

Nazarbayev University School of Medicine

Master of Public Health Program

**Prevalence and associated factors of job satisfaction among physicians working in
public hospitals in Astana, Kazakhstan**

Master of Public Health Thesis project

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Astana 2018

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Abstract

INTRODUCTION. Physician job satisfaction is an important factor of quality and sustainability of health care provision, as it determines lengths of care and subsequently health care costs. It is also associated with such aspects of healthcare as quality of the care and physician work efficiency. There is a general tendency in declining job satisfaction among health care workers in many countries; although there were no studies found in the literature on job satisfaction among physicians in Kazakhstan. The purpose of the study is to estimate the prevalence and to determine factors of working conditions associated with job satisfaction among physicians working in public hospitals in Astana city of Kazakhstan.

METHODS. A Cross-sectional study was conducted between February and April 2018. A 33 - items self-administered questionnaire was distributed among physicians working in Astana public multidisciplinary hospitals. The questionnaire is adopted from previous studies and consisted from 11 categories which reflect socio-demographic and occupational characteristics as well as different aspects of working conditions of physicians and has 5-item Likert scale to answer. The final version of questionnaire consisted from 33 questions. To measure the job satisfaction 5-point Likert scale was used. Those who choose responses of “very satisfied” and “satisfied” was considered as satisfied with their job. Multivariate logistic regression was used to determine association between risk factors and job satisfaction.

RESULTS. About half of the physicians working in public hospitals in Astana, Kazakhstan are satisfied with their job (51.92%). Job satisfaction was statistically significantly associated with: being agreed with the statement that “the gratitude displayed by patients keeps them working” (adjusted OR 2.77; CI 0.99-7.77; $p=0.053$), being agreed with the statement that “non-physician colleagues in their practice are a major source of personal support” (adjusted

OR 3.88; CI 1.55-9.74; p=0.004), "having enough examination room space to see patients" (adjusted OR 2.79; CI 1.13-6.92; p=0.027), agreed with the statement that they "would recommend medicine to others as a career" (adjusted OR 5.51; CI 1.07-28.43; p=0.041). Job satisfaction was not associated with age, sex, years of practice and specialty.

CONCLUSION. Gratitude displayed by patients, personal support from non-physician colleagues, enough examination room space to see patients and career satisfaction were a significant risk factors for job satisfaction among physicians. These risk factors should be further investigated in order to address the issue of job satisfaction among physicians. Other methods should be used to cover other group of factors that is important in predicting job satisfaction.

KEYWORDS. Job satisfaction, Physician, Healthcare workers, Work satisfaction.

Acknowledgements

I would like to express my deepest gratitude to my advisor Alpamys Issanov for his great contribution in preparing this project, valuable instructions and continuous support.

I am thankful to the whole MPH Program Faculty of the Nazarbayev University for their encouraging attitude, support and assistance.

I am also very thankful to my lovely family for their patience, understanding and support.

List of Abbreviations

ICU - Intensive Care Unit

1. Introduction

Physician job satisfaction is an important factor of quality and sustainability of health care provision, as it determines lengths of care and subsequently health care costs. Many studies in different countries showed the importance of this statement (Grol et al, 1985; Kassirer, 1998). The large scale meta-analysis of almost 500 studies aimed to evaluate association between job satisfaction and physical and mental wellbeing revealed impressive relationship for aspects of mental health, specifically burnout, lowered self-esteem, anxiety, and depression. (Faragher et al, 2005). Moreover, physician dissatisfaction was exposed to be associated with self-reported psychiatric disorders (Johnson et al, 1995). Other studies have revealed that physician satisfaction is also associated not merely with their health status (Ramirez, 1996) and well-being, but equally with patient adherence to medical treatment (DiMatteo, 1993) and with patient satisfaction (Haas, 2001) as well. However, based on the results of recent researches, there is a general tendency in declining job satisfaction among health care workers in many countries (Janus et al, 2007); although there were no studies found in the literature on job satisfaction among physicians have been conducted in Kazakhstan. Therefore little is known about this issue in our country.

Job satisfaction is associated with such aspects of healthcare as quality of the care, healthcare costs and physician work efficiency (Wada et al, 2009). According to Williams et al, factors influencing job satisfaction can be divided into two major groups: intrinsic factors (age, gender, race, and specialty) and extrinsic (work environment, practice setting, patient characteristics, and income). It means that satisfaction cannot be explained by one significant factor only, e.g. salary, but that there is a dynamic interrogation between environment they work in and expectations (Scheurer, 2009). However, job satisfaction varied across specialties. (Leigh et al, 2009) The fact that physicians' job dissatisfaction negatively affects

the health condition of the doctors may indicate the importance and burden of this notion (Williams et al, 2003; Johnson et al, 1995). As a result, job dissatisfaction has a negative effect on the quality of patient care and is strongly associated with early retirement and reduction of working hours. (Landon et al, 2006). Moreover, several studies demonstrate a strong relationship between low levels of physician satisfaction and intention to leave and job turnover (Pathman, 2002; Landon, 2006; Demmy, 2002; Buchbinder, 2001). According to the recent report of the Ministry of the National Economy of the Republic of Kazakhstan Statistics Committee, by the September, 2017 31.6% more doctors left country as compared to those in January-September 2013 while 36.3% less arrived than 4 years ago. (Ministry of National Economy, 2017).

Although the investigations done on job satisfaction among health care workers are very common, no official published studies were found on this topic in Kazakhstan. The only one study that was close to our theme was found. It was a survey assessing quality of working life among the nursing managers in Almaty, but not physicians (Kashafutdinova G. Et al. 2014). Thus, the overall physician job satisfaction as well as factors associated with it are remaining unknown to us. The objective of the survey is to estimate the prevalence and to determine factors of working conditions associated with job satisfaction among physicians working in public hospitals in Astana city of Kazakhstan. The study findings will allow us to get a broad picture about predictors of physicians' job satisfaction and will be served as a starting point for policy development in the field of health care delivery and labor management.

Given the importance of the impact of physician job satisfaction on many aspects of health care delivery, we set out to conduct a study to achieve a better understanding of the current state of doctors' satisfaction in Astana city of Kazakhstan.

2. Methods

A cross-sectional study aiming to investigate the prevalence and determine factors of working conditions associated with job satisfaction among physicians working in public hospitals in Astana city of Kazakhstan. To assess job satisfaction and to develop a tool for measurement it an electronic search from PubMed/Medline, ScienceDirect and Scopus for corresponding studies was carried out. We used keywords “job satisfaction”, “physician” “healthcare workers”, “work satisfaction”. As a results, we determined several articles that have been published on this topic (Bovier and Perneger, 2003; Wada et al, 2009; Comeau, 2007; Scheurer, 2009; Deeba, 2015; Bell, 2006). Subsequently, the questionnaire adopted from above mentioned studies and is consisted from 11 categories which reflect socio-demographic and occupational characteristics as well as different aspects of working conditions of physicians and has 5-item Likert scale to answer. The final version of questionnaire consisted from 33 questions.

Study participants comprised from physicians of different specialties working in clinical settings in Astana public (not private) multidisciplinary hospitals. We had estimated from previous studies that around 81% of the physicians ($p = 0.81 = 81\%$) in the study population (Landon, 2003) are likely to be satisfied about their job. It also might be deemed reasonable that it is precise within plus or minus 5 percent of this value (desired precision =0.05). So, using formula on calculating sample size based on estimated proportion, the required sample size has been found to be 236. However, according to the systematic review investigating on physician satisfaction (Scheurer, 2009) the response rate is about 70% on average. Thus, it was estimated to recruit 337 ($70\% * 337 = 236$) physicians.

Physicians working in all four (City Hospital #1, City Hospital #1, Central Road Hospital, Akmola Regional Hospital#2) public multidisciplinary hospitals in Astana city of Kazakhstan

that provide specialized 24-hour emergency and planned medical care were included in the study. Exclusion criteria: republican (national) high-specialized hospitals and centers. We decided to exclude them due to the fact that their working conditions seem to be much better; they earn a relatively higher salary as compared to those physicians work in public sector. Additionally, republican and national centers in Astana city have not been provided emergency care and, hence, physicians working there have less night shifts as compared to city hospitals. However, recent research showed that annual income and night shift frequency significantly influenced the level of job satisfaction (Lu Y, 2016). All of the above considered, physicians working in republican and national centers might be heterogeneous in answering to specific questions. That is why inclusion of republican and national centers attenuate the results towards null as well as away from null. Physicians that do not provide direct medical care to patients were excluded, such as, physicians working in paraclinical field, such as: diagnostic department, laboratory department, epidemiology and audit department.

If the respondents did not give their consent to participate, they were excluded from the survey with the assurances that there would not be any negative consequences for them.

The survey was prepared in three languages although most of the participants would prefer to answer in two languages: Russian and Kazakh. The survey questionnaire was translated from English to Russian and Kazakh languages using back-translation method. The pretest was conducted in one of the abovementioned hospitals using Russian version of questionnaire and after minor changes was adopted for further use.

Physicians from the public hospitals were contacted directly face to face and after giving consent they were asked to answer the questionnaire on voluntary basis. Oral consent were obtained from the study participants since there might be a psychological barrier to sign in

the written consent form. Asking to put a signature might increase the risk for participants to be identified and therefore lead to refusal to participate in the research. However, the written consent form was prepared only for purposes of guiding, introducing and understanding an oral consent form.

There was no identifiable information collected. Participants had rights to discontinue survey, stop answering to the survey any time they want. It was explained to them that there are no negative consequences if they refuse to participate. The principal investigator successively approached every clinical department in the hospital to interview every doctor working there. After that questionnaire were distributed to those who agreed to participate and satisfy inclusion criteria.

No formal approval was obtained from hospital authorities due to a potential influence of the hospital management on employees' responses, thus, attenuate the true association between the job satisfaction and potential factors in work environment. Finally, the topic of the study is very sensitive to institutional management and would likely result in the study failure. All of the above inclined us to the fact that only verbal consent from participants were collected.

There was no potential psychological, physical or emotional hazard for participants. They could discontinue survey if feel uncomfortable without any penalties at any time of the interview. There were no benefits, presents or payments or any other incentives as a potential benefits for participants provided.

After the survey, all responses were translated into English language and entered into an electronic database. The database was stored on the researcher's password-protected computer. Written questionnaires were locked in the personal locker of the principal investigator of the study and subsequently destroyed 3 months after the survey. The study was anonymous, and any opportunity to link personal information with the application form

was excluded, and results were reported in aggregated form without any potential hazard to participants.

Then answers from questionnaire forms were inputted in Excel format. After appropriate data management, Stata™ software (StataCorp. 2011. *Stata Statistical Software: Release 12*. College Station, TX: StataCorp LP) was used to analyze data. Independent variables were age, sex, specialty, years of practice and different aspects of working conditions (all categorical). Age was categorized into three groups: 20-29 years, 30-39 years and over 40 years respectively. Sex was binary: “0” for females and “1” for males. Years of practice was also categorized in three groups: less than 4 years, 4-9 years and over 9 years. Dependent variable was job satisfaction. To measure the job satisfaction 5-point Likert scale was used where an option of “very unsatisfied” is scored as 1, and response of “very satisfied” was scored as 5. Those who choose responses of “very satisfied” and “satisfied” was considered as satisfied with their job. When assumptions for parametric test were not met or sample size was not enough then non-parametric tests was considered appropriate. P-value of <0.05 was considered as significant for all tests. The association between independent and dependent variable was checked for possible confounding. Potential collinearity and interaction between variables were also assessed. Those variables identified as significant in bivariate analysis were analyzed then in multivariate logistic regression analysis in order to find an association of each risk factor on the dependent variable, while adjusting for confounders. Forward approach was used to build the model. The final model includes statistically significant independent variables, however being agreed with the statement that the gratitude displayed by patients keeps them working- variable’s p-value is borderline (0.053). We decided to keep this variable in the model due to several reasons. First of all, it is conceptually logical and , secondly, it was known from the previous studies that this risk factor is significant predictor

of job satisfaction. We performed Log-likelihood ratio to compare nested and full models and Akaike's information criterion (AIC) and Bayesian information criterion (BIC) tests to compare not nested models. Finally, to test our model for fitness we used Hosmer-Lemeshow's goodness of fit test. Testing for interaction was also performed. Since all the interaction terms were statistically insignificant they were removed from the model.

3. RESULTS

3.1 Univariate Analysis: Socio-Demographic and Occupational Characteristics

In total, 104 questionnaires were collected. The summary of basic descriptive statistics of variables is shown in the Table 1. Of the total study population 53 (50.96%) were males. Almost two thirds of participants were in 30-39 age group, while in age group 20-29 and 40-49 there were same proportions of physicians (14.42%). The smallest proportion of respondents was observed in the 60 and above age group (0.96%). There was a wide variety of the specialties: the majority of respondents worked in Surgery (38.46%), 20.19% in Therapy, 19.23% were classified as "Other" specialty. Anesthesiologists and Interventional Cardiologists accounted for 10.58% and 11.54% respectively. The proportion of years of practice was almost equal for 4-9 years category (42.31%) and 10 and over years category (44.23%). The years of practice for the rest of physicians were less than 4 in 13.46%.

Among the respondents, the overall job satisfaction was distributed as follows: 51.92% of physicians were satisfied with their job and 48.08% were unsatisfied.

Univariate Analysis: Working conditions

Personal time. 84.62% of physicians agreed that work often encroaches on their personal time. 85.88% stated that it is necessary to take calls from the hospital even on holidays and 81.73% that it is necessary to go to the hospital in case patients whom they are responsible for have any trouble even on off-duty nights.

Relationship with patients. 81.73% of doctors felt a good personal connection with their patients and 73.08% noted that gratitude displayed by patients keeps them working.

Patient care issues. 83.65% of doctors worried about being sued because of possible medical malpractice. Slightly more than half (56.73%) of respondents thought that their relationships with patients is more adversarial than it used to be. Almost two thirds of participants were overwhelmed by the needs of patients and exactly the same proportion of doctors (68.27%) considered that time pressures keep them from developing good patient relationships.

Relationships with other physicians. 79.81% of respondents found physician colleagues as a good source of professional stimulation. Almost all (92.31%) physicians got along with their physician colleagues. One third (29.81%) of doctors mentioned that their physician colleagues do not value their unique perspectives in practice whereas 79.81% accounted physician colleagues as an important source of personal support.

Relationships with staff. Only 4.81% of doctors felt a bad personal connection with their non-physician colleagues. For about more than half (58.65%) of respondents non-physician colleagues was a major source of personal support. About two thirds (75.96%) of participants declared that non-physician colleagues support their professional judgment and

approximately the same proportion of doctors (72.12%) agreed that non-physicians practice reliably carried out clinical instructions.

Income. 91.35% of respondents found their salary unfair and 84.56% of respondents disagreed with the statement that they are well compensated compared to physicians in other specialties taking workloads into account.

Administrative work. For 83.65% of participants paperwork was a burden and for about two thirds (63.46%) role in managing the business aspects of their practice was a burden too.

Resources. “Medical suppliers are available when I need them” - 62.50% of doctors answered positively for this question. 54.81% of respondents had sufficient examination room space to see patients however less than half (48.08%) had enough support staff.

Career satisfaction. Only 15.38% of physicians would recommend medicine to others as a career.

Workload. 79.81% of respondents said that workload is always too much for them and 83.65% found that time pressure is strong. 77.88% of physicians were concerned that their work is often interrupted by other tasks.

3.2 Bivariate Analysis

The summary of bivariate analysis of unadjusted association between risk factors and job satisfaction is shown in the Table 2. Out of 32 variables 13 found to be statistically significantly associated with job satisfaction.

Age. Only age category over 40 years (40.7%) in comparison with age category 20-29 (9.3%) was statistically significantly associated with job satisfaction.

Sex. Among females 50.98% were satisfied with their job while among males 52.83% were satisfied. However, sex was not statistically significantly associated with job satisfaction (p-value=0.85)

Specialty. 20.37% of physicians categorized as Cardiologic ICU, 16.67% of therapists, 42.59% surgeons and 20.37% other specialties were satisfied with job. However this difference was not statistically significant (p-value =0.701).

Years of practice. The association between years of practice and job satisfaction was statistically significant only for those physicians who had more than 10 years of experience (57.41%) as compared to those who worked less than 4 years (5.56%), p-value 0.006

Personal time. Lack of personal time, necessity of receiving calls from the hospital on holidays and necessity to go to the hospital on off-duty nights were not associated with job satisfaction (p-values were 0.143, 0.499 and 0.564 respectively).

Relationship with patients. Being agreed with the statement that the gratitude displayed by patients keeps them working (85.19%) was statistically significantly associated with job satisfaction (p-value=0.004). However, being in good relationships with patients, worrying about being sued because of possible medical malpractice and having more adversarial relationships with patients than it used to be were not statistically significantly associated with job satisfaction.

Patient care issues. Being overwhelmed by patients needs and lack of time to develop good patient relationships were not statistically significantly associated with job satisfaction too (p-values were 0.227 and 0.227 respectively).

Relationships with other physicians. Only having physician colleagues as an important source of personal support (88.89%) was statistically significantly associated with job satisfaction (p-value 0.017) while other risk factors - having physician colleagues as a good source of professional stimulation (87.04%), being in good relationships with physician colleagues (96.3%) and to be appreciated by physician colleagues for unique perspectives in practice (74.07%) were not (p-values 0.056, 0.15 and 0.368 respectively).

Relationships with staff. Having non-physician colleagues as an important source of personal support (74.07) was statistically significantly associated with job satisfaction (p-value 0.001). Rest risk factors from this item were not statistically significantly associated (being in good relationships with non-physician staff (98.15%) and being agreed with the statements that “non-physician colleagues support professional judgment” (79.63%) and “non-physicians reliably carry out clinical instructions” (75.93%); p-values 0.193, 0.363 and 0.368 respectively).

Income. Being disagreed that their total salary is fair was statistically significantly associated with job satisfaction (p-value 0.032). There was interesting trend observed: in both groups (unsatisfied with their job and satisfied) were extremely high proportions of physicians who disagreed with salary - 98% and 85.19% respectively. Moreover, being agree that they are compensated compared to physicians in other specialties taking their workloads into account (22.22%) was statistically significantly associated with job satisfaction (p-value 0.007).

Administrative work. Being agreed that physicians’ role in managing the business aspects of practice is a burden to them (53.7%) and that paperwork is also a burden (74.07) were statistically significantly associated with job satisfaction (p-value 0.032 and 0.006 respectively).

Resources. All of the risk factors from this item were statistically significantly associated with job satisfaction: availability of medical suppliers (72.22%), having sufficient examination room space (68.52%) and enough support staff (59.26%); p-values 0.033, 0.004 and 0.018 respectively.

Career satisfaction. Desire to recommend medicine to others as a career (25.93%) was statistically significantly associated with job satisfaction (p-value 0.002). After stratification by gender, it was determined that career satisfaction was associated with job satisfaction among male (p-value 0.002) physicians and was not associated with job satisfaction among female physicians (p-value 0.244).

Workload. Completely all of job factors from this item were not statistically significantly associated with job satisfaction - excessive workload, time pressure, work interrupted by other tasks (p-values 0.305, 0.534 and 0.055 respectively).

3.3 Multivariate Logistic Regression Analysis

The results of multivariate regression analysis of adjusted association between statistically significantly risk factors and job satisfaction are shown in the Table 3.

Gratitude displayed by patients, personal support from non-physician colleagues, enough examination room space to see patients and career satisfaction were a significant risk factors for job satisfaction among physicians.

The odds of being satisfied with the job among those who agreed with the statement that the gratitude displayed by patients keeps them working are about 2.77 times higher than those who disagreed, adjusting for other variables (OR 2.77; CI 0.99-7.77; p=0.053).

The adjusted odds of being satisfied with the job among those who agreed with the statement that non-physician colleagues in their practice are a major source of personal support are about 288% higher than those who disagreed (OR 3.88; CI 1.55-9.74; p=0.004).

The odds of being satisfied with the job among those who agreed that had enough examination room space to see patients are about 2.79 times higher than those who disagreed, when other covariates are constant (OR 2.79; CI 1.13-6.92; p=0.027).

The odds of being satisfied with the job among those who agreed with the statement that they would recommend medicine to others as a career are about 451% higher than those who disagreed, adjusting for other variables (OR 5.51; CI 1.07-28.43; p=0.041).

4. DISCUSSION

As far as we know, this study is the first to estimate the prevalence of job satisfaction among physicians working in public hospitals in Astana, Kazakhstan and to determine factors of working conditions associated with job satisfaction using validated scale that was previously used in international studies (Bovier and Perneger, 2003; Wada et al, 2009; Comeau, 2007; Scheurer, 2009; Deeba, 2015; Bell, 2006). We revealed several important findings. Results of the study showed that only about half of the physicians working in public hospitals in Astana, Kazakhstan are satisfied with their job (51.92%). That was significantly lower than the study from United States: overall 81% of physicians who were working 20 or more hours at both observations were somewhat or very satisfied with their job (Landon, 2003). According to bivariate analysis salary was significantly associated with job satisfaction, however in multivariate logistic analysis this association was found not statistically significant. It was hypothesized that not only salary is important for physicians, but that there are other factors influence job satisfaction, such as relationships with patients and non-physician staff, hospital

resources. The study results confirm our hypothesize. Furthermore, it is very interesting that in both groups - unsatisfied and satisfied with their job - there was extremely high proportions of physicians disagreed with income fairness (98% and 85.19% respectively, p-value 0.032). It should also be noted that perhaps physicians estimate the salary as low compared to other professions, however we did not ask the question about amount of salary and further studies is needed to disclose this patterns.

Multivariate logistic regression analysis of adjusted association between risk factors and job satisfaction determined that gratitude displayed by patients was a significant risk factor for job satisfaction among physicians. Research shows that doctor–patient relationship have significant effect on job satisfaction and was consistent with our findings (Lu Y, 2016).

Another significant risk factor for job satisfaction was a personal support from non-physician colleagues. Analysis showed that this variable has positive effect on job satisfaction. This can be explained that undoubtedly the support of colleagues plays an important role in obtaining the pleasure of their work. A meta analysis shows that nurse-physician collaboration was a major determinant of job satisfaction (Zangaro, 2007).

Having enough examination room space to see patients and desire to recommend medicine to others as a career was determined as another factor of job satisfaction. These findings were consistent with the finding from previous research. Study conducted in Japan shows that hospital resources was associated with job satisfaction; and Career satisfaction was associated with job satisfaction among male physicians and was weakly associated with job satisfaction among female physicians (Wada et al, 2009).

Another study findings showed that only age category over 40 years in comparison with age category 20-29 was statistically significantly associated with job satisfaction. It can be explained by the fact that less satisfied physicians leaving the profession (Scheurer, 2009).

The association between years of practice and job satisfaction was statistically significantly only for those physicians who had more than 10 years of experience as compared to those who worked less than 4 years. Those with 15 and over years of experience have resolved their personal and professional development issues and achieved levels of satisfaction with themselves and their contributions to the profession (Kavanaugh, 2006).

Strengths

First of all, study findings allowed us to get a broad picture about associated factors of physicians' job satisfaction working in public hospitals in Astana. About half of the physicians working in public hospitals in Astana, Kazakhstan are satisfied with their job (51.92%), and statistically significantly associated factors were: being agreed with the statement that "the gratitude displayed by patients keeps them working", being agreed with the statement that "non-physician colleagues in their practice are a major source of personal support", "having enough examination room space to see patients", agreed with the statement that they "would recommend medicine to others as a career". Secondly, this study may help us develop and implement policies in the field of health care delivery and labor management by increasing job satisfaction. Third, the best of our knowledge, this study was first to investigate prevalence and associated factors with job satisfaction among physicians working in public hospitals in Astana. There was only one research conducted previously in Kazakhstan, however, it was a population-based qualitative study among nursing managers of health institutions in Almaty city (Kashafutdinova G. Et al. 2014).

Moreover, in our study we utilized not only descriptive statistics, but bivariate analysis and multivariate logistic regression analysis were used in order to determine less biased association between job satisfaction and independent risk factors.

Limitations

Since our study was a cross-sectional, it was not able to determine causal relationship between outcome and independent variables. We only found association between independent and dependent variables. Additionally, in terms of time ordering we actually do not know whether independent variable occurred first in time. In cross-sectional studies, the relationship between variables could go in the opposite direction. For example, in our study good relationship with colleagues may precede job satisfaction, however individuals satisfied with their job may afterwards get along with colleagues. Time ordering is easier to control in longitudinal studies when researcher mindfully controls exposure and the measure of outcome. Therefore a longitudinal study should be used in future in order to avoid this bias.

As we mentioned above, it was estimated to recruit 337 participants. However, we received 104 responses only. We might increase sample size by expanding inclusion criteria, for instance include in the survey doctors from the residency.

We have studied ten aspects of working conditions of physicians, such as: personal time, relationship with patients, patient care issues, relationships with other physicians, relationships with staff, income, administrative work, resources, career satisfaction and workload. But it is worth noting that other group of factors are important in predicting job satisfaction. Perhaps we should include such factors as job control/autonomy, type of hospital, work-family conflict and frequency of night shifts (Lu Y, 2016; Scheuer, 2009).

Physicians satisfied with their job were defined as those who chose responses for the statement “write statement here” as “very satisfied” or “satisfied” . However it may possible that satisfied physicians actually were not homogeneous in answering to specific questions; it would have been better to separately consider those who chose “satisfied” and “very satisfied”. Similarly, the same uncertainty arises from the defining unsatisfied physicians with their job as those who responded to the same statement “dissatisfied”, “neither” or “very dissatisfied”. This misclassification may lead to attenuate the results towards null as well as away from null. The sensitivity analysis is recommended to examine an association of each risk factor and a separate response to the statement.

Some translated questions were found ambiguous for respondents, such as questions about medical suppliers, room space to see patients and paperwork. In Kazakhstan medical suppliers are those who provide hospitals by medical equipment, perhaps in foreign countries they are meant as a completely different professionals. Another reasonable question was about room space to see patients: whether it was rooms in admission department or in the clinical department or even doctors room. The statement “paperwork is a burden to me” was not totally clear for respondents to understand. Some physicians implied by this excessive handwriting, others - filling in clinical records. We recommend that for further investigations avoid such ambiguous concepts and use terms that are understandable to the local population.

5. CONCLUSION

It found that prevalence of job satisfaction among physicians working in public hospitals in Astana is 51.92%. The associated factors with job satisfaction were gratitude displayed by patients, personal support from non-physician colleagues, enough examination room space to see patients and career satisfaction.

6. RECOMMENDATIONS

1. We recommend to conduct future investigations in this topic, to implement and evaluate intervention programs for increase job satisfaction among physicians. Physician job satisfaction is not a constant parameter, but is a dynamic essence that conditioned by constantly changing both intrinsic and extrinsic risk factors. Thus, a comprehensive research should be done using not only quantitative methods but qualitative study can be conducted. Qualitative approach (in-depth interviews) allow us to reveal new categories of working conditions affecting physician job satisfaction. Moreover, factors associated with job satisfaction vary across different countries. Thus, according to recent research there are significant differences across countries in the association of job characteristics and job satisfaction (Andreassi, 2012).
2. Given limited budgets, it may be possible to increase job satisfaction by implementing educational programs for non-physician staff, patients and physicians, improving working conditions and creating a favorable atmosphere in the team. Nowadays, training programs play a significant role in the quality of patient care, provide greater cooperation between staff and organizations. They also serve as an instrument in attaining productivity and job satisfaction (Chaghari et al, 2017).

APPENDIX LIST

Table1. Descriptive statistics of variables

Parameters	Participants number (%)
Age	
20-29 years	15 (14.42)
30-39 years	62 (59.62)
≥40 years	27 (25.96)
Sex	
Female	51 (49.04)
Male	53 (50.96)
Specialty	
Cardiologic ICU	23 (22.12)
Therapy	21 (20.19)
Surgery	40 (38.46)
Other	20 (19.23)
Years of practice	
<4 years	14 (13.46)
4-9 years	44 (42.31)
>10 years	46 (44.23)
Overall job satisfaction	
Unsatisfied	50 (48.08)
Satisfied	54 (51.92)
Lack of personal time	
Disagree	16 (15.38)
Agree	88 (84.62)
Necessity of receiving calls from the hospital on holidays	
Disagree	15 (14.42)
Agree	89 (85.58)
Necessity to go to the hospital on off-duty nights	
Disagree	19 (18.27)
Agree	85 (81.73)

Being in good relationships with patients	
Disagree	19 (18.27)
Agree	85 (81.73)
Being agreed with the statement that the gratitude displayed by patients keeps them working	
Disagree	28 (26.92)
Agree	76 (73.08)
Worrying about being sued because of medical malpractice	
Disagree	17 (16.35)
Agree	87 (83.65)
Having more adversarial relationships with patients than it used to be	
Disagree	59 (56.73)
Agree	45 (43.27)
Being overwhelmed by patients needs	
Disagree	33 (31.73)
Agree	71 (68.27)
Lack of time to develop good patient relationships	
Disagree	33 (31.73)
Agree	71 (68.27)
Having physician colleagues as a good source of professional stimulation	
Disagree	21 (20.19)
Agree	83 (79.81)
Being in good relationships with physician colleagues	
Disagree	8 (7.69)
Agree	96 (92.31)
To be appreciated by physician colleagues for unique perspectives in practice	
Disagree	31 (29.81)
Agree	73 (70.19)

Having physician colleagues as an important source of personal support	
Disagree	21 (20.19)
Agree	83 (79.81)
Being in good relationships with non-physician staff	
Disagree	5 (4.81)
Agree	99 (95.19)
Having non-physician colleagues as an important source of personal support	
Disagree	43 (41.35)
Agree	61 (58.65)
Non-physician colleagues support professional judgment	
Disagree	25 (24.04)
Agree	79 (75.96)
Non-physicians reliably carry out clinical instructions	
Disagree	29 (27.88)
Agree	75 (72.12)
Fair salary	
Disagree	95 (91.35)
Agree	9 (8.65)
Being agree that they are compensated compared to physicians in other specialties taking their workloads into account	
Disagree	90 (86.54)
Agree	14 (13.46)
Administrative work	
Disagree	38 (36.54)
Agree	66 (63.46)
Paperwork is a burden	
Disagree	17 (16.35)
Agree	87 (83.65)

Available medical suppliers	
Disagree	39 (37.50)
Agree	65 (62.50)
Sufficient examination room space	
Disagree	47 (45.19)
Agree	57 (54.81)
Enough support staff	
Disagree	54 (51.92)
Agree	50 (48.08)
Would recommend medicine to others as a career (Career satisfaction?)	
Disagree	88 (84.62)
Agree	16 (15.38)
Workload	
Disagree	21 (20.19)
Agree	83 (79.81)
Time pressure	
Disagree	17 (16.35)
Agree	87 (83.65)
Work is often interrupted	
Disagree	23 (22.12)
Agree	81 (77.88)

Table2. Bivariate analysis of Factors with Job Satisfaction

Variables	n (%)		p-value
	Unsatisfied with job	Satisfied with job	
Age			0.001
20-29 years	10 (20.0%)	5 (9.26%)	
30-39 years	35 (70.0%)	27 (50.0%)	
≥40 years	5 (10.0%)	22 (40.74%)	
Sex			0.850
Female	25 (50.0%)	26 (48.15%)	
Male	25 (50.0%)	28 (51.85%)	
Specialty			0.701
Cardiologic ICU	12 (24.0%)	11 (20.37%)	
Therapy	12 (24.0%)	9 (16.67%)	
Surgery	17 (34.0%)	23 (42.59%)	
Other	9 (18.0)	11 (20.37%)	
Years of practice			0.006
<4 years	11 (22.0%)	3 (5.56%)	
4-9 years	24 (48.0)	20 (37.04%)	
>10 years	15 (30.0%)	31 (57.41%)	
Lack of personal time			0.143
Disagree	5 (10.0%)	11 (20.37%)	
Agree	45 (90.0%)	43 (79.63%)	
Necessity of receiving calls from the hospital on holidays			0.499
Disagree	6 (12%)	9 (16.67%)	
Agree	44 (88.0%)	45 (83.33%)	

Necessity to go to the hospital on off-duty nights			
Disagree	8 (16.0%)	11 (20.37%)	0.564
Agree	42 (84.0%)	43 (79.63%)	
Being in good relationships with patients			
Disagree	11 (22.0%)	8 (14.81%)	0.343
Agree	39 (78.0%)	46 (85.19%)	
Being agreed with the statement that the gratitude displayed by patients keeps them working			
Disagree	20 (40.0%)	8 (14.81%)	0.004
Agree	30 (60.0%)	46 (85.19%)	
Worrying about being sued because of medical malpractice			
Disagree	5 (10.0%)	12 (22.22%)	0.092
Agree	45 (90.0%)	42 (77.78%)	
Having more adversarial relationships with patients than it used to be			
Disagree	24 (48.0%)	35 (64.81%)	0.084
Agree	26 (52.0%)	19 (35.19%)	
Being overwhelmed by patients needs			
Disagree	13 (26.0%)	20 (37.04%)	0.227
Agree	37 (74.0%)	34 (62.96%)	
Lack of time to develop good patient relationships			
Disagree	13 (26.0%)	20 (37.04%)	0.227
Agree	37 (74.0%)	34 (62.96%)	

Having physician colleagues as a good source of professional stimulation			
Disagree	14 (28.0%)	7 (12.96%)	0.056
Agree	36 (72.0%)	47 (87.04%)	
Being in good relationships with physician colleagues			
Disagree	6 (12.0%)	2 (3.7%)	0.150 (Fisher's exact)
Agree	44 (88.0%)	52 (96.3%)	
To be appreciated by physician colleagues for unique perspectives in practice			
Disagree	17 (34.0%)	14 (25.93%)	0.368
Agree	33 (66.0%)	40 (74.07%)	
Having physician colleagues as an important source of personal support			
Disagree	15 (30.0%)	6 (11.11%)	0.017
Agree	35 (70.0%)	48 (88.89%)	
Being in good relationships with non-physician staff			
Disagree	4 (8.0%)	1 (1.85%)	0.193 (Fisher's exact)
Agree	46 (92.0%)	53 (98.15%)	
Having non-physician colleagues as an important source of personal support			
Disagree	29 (58.0%)	14 (25.93%)	0.001
Agree	21 (42.0%)	40 (74.07%)	
Non-physician colleagues support professional judgment			
Disagree	14 (28.0%)	11 (20.37%)	0.363
Agree	36 (72.0%)	43 (79.63%)	

Non-physicians reliably carry out clinical instructions			
Disagree	16 (32.0%)	13 (24.07%)	0.368
Agree	34 (68.0%)	41 (75.93%)	
Fair salary			
Disagree	49 (98.0%)	46 (85.19%)	0.032
Agree	1 (2.0%)	8 (14.81%)	(Fisher's exact)
Being agree that they are compensated compared to physicians in other specialties taking their workloads into account			
Disagree	48 (96.0%)	42 (77.78%)	0.007
Agree	2 (4.0%)	12 (22.22%)	
Administrative work			
Disagree	13 (26.0%)	25 (46.3%)	0.032
Agree	37 (74.0%)	29 (53.7%)	
Paperwork is a burden			
Disagree	3 (6.0%)	14 (25.93%)	0.006
Agree	47 (94.0%)	40 (74.07%)	
Available medical suppliers			
Disagree	24 (48.0%)	15 (27.78%)	0.033
Agree	26 (52.0%)	39 (72.22%)	
Sufficient examination room space			
Disagree	30 (60.0%)	17 (31.48%)	0.004
Agree	20 (40.0%)	37 (68.52%)	
Enough support staff			
Disagree	32 (64.0%)	22 (40.74%)	0.018
Agree	18 (36.0%)	32 (59.26%)	

Would recommend medicine to others as a career			
Disagree	48 (96.0%)	40 (74.07%)	0.002
Agree	2 (4.0%)	14 (25.93%)	
Workload			
Disagree	8 (16.0%)	13 (24.07%)	0.305
Agree	42 (84.0%)	41 (75.93%)	
Time pressure			
Disagree	7 (14.0%)	10 (18.52%)	0.534
Agree	43 (86.0%)	44 (81.48%)	
Work is often interrupted			
Disagree	7 (14.0%)	16 (29.63%)	0.055
Agree	43 (86.0%)	38 (70.37%)	

Table3. Results of Multivariate Logistic Regression (Final Model)

Variables	Adjusted OR	95% CI	P-value
“The gratitude displayed by my patients keeps me working ” Disagree (ref) Agree	2.77	(0.985; 7.775)	0.053
“My nonphysician colleagues in my practice are a major source of personal support” Disagree (ref) Agree	3.88	(1.551; 9.738)	0.004
“I have sufficient examination room space to see my patients” Disagree (ref) Agree	2.79	(1.126; 6.918)	0.027
“I would recommend medicine to others as a career” Disagree (ref) Agree	5.51	(1.071; 28.434)	0.041

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