 6–10 ($\mu = 0.0415$, $\delta = 0.0476$, $\tau = 0.35983$) with the group from 11–20 ($\mu = -0.5490$, $\delta = -0.4286$, $\tau = 0.63209$) ($z = 26.917$, $p = 0.005 < 0.05$; $z = 32.943$, $p = 0.001 < 0.05$; $z = 25.274$, $p = 0.017 < 0.05$, respectively comparing the years of experience reported with the group of 11–20) with the result that the group of respondents with more years of experience has statistically lower job satisfaction in terms of concerns the external characteristics of work by groups with lower work experience.

4.2. Hypothesis B

For employees, reduced or minimal job satisfaction, creates serious problems in their psyche, in their social life-by extension in their family.

To study the relationship between marital status and job satisfaction, one-way Anova and Kruskal-Wallis tests were used for the internal and extrinsic job characteristics, respectively, in the variables marital status and number of children. It emerged that while marital status does not affect job satisfaction either in terms of internal ($F(2,89) = 2.646$, $p = 0.076 > 0.05$), or external characteristics ($H(2) = 2.712$, $p = 0.258$), the number of children affects job satisfaction in terms of both. To test the relationship between the number of children in the family and job satisfaction, T-tests for independent samples and Mann-WhitneyU were used for internal and extrinsic characteristics respectively. Workers with families with more children (2 to 3, with $\mu = -1.249$, $\tau = 0.6413$) are found to have lower job satisfaction in terms of internal characteristics ($t(82) = 2.501$, $p = 0.014 < 0.05$) than workers with families with fewer children (0 to 1, with $\mu = -0.9144$, $\tau = 0.56121$). The same conclusion is reached for external characteristics with $U = -3.585$, $p = 0.000 < 0.01$, where workers with more children (2 to 3, with $\mu = -0.3194$, $\tau = 0.50396$) are less satisfied with their work in than those with less (0 to 1, with $\mu = 0.1099$, $\tau = 0.46286$).

To analyze the respondents' answers, the Likert questions were categorized into two categories, according to the literature review, describing internal and extrinsic job characteristics. Parametric and non-parametric tests were

then conducted separating the above variables according to individual characteristics as well as the question "Have you filled out survey questionnaires before?". The negative-scoring Likert scale values of the questionnaire were sign-changed to be relevant. In comparison with those questions that had a positive connotation.

In order to separate the questions into the above categories, the theory was used, however, the test for the reliability of the internal consistency of the questionnaire measurements (Cronbach's alpha) was also conducted. The division of questions was as follows: questions: 2, 5, 8, 12, 14, 17, 18, 21, 26, 27, 31, 32, 33, 35, 36 were grouped as measures of the inherent characteristics index with the others to be grouped as measures of the external characteristics index. Grouping was done using the average value method. The Cronbach's alpha index for the first variable (internal characteristics) was 0.77, with an average inter-question covariance value of 0.251 and a variance of its values of 0.05. For the external characteristics variable, the Cronbach's alpha index for the first variable (external characteristics) was 0.823 which is considered an acceptable reliability value with an average inter-question covariance value of 0.258 and a variance of its values of 0.058. The internal and extrinsic variables estimated had -0.416 and -0.722 skewness and 0.511 and 1.235 skewness, respectively. The results showed the satisfactory level of construct validity and internal consistency of the two variables.

5. DISCUSSION

In this paper, an attempt was made to correlate certain characteristics of working ICU nurses with job satisfaction. Factors such as gender, education level, age, work experience and the family and number of children of the workers were studied.

Regarding gender and job satisfaction, gender was not a significant factor in job satisfaction, which contradicts the literature showing that gender affects job satisfaction [15]. Gender, as a result of nature and its influence on the physical differences between men and women and their opinion plays an important role in the job satisfaction of individuals [16]. More generally, studies have revealed that women tend to show a higher degree of job satisfaction than men [17]. Researchers have also studied gender differences among hospital nurses. In recent years, a large amount of studies have examined the link between gender and job satisfaction [18].

However, the results of these studies have been contradictory and inconsistent [19]. Some studies have shown that female nurses are more satisfied with their jobs than their male colleagues [20], while others have found that male nurses have higher job satisfaction than their female colleagues [21]. However, other studies showed a non-significant effect of gender on nurses' perception of job satisfaction [22].

Regarding the factor of workers' age and its relationship with job satisfaction, no significant statistical difference was recorded between the four age groups examined. But age was found to affect job satisfaction, and workers in the 40–49 age group were found to be less satisfied with their

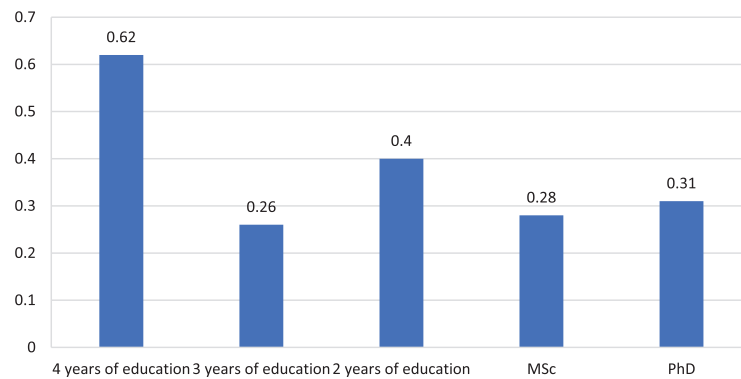


Fig. 5. Difference between education levels in extrinsic characteristics.

jobs than workers aged 30–39. In the literature, it generally appears that workers of different ages show a different approach to their work [23]. Studies show that nurses' job satisfaction is highly related to age [24]–[26], proving that older nurses are more satisfied with their work [27].

The parameter of the level of education of employees with job satisfaction showed that there was no statistically significant difference between the five levels of education. However, the literature shows that employees with different educational levels have different knowledge and abilities, which lead to variable cognitive perception of their work [27], [28]. Educational level is another important factor related to nurse's job satisfaction. Compared to age, gender, work experience and position, it was observed that educational level differences in nurses' overall job satisfaction have been less studied. However, educational background has a direct impact on nurses. Nurses with different educational levels can do different tasks, have different work status and are paid differently, which directly affects their job satisfaction. This is the reason why we correlated educational level with nurses' job satisfaction. It is usually expected that the nurses who hold a bachelor's or master's degree may be less satisfied with their jobs than those with a low educational level [29].

Work experience and its correlation with work satisfaction was used and showed that there is no statistically significant difference between the five levels of experience. Differences were however recorded between the 1 to 10 years experience group and the 11 to 20 years group. The study group with more years of experience seems to have statistically lower job satisfaction than groups with less work experience. Internal job characteristics such as work experience (referring to achievement, feedback, responsibility and autonomy, personal development, fairness, job security, job value, and collaboration) influence nursing staff job satisfaction. Nurses with more work experience have reported a higher level of job satisfaction, which also fits with findings about opportunity for learning and success at work leading to less job dissatisfaction as found by Agho [27]–[29].

The relationship between marital status and job satisfaction showed that while marital status does not affect job satisfaction (either internal or extrinsic characteristics), the number of children does affect job satisfaction. Nurses with more children appear to have lower job satisfaction than workers with families with fewer children.

5.1. Study Limitations

Limitations of the research are the fact of the relatively small sample of the present study. This fact does not allow the generalization of the results. Also, the research was conducted in a single hospital and this is another factor contributing to the limited strength of the findings.

5.2. Contributions to Practice

Factors that determine job satisfaction are the nature of work, pay, promotion opportunities, management at work, work groups and working conditions. The findings of this study could be a reflection for managers of nursing services in order to identify the factors that make up a decisive role in the job satisfaction of nurses in their own intensive care units. In addition, this research could be a starting point for further investigation of the conditions that will contribute to the job satisfaction of intensive care unit nurses.

6. CONCLUSION

There are multiple definitions and approaches to conceptualizing nurses' job satisfaction. Traditional definitions of job satisfaction included a global affective approach with an approach to determine the overall level of job satisfaction while taking into account different individual and organizational factors that influence nurses' job satisfaction. The literature showed that ICU nurses were not very satisfied with their jobs and workers there had the lowest levels of job satisfaction.

From our study, gender does not affect job satisfaction, but age is found to affect job satisfaction, and it is found that workers who belong to the age group of 40–49 are less satisfied with their work than workers from 30–39 years old, which is in line with the international literature. Level of education was not related to job satisfaction, while professional experience showed an ambiguous relationship with job satisfaction, meaning that it was inconsistently related to job satisfaction of critical care nurses. The study group with more years of experience appeared to have less job satisfaction than groups with less work experience.

AUTHORS' CONTRIBUTION

George Kipourgos: Conception and design or analysis and interpretation of data.

Maria Giouldouri: Writing the manuscript or relevant critical review of the intellectual content.

George Elesnitsalis: Responsibility for all aspects of the text in guaranteeing the accuracy and integrity of any part of the manuscript.

Anastasios Tzenalis: Final approval of the version to be published.

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