

Nazarbayev University
School of Medicine

**Burnout of Medical Workers in Astana, Kazakhstan:
Prevalence and Associated Factors.**

Master of Public Health Thesis Project

by

Aigerim Abdiorazova, MPH Candidate

Advisor: Alpamys Issanov, MD, MPH

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LIST OF ABBREVIATIONS

CBI	Copenhagen Burnout Inventory
MBI	Maslach Burnout Inventory
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, 5 th edition
ICD-10	International Classification of Diseases, 10 th edition
US	United States of America
HIV/AIDS	Human immunodeficiency virus infection and acquired immune deficiency syndrome
HC	Healthcare

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ABSTRACT

Burnout is a state of physical, mental, and emotional exhaustion that arises as a result of being involved in emotionally demanding work situations. It has been reported that burnout is associated with high employee turnover, absenteeism, and poor performance. Research suggests that medical workers are more susceptible to burnout due to the challenging nature of their work, compared to other occupations. Health problems, including incapacity to deal with stress and development of major diseases, shortage of medical workforce due to burnt out specialists leaving the field, reduced quality of care and increased risk of medical errors are the risks associated with burnout in medical workers. This cross-sectional study aimed to identify prevalence of burnout among medical workers in Astana, Kazakhstan using Copenhagen Burnout Inventory questionnaire, to determine associated factors, and to give recommendations based on the findings. The final sample of data collected from an online survey included 363 responses in total. Prevalence of high personal burnout showed to be 82.1% among Astana medical workers, high work-related burnout – 66.9%, and high patient-related burnout – 53.1%. Multiple logistic regression analysis showed that self-rated health status and overwork were the factors statistically significantly associated with personal burnout; age, self-rated health status and overwork were associated with work-related burnout; and overwork was associated with patient-related burnout. It is recommended that healthcare organizations promote healthy lifestyle among their workers, and trainings on burnout could be provided for staff as a measure of identifying and preventing burnout.

1. INTRODUCTION

1.1 What is Burnout

According to Schaufeli & Greenglass, 2001, burnout is defined as “a state of physical, emotional and mental exhaustion that results from long-term involvement in work situations that are emotionally demanding” (p. 501). In general, burnout results from long term unresolvable stress at workplace, when the person’s efforts do not match the demands of the work (Bianchi et al, 2015). However, burnout should not be confused with acute occupational stress itself: acute job stress results from excessive physical or psychological demands and can be resolved over time, whereas burnout results from prolonged failure to adapt to work, and is a *consequence* of increased stress (Bianchi et al, 2015).

There is no known biological marker of burnout, neither there are diagnostic criteria to identify it. It is not included in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5, American Psychiatric Association, 2013), and it is not classified as a disease in the International Classification of Diseases (ICD-10, World Health Organization, 1992), but is rather regarded as a factor that may affect one’s health status. At the same time, since burnout is known to be a stress-related disorder, there is an increasing attention paid to the role of cortisol level in burnout research (Chida & Steptoe, 2009; Fries et al, 2005). Biomedical research confirmed that cortisol level influences the way the body reacts to stress, as well as regulating important processes in the body, such as metabolism and immune response (Kumari et al., 2009). As a result, researchers regard burnout as hypocortisolemic disorder – consequence of cortisol deficiency in the body (Chida & Steptoe, 2009; Fries et al, 2005).

Absence of clear diagnostic criteria for identifying burnout leads to difficulties in revealing its prevalence (Bianchi et al, 2015). Yet, it has been established that burnout is a significant problem that has its consequences on individual, organizational, and societal levels (Schaufeli

et al., 2009; Bianchi et al, 2015; Schaufeli & Greenglass, 2001). To name few, on the organizational level burnout has been associated with absenteeism (Ahola et al., 2008), presenteeism (Demerouti et al, 2009), high employee turnover (Swider & Zimmerman, 2010), and poor performance (Bianchi et al, 2015). Moreover, in a more global context, research suggests that in the long run burnout may be a predictor of coronary heart disease-related hospitalizations (Toker et al, 2012), mental and cardiovascular disease-related hospitalizations (Toppinen et al, 2009), and all-cause mortality (Ahola et al, 2010). Consequently, it can be associated with considerable healthcare costs for affected individuals, organizations, and the government.

1.2 Burnout among Medical Workers

Working in the healthcare field can be challenging due to high workload, namely because of long hours of work, shift work, call-on duties and presenteeism (Chambers et al, 2016). For instance, in a large study performed in the US comparing burnout among physicians and general working population it was found that physicians work more hours per week (mean number of hours worked by physicians was 55+/-16.7 hours, and general working population mean hours per week equals to 40+/-11.3), and the proportion of physicians working more than 60 hours a week was statistically significantly greater compared to general working population (41.8% versus 6.4%, respectively) (Shanafelt et al, 2015). Consequently, these factors make medical workers particularly susceptible to burnout, which has in fact been backed up by the research. An American study of burnout and satisfaction with work-life balance showed that prevalence of burnout was higher among US physicians compared to general working US population: 37.9% versus 27.8%, respectively (Shanafelt et al., 2012).

There are significant risks associated with burnout of medical workers in hospitals. First and foremost, a study shows that burnout is highly associated with increased health problems of the workers themselves, ranging from decreased capacity to cope with stress, to development

of major heart diseases (Kakiashvili et al, 2013). Secondly, burnout is often associated with highly skilled health professionals leaving the job due to a loss of satisfaction and motivation or because of health reasons (Tziner et al, 2015), potentially causing shortage of workforce in this field. Finally, burnout of medical workforce has been shown to be related to reduced quality of care (Klein et al, 2010) and increased risk of medical errors (Chen et al, 2013). These evidences show that if not detected and managed properly, burnout of medical workers can lead to severe consequences not only for the burnt-out individuals themselves, but for the patients they care for, and for system of healthcare provision in general.

1.3 Prevalence of Burnout in Medical Workers

As stated previously, it is difficult to identify prevalence of burnout due to lack of specific diagnostic criteria. Nevertheless, several tools have been introduced to evaluate presence of burnout in populations.

In the latest Medscape National Physician Burnout & Depression Report 2018, the authors surveyed more than 15,000 US physicians from 29 different specialties, and revealed that 42% of the respondents reported being burnt out (Peckham, 2018). Among those, the highest rates of burnout were reported by critical care specialists and neurologists – 48%, family physicians – 47%, obstetrics and gynaecologists and internal medicine specialists – 46%. The lowest rates of burnout occurred among specialties that do not often involve working under critical conditions: ophthalmologists – 32%, dermatologists and pathologists – 32%, and plastic surgeons – 23%.

A large proportion of research also focuses on burnout among nurses and medical residents. As such, 66% of Canadian new graduate nurses reported severe burnout, which was mainly due to negative conditions at workplace (Cho et al, 2006). Other studies reported similar results (Laschinger et al, 2010), and found that burnout of newly graduate nurses is associated with lack of support from supervisors (Spooner-Lane and Patton, 2007), high

workload (Laschinger et al, 2012), and absenteeism (Beercroft et al, 2008). Additionally, half of the medical residents and fellows reported burnout in a US study, which was significantly higher than college graduates of the same age in general populations (Dyrbye et al, 2014).

There is evidence to suggest that the rate of burnout among medical workers is increasing due to higher pressure that comes with increased demands in the healthcare field. For example, Shanafelt et al (2015) found that in comparison to 2011, prevalence of burnout in US physicians increased by 10% in 2014.

1.4 Risk Factors for Burnout in Medical Workers

Both individual and occupational factors were found to play a significant role in predicting burnout. On an individual level, socio-demographic factors such as age, gender, marital status, and being a parent were found to be associated with burnout (Canadas de la Fuente et al, 2014). Nevertheless, in this regard research results are inconsistent: for instance, in terms of age, some studies report increase in the risk of burnout with age, whereas others state the opposite (Canadas de la Fuente et al, 2014). This might have different possible explanations: younger specialists experience burnout due to lack of experience and have not formulated strategies for coping with stress, whereas older specialists might have burnout due to tiredness of performing the same job for a long period of time. Individual factors also include personality traits: emotional stability, agreeableness, conscientiousness and extraversion were found to have a negative relationship with development of burnout (Alarcon et al, 2009).

Occupational risk factors include work-related emotional demands, seniority and type of shift (Canadas de la Fuente et al, 2014). Thus, more stressful jobs, short breaks between shifts and lack of time for completing tasks were found to contribute to experienced level of burnout. Increased paperwork, presenteeism and insufficient compensation were also reported among factors contributing to burnout (Peckham, 2018).

1.5 Burnout of Medical Workers in Kazakhstan

Only 1 study in English was found that investigated attitudes and burnout among healthcare professionals working with HIV/AIDS patients in Kazakhstan, comparing to Russian and Israeli specialists (Hamama et al, 2015). This study revealed that the median burnout score for Kazakhstani HC professionals working with HIV/AIDS patients was higher compared to Russian and Israeli colleagues (1.88, 1.65 and 1.31, respectively). Unfortunately, the paper does not mention meaning of the scores (cut-off point for burnout, categorical value of the results).

Literature search in Russian and Kazakh languages revealed a few studies on prevalence of burnout among medical workers. A study by Shneider et al (2017) investigating 124 Kazakhstani and 35 German medical workers of mother and child hospitals in these countries found that among Kazakhstani population sample medical workers aged 30 and younger were the most resistant to burnout compared to other age groups. Research by Хайрушева et al (2017) looked into burnout among students and medical workers of several HC organizations in Almaty. 668 participants responded to the survey in this study, which included 2nd and 5th year students of one of the biggest medical universities in Almaty, and workers of different healthcare settings. The highest rates of burnout were reported by palliative care center workers (71% highly burnt out and 9.7% very highly burnt out), and polyclinic workers (57.8% highly burnt out and 20.5% very highly burnt out). The burnout rate for 2nd and 5th year medical students were high as well (11.5% and 5.1% very high burnout, respectively; 53.8% and 55.7% high burnout, respectively). The study also showed that among medical specialists, younger respondents with less experience were more prone to being burnt out.

Despite lack of research of burnout in medical workers, Kazakhstani organizations and government do admit that it is an important problem that needs to be addressed, and discuss

ways of preventing this problem through publishing articles (Цепке, 2017), during seminars (Astana City Polyclinic №5), and discussions at HR conferences (УДП РК, 2016).

1.6 Aims of the Study

To the best of our knowledge, no studies to date have been performed to investigate burnout of medical workers in Astana. This cross-sectional study aims to address this gap by reaching following goals:

1. To identify prevalence of employee burnout among medical workers in Astana;
2. To determine factors associated with burnout of medical workers;
3. To give recommendations on prevention of burnout of medical workers and on improvement of labor management in healthcare organizations based on the findings of this research.

2. METHODS

2.1 Study Design

A cross-sectional survey of medical workers in healthcare organizations of Astana was conducted using an online (utilizing Google Forms platform) self-administered questionnaire. The selected study design was appropriate for answering research questions, and was cost efficient for the research and time efficient for both researcher and respondents (Levin, 2006).

2.2 Study Population

Study participants comprised of medical workers of hospitals in Astana. Within this research, the term ‘medical worker’ was defined as those healthcare specialists who are directly involved in providing diagnostic, therapeutic, consultation and other care to patients, and have a direct contact with them. The study population included those working within following specialties: General medicine, Intensive care, Emergency medicine, Surgery,

Obstetrics/gynecology, Pediatrics, Diagnostic and interventional radiology, Nursing, Dentistry, Internal medicine, Pathology, Psychiatry, Dentistry. Study participants were recruited from all hospitals in Astana providing healthcare services for patients, including both outpatient and inpatient clinics, from both private and public sectors. Exclusion criteria was applied for non-medical staff, i.e. those who do not have direct contact with patients and are not involved in diagnostic, consultative or therapeutic care of patients, such as healthcare administrators and managers, medical educators, pharmacy and clinical pharmacology staff.

2.3 Sample Size Calculation

Sample size calculation was performed using EpiInfo StatCalc software for cross-sectional studies. As mentioned earlier, gender is one of the key risk factors for burnout, which is why sample size calculation was based on this variable. In the study by Chambers et al (2016) females reported significantly higher burnout than males, so male gender was used as unexposed group, and female gender – as exposed group. Estimates of burnout proportion in unexposed and exposed groups were based on data from the same study: 43.9% in unexposed group and 59.4% in exposed group. Assuming equal number of males and females would be available for sampling (ratio of sample size unexposed:exposed = 1), confidence level to be 95% and 80% power, the total sample size was calculated to be 356. Accounting for missing data, it was assumed that only 90% of the data would be fully completed, for which 396 responses would need to be collected. This number was rounded and final sample size totaled to 400 responses.

2.4 Data Collection

A link to an online questionnaire was spread out using WhatsApp mobile app and email among acquaintances who work in the healthcare field. They were asked to fill the questionnaire in, and also to spread the link within their colleagues and other contacts that are

eligible for this study.

In total 400 responses were collected: 369 in Russian and 31 in Kazakh. 4 empty responses were excluded, as well as responses from non-medical personnel, which included 10 healthcare administrators, 3 medical educators, 2 managers, 1 student, 1 unemployed and 6 pharmacy and clinical pharmacology staff. 6 responses were unidentifiable in terms of whether they were medical workers or not (missing information on organization/ department/ specialty), which were also excluded. Finally, according to the CBI instructions (Chambers et al, 2016), a respondent is classified as non-responder if less than 3 items were answered in the personal and patient-related burnout categories, and if less than 4 items were answered in the work-related burnout category. Since the main outcome variables are these burnout categories, if a respondent was considered non-responder in all 3 categories, he/she was excluded, which was the case in 4 responses. Overall, 37 participants were excluded from the study. The data from the final sample of 363 participants was used for the analysis (the chart of study population inclusion/exclusion process is attached in the Appendix 1 section).

2.5 Study Instrument

The topic of medical workforce burnout has been extensively studied around the world. For a long time, researchers and organizations most commonly used the MBI – Maslach Burnout Inventory (Maslach et al., 1996) or its adapted versions to screen for burnout. However, some critics argue that MBI is not the best tool for screening for burnout. Firstly, the authors of MBI define burnout as a simultaneous occurrence of emotional exhaustion, depersonalisation, and reduced personal accomplishment, but they also instruct that in the analysis of MBI survey results these dimensions should be analyzed separately as distinct and different dimensions (Shaufeli and Taris, 2005). Therefore, there is no clear correspondence between the concept and the measure. Secondly, the question items in the MBI have been criticized for being difficult to apply to cultures other than American. For instance,

Kristensen and Borritz (2005) revealed that some specific statements in the questionnaire, such as “I feel I treat some recipients as if they were impersonal objects” and “I don’t really care what happens to some recipients” were received very negatively in the Danish population. It is yet uncertain whether Kazakhstani population would accept these questions in the same way. Third, the MBI full questionnaire is available for commercial purchase only, which makes it difficult to access it freely for using in this research.

As an alternative, Danish researchers Kristensen and Borritz (2005) developed a new tool for measuring burnout – Copenhagen Burnout Inventory (CBI). This tool measures burnout in three scales: personal burnout, work-related burnout and client-related burnout, taking exhaustion and fatigue as a core of burnout (Kristensen and Borritz, 2005). This corresponds well to the definition of burnout stated at the beginning of this paper, and will help maintain correspondence between the concept and the measure. The CBI is also stated to be clear and easy to understand for respondents, and have high content validity (Chin et al, 2018), and high reliability (Kristensen and Borritz, 2005). Finally, compared to MBI, CBI is a public domain, and the questionnaire along with the instructions are easily accessible on the internet. For these reasons the questionnaire devised for this research was adapted to the CBI questionnaire.

The CBI questionnaire consists of 19 items in total, 6 items to assess personal burnout level, 6 items – work-related burnout, and remaining 6 items to assess patient related burnout. On top of these, questions on demographic data (age and gender), self-rated health status, occupational information (type of organization and department, specialty, length of work experience), and working hours (official number of working hours per week and hours worked in fact, whether respondents worked more than 14 consecutive hours in the past week, and whether they had a 24-hour break in the past week) were also added. The final questionnaire consisted of 31 questions in total (29 multiple choice questions and 2 short

answer questions).

The final version of the questionnaire used in this research is attached in Appendix 2 along with translated versions in Russian and Kazakh.

2.6 Independent and Outcome Variables

Independent variables in this research were selected based on information in previous research, discussed in the Introduction section. The variables included: age, gender, self-rated health status, organization and department of employment, specialty, working experience, number of working hours (official versus in fact), whether a person worked more than 14 consecutive hours in the past week, and whether they had a continuous 24-hour break between shifts in the past week.

The outcome variables in this study were presence of high personal burnout, work-related burnout and patient-related burnout.

2.7 Ethical Considerations

This study was approved by the Nazarbayev University School of Medicine Research Ethics Committee. The first page of the questionnaire contained participant informed consent (see Appendix 3), and only those who give consent could take the questionnaire.

Due to the sensitivity of this topic for the institutional management, and in order to avoid possibility of coercion or bias, the medical institutions' management were not asked for permission to conduct survey of their workers. The questionnaire does not contain any questions to identify which particular hospital the respondent works at, which is why this was considered not to be a cause for ethical concern. Consent was only obtained from the individual participants prior to taking the survey.

2.8 Data Entry and Data Management

There was no need to perform manual data entry, since the Google Forms platform allows to

automatically transfer responses into Google Sheets file, which can then be downloaded as Microsoft Excel spreadsheet. Data analysis was conducted using STATA software version 12.

2.9 Statistical Analysis

Basic descriptive statistics were applied to analyze study variables: frequencies and percentage were generated. Data was grouped and coded based on previous research suggestions. According to the CBI instructions, the cutoff point for high personal, work-related and patient-related burnout is 50 or above (Chambers et al, 2016), which is why burnout variables were created in each category that discriminated scores equal to 0 as no burnout, less than 50 as low burnout, and equal to or above 50 as high burnout. Pearson's chi-square test was utilized to compare differences in independent variables by burnout level. Bivariate and multivariate logistic regression analyses were also used to calculate adjusted and unadjusted odds ratios and 95% confidence intervals to measure strength of association between independent and outcome variables. All variables were categorical and outcome variables are dichotomous, which is why dummy variables were created for performing multivariate analysis.

The variables that are statistically significantly associated with burnout levels were identified using simple logistic regression analysis, then those identified as having significant association (rule of thumb significance level $p < 0.25$ was applied) were analyzed through multivariate logistic regression analysis in order to measure an association of each variable on the outcome variables, while adjusting for confounding. Likelihood Ratio Test was performed to compare nested models.

Using multivariate logistic regression analysis, the final model was constructed, in which only statistically significant variables were kept. Interaction terms between covariates were also tested.

3. RESULTS

3.1 Univariate Analysis: Socio-Demographic and Occupational Characteristics

Summary of the basic descriptive characteristics of the study population is given in Table 1. Of the total study population, 114 (31.5%) were males. The majority of the participants (almost 40%) were aged between 30-39 years, with the lowest proportion (only 1.4%) being aged 60 and over. Later this group was joined with the 50-59 age group, in order to meet the assumptions of statistical methods used. Only 17.6% of the respondents rated their health as 'very good' or 'excellent', whereas the majority – 43.8% – rated their health as 'fair' or 'poor'.

The proportion of the type of organization was almost equal: 49% inpatient and 51% outpatient. According to type of department profile, a quarter of the participants (24.9%) worked in a Therapeutic department, 23.7% in a Surgical department, and 23% in a Consultation and Diagnosis departments. There was a big range of responses in terms of specialty of the participants, the majority of which worked as General Medicine specialists (19%), Intensive Care specialists (15%), and surgeons (13.6%). Participants were almost equally distributed in terms of work experience, the biggest group (28.3%) having from 5 to 10 years of experience.

8.4% of participants did not know how many hours a week they are obliged to work, i.e. number of official hours according to their employment contract. A vast majority (72.8%) of the participants were overworking, more than half of which (39.6% of total sample) working significantly more hours than showed in their contract.

A great proportion of the participants (65.4%) reported having a continuous 24-hour break from work in the past week, and 53.8% stated that they worked more than 14 consecutive hours in the past week.

Overall high personal burnout level was reported by 82.1% of the respondents, high work-

related burnout was identified in 66.9% of participants, and high patient-related burnout was reported by 53.1% of the participants.

3.2 Bivariate Analysis

Summary of bivariate analysis of the unadjusted associations between independent and outcome variables is presented in Table 2. The proportion of high personal, work-related and patient-related burnout was significantly higher in female respondents of this study than male respondents, although this difference was not statistically significant.

Personal Burnout. Only self-rated health status, work experience, overworking more than official working hours, and working 14 or more consecutive hours in the past week were statistically significantly associated with high personal burnout. Almost half (49.3%) of those with high personal burnout rated their health status as ‘poor’ or ‘fair’, 38.4% as ‘good’, and only 12.1% as ‘very good’ or ‘excellent’. Whether a person works greater amount of time than their official hours determines their level of personal burnout: significantly large proportion (43.3%) of highly burnt out participants stated working a lot more hours than stated in their employment contract, comparing to 34.8% who worked more hours, and 15% who did not overwork. Finally, working more than 14 consecutive hours in the past week is associated with high personal burnout: 56.3% of participants with high personal burnout responded positively to this item.

Work-related Burnout. self-rated health status, overworking, and working more than 14 consecutive hours in the past week were statistically significantly associated with high work-related burnout. Again, greater proportion (49%) of those rating their health status as ‘fair’ or ‘poor’ were highly burnt out, comparing to ‘good’ (39%) or ‘very good’ and excellent’ (12%) options. High work-related burnout was significantly higher among those who overwork (both a lot more hours or more hours – 46.4% and 35.9%, respectively), and among those who have worked more than 14 consecutive hours in the past week (58.8%).

Patient-related Burnout. Only overworking and working more than 14 consecutive hours in the past week were statistically significantly associated with high patient-related burnout. Proportion of high patient-related burnout increased with level of overworking, and those who worked more than 14 consecutive hours in the past week were more burnt out (59.3%).

3.2 Multiple Logistic Regression Analysis

Associations between dependent and statistically significantly associated independent variables were tested using multiple logistic regression, which were summarized in Table 3. The final models only included statistically significant covariates. Interaction terms were created and tested, but they were removed afterwards since no statistical significance was detected.

Statistically significant factors were identified in the final multiple regression analysis. Self-rated health status was a protective factor for high personal and work-related burnout, and working more/ a lot more than official number of hours (i.e. stated in their employment contract) was a significant risk factor for all burnout categories.

Personal burnout. After including statistically important covariates, the odds of having high personal burnout was 61% lower in those who rated their health status as ‘Good’ and 90% lower in those who rated their health status as ‘Very good’ or ‘Excellent’, compared to those who rated their health status as ‘Fair’ or ‘Poor’. Adjusted odds of having high personal burnout was 3.2 times higher in those who worked more than the official number of hours, and 5.3 times higher in those who worked a lot more than their official number of hours, compared to those who worked same or less than their official hours.

Work-related burnout. The adjusted odds of having high work-related burnout was 59% less in the 40-49 age group, and 56% less in the 50 years and older participants (borderline significance level), compared to the 20-29 age group. The odds of having high work-related burnout was 48% lower among those who rated their health status as ‘Good’ and 81% lower

in those who rated their health status as ‘Very good’ or ‘Excellent’, compared to those who rated their health status as ‘Fair’ or ‘Poor’, when other covariates are constant. Adjusted odds of having high personal burnout was 3.8 times higher in those who worked more than the official number of hours, and 4.7 times higher in those who worked a lot more than their official number of hours, compared to those who worked same or less than their official hours.

Patient-related burnout. Adjusted odds of having high personal burnout was 2.5 times higher in those who worked more than the official number of hours, and 3.5 times higher in those who worked a lot more than their official number of hours, compared to those who worked same or less than their official hours.

4. DISCUSSION

To the best of our knowledge, this cross-sectional study is the first to investigate prevalence of high personal, work-related and patient-related burnout among medical workers of healthcare organizations in Astana, Kazakhstan using Copenhagen Burnout Inventory. Results of the study showed that 82.1% of the participants reported high personal burnout, 66.9% had high work-related burnout, and 53.1% – high patient-related burnout. This could mean that medical workers in Astana are experiencing high levels of burnout not due to their work or the patients they provide care for, but for other reasons. For example, increased bureaucracy, lack of respect from colleagues and insufficient compensation were reported as the factors contributing to physician burnout in the US (Peckham, 2018). It would be interesting to investigate how these factors differ among Kazakhstani population in future research.

The prevalence of high personal, work-related and patient-related burnout in this study population was significantly higher than the study sample of New Zealand senior doctors: 50.1%, 42.1% and 15.7%, respectively (Chambers et al, 2016). This could be due to many

factors, such as differences in the health systems organization, workload, salary, and medical worker density (ratio of medical workers per population). No other available study investigated prevalence of these burnout categories among medical workers, but rather compared groups using burnout scores, or studied other population groups.

Although not statistically significant, a few other patterns shown by bivariate analysis seemed interesting to discuss here. Firstly, the work experience variable showed that the highest proportion of personal and work-related burnout were in the 1-4, 5-10 and more than 21 years of experience. Thus, medical workers who work less than 10 years and more than 21 years had highest burnout. A study by Chambers and colleagues, 2016, found almost a similar pattern, and they also had a group of respondents with 30 or more years of experience, who had much lower mean score of burnout compared to those with less experience. The work experience variable was also found to be not statistically significant with burnout in the study by these authors. By specialty the highest proportions of personal, work-related and patient-related burnout were found among General practitioners, Intensive care workers and Surgeons. Interestingly, this kind of ordering of burnout by specialty was different from what other studies found. Chamber et al, 2016 reported that in New Zealand those most burnt out were emergency medicine specialists and pathology physicians, whereas in the US it was the critical care physicians and neurologists (Peckham, 2018).

According to the results of the multivariate analyses, working more or significantly more than official hours shown in the contract is strongly associated with high burnout in all three categories. Research shows that overwork is associated with development of psychological distress, emotional exhaustion and high levels of stress in the employees (Yamauchi et al, 2017), and as stated earlier in this paper, burnout results from long term acute stress at workplace.

It is worth mentioning that 8.4% of the respondents (30 participants) in this study did not know the number of hours they are supposed to work according to their employment contract, the reasons for which need further investigation. One explanation could be that according to the rules on medical services reimbursement (Ministry of Healthcare, 2017), payment of medical services is based not on hourly work, but on performance, tariffs, drug related groups or per case of treatment, depending on type of services provided. Therefore, medical workers could be more concerned on those aspect of their work (i.e. how many patients they treat, or the number of surgeries they perform, etc.), rather than on the number of hours they work.

Another significantly associated factor with personal and work-related burnout was self-rated health status. Analysis showed that this variable had a protective effect (better health is associated with less burnout), although this could be a two-way road: those who feel poorly may be prone to stress and experience high levels of burnout, and being highly bunt out could diminish one's health. Since this study is of a cross-sectional design, it is affected by antecedent-consequent bias, which makes it difficult to determine whether the outcome resulted from the exposure or exposure results from the outcome (Gordis, 2008). Still, research shows that burnout is significantly associated with major health problems, such as being unable to cope with stress (Kakiashvili et al, 2013), heart problems (Toker et al, 2012), and being hospitalized for mental and cardiovascular diseases (Toppinen et al, 2009). The study by Chambers et al (2016) also found a significant association between health status and all 3 categories of burnout, where the odds of having high personal, work-related and patient-related burnout were 10.8, 8.6 and 2.6 times higher, respectively, for those who rated their health as fair or poor compared to very good or excellent rating.

The results of this study found that age is a predictor of high work-related burnout, and those who are aged over 40 showed less burnout (40-49 age group had 59% less burnout and age group over 50 had 56% less burnout). Studies have been inconclusive regarding age as a

predictor of burnout, since some researchers also determined that burnout decreases with age (Alacacioglu et al., 2009), while others found the opposite (Losa Iglesias et al., 2010), and some did not find any statistically significant association between this factor and burnout (Gosseries et al, 2012).

Strengths and Limitations of the Study

There are several reasons to suggest that this is the first study of its kind performed in Kazakhstan. First, the sample of participants was diverse, there were respondents from different organizations, departments, and across different specialties, including not only physicians but several nurses as well. Secondly, this was the first study to perform not only descriptive statistics, but also multivariate analysis to identify association between independent and outcome variables. Third, the tool used for measuring level of burnout, the Copenhagen Burnout Inventory, was a validated, internationally widely utilized questionnaire, which has not been used in any studies in Kazakhstan. Accordingly, using this tool helped categorize the burnt out respondents into categories (personal/ work-related/ patient-related burnout), which has not been done for Kazakhstani and Central Asian population samples previously, as shown by literature search. This tool was tested by researchers in previous studies and showed satisfactory validity and reliability, which is another strength of this study.

Several limitations of this study require consideration. First, all outcome variables were categorical and binary, which may have decreased sensitivity of the analyses. It also limited the analysis options which could offer insight into the sources of variation. Therefore, when performing future research it would be advantageous to calculate burnout scores and analyze them in continuous form. Second, there is a possibility for response bias: it is possible that those who are experiencing burnout or have done so in the past could be more interested in responding to the questionnaire than those who never experienced burnout. This could be the

reason for very high prevalence of burnout in the results of this study. Due to collection of responses at one point of time, the cross-sectional method of research also has a potential for antecedent-consequent bias, which is why it is hard to talk about causal relationships between independent and dependent variables. Finally, not all variables could be included in the analysis: items that required filling in the answer were dropped due to inconsistency of given responses. For example, one item of the questionnaire asked to give the number of hours a respondent is required to work per week according to their contract, but there were replies such as 350 and 249, which is not possible to be true since there are only 168 hours in a week in total. Therefore, a drop-down menu could be utilized in the future for respondents to choose answers from.

5. CONCLUSION AND RECOMMENDATIONS

Prevalence of high personal, work-related and patient-related burnout of Astana medical workers was estimated in this study. Important factors were identified that were associated with development of burnout, which were: self-rated health status, age and overworking. Two of these factors, self-rated health status and overworking are modifiable compared to age, which is why these two factors need to be further analyzed and addressed by organizations and governments.

First, healthcare organizations' management could promote healthy lifestyle among their workers by, for example, providing discounted gym memberships – a common practice by many organizations nowadays. Moreover, employee trainings could be provided on how to recognize signs of burnout in themselves or coworkers, and strategies to prevent development of stress and burnout.

Secondly, the reasons for high level of overwork among medical workers need to be analyzed on both organizational and governmental levels. There is a possibility that one of the reasons is low monetary compensation for labor, and the medical workers choose to work more to

receive greater compensation. If this is the case, the problem of low salary of medical workers needs to be addressed by the government. Although it could be challenging in the conditions of restricted finances, there is a need to increase basic salary of medical workers, by allocating a bigger proportion of the budget on labor compensation. In addition, the government could introduce a fair country-wide program that provides medical workers with needed benefits such as accommodation allowance.

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Table 1. Demographics of respondents (univariate analysis)

Variable	n	%
Gender		
Male	114	31.5
Female	248	68.5
Age		
20-29	81	22.3
30-39	145	39.9
40-49	73	20.1
50 and over	64	17.7
Self-rated Health Status		
Very good/Excellent	64	17.6
Good	140	38.6
Fair/Poor	159	43.8
Type of Organization		
Inpatient	173	49
Outpatient	180	51
Department		
Intensive	53	16.7
Surgery	75	23.7
Therapy	79	24.9
Consultative and Diagnostic	73	23
Other	37	11.7
Specialty		
Emergency	27	8.2
Intensive	51	15.4
Surgery	45	13.6
ObGyn	36	10.9
Pediatric	39	11.8
Nursing	20	6.0
General	63	19.0
Radiology	19	5.7
Other	31	9.3
Years of Experience		
1-4	97	26.9
5-10	102	28.3
11-20	79	21.9
21-35, 36+	82	22.8
Number of hours working in fact		
Don't know official number of hours	30	8.4
Do not overwork	67	18.8
Work more than official hours	118	33.2
Work a lot more than official hours	141	39.6
24-hour break from work		
Yes	236	65.4
No	125	34.6
Worked more than 14 consecutive hours		
Yes	193	53.8
No	166	46.2

Table 2. Bivariate logistic regression analysis – unadjusted associations between independent variables and high personal, work-related and patient-related burnout

Independent variables	High personal burnout	Low/No personal burnout	p-value	High work-related burnout	Low/No work-related burnout	p-value	High patient-related burnout	Low/No patient-related burnout	p-value
Gender Male	30.3	36.9	p=0.298	31.2	32.7	p=0.770	31.4	31.7	p=0.943
Age 20-29 30-39 40-49 50+	20.8 40.9 19.5 18.8	29.2 35.4 23.1 12.3	p=0.292	22.8 43.2 17.8 16.2	21.9 33.6 25.2 19.3	p=0.218	23.8 42.3 18.5 15.4	20.4 37.1 22.1 20.4	p=0.405
Self-rated health status V. good + excel. Good Poor + fair	12.1 38.6 49.3	43.1 38.5 18.4	p=0.000	12.0 39.0 49.0	29.4 38.7 31.9	p=0.000	14.8 38.1 47.1	19.8 40.7 39.5	p=0.274
Work experience 1-4 5-10 11-20 21-35, 36+	25.8 28.1 21.0 25.1	32.3 29.2 26.2 12.3	p=0.149	28.0 28.5 19.7 23.8	25.4 28.8 26.3 19.5	p=0.485	30.3 26.1 22.3 21.3	23.6 31.5 20.0 24.9	p=0.381
Department Intensive Surgery Therapy Consultative and Diagnostic Other	16.3 24.2 25.8 23.9 9.8	18.9 20.7 20.8 18.9 20.8	p=0.213	17.4 22.5 26.2 23.4 10.5	15.6 27.1 21.9 20.8 14.6	p=0.676	17.4 24.5 28.1 21.6 8.4	16.7 23.6 20.8 24.3 15.6	p=0.329

Specialty			p=0.399			p=0.852			p=0.227
Emergency	6.7	15.0		7.8	9.3		8.6	8.1	
Intensive	16.0	11.7		16.1	13.9		16.1	14.9	
Surgery	13.8	13.3		14.2	12.0		14.4	13.5	
ObGyn	11.1	10.0		11.5	10.2		10.9	10.8	
Pediatric	11.1	15.0		10.5	14.8		8.6	14.2	
Nursing	6.7	3.3		6.4	5.6		7.5	4.7	
Other	9.3	10.0		9.2	9.3		9.8	8.8	
General	20.1	13.3		19.7	16.7		19.5	17.6	
Radiology	5.2	8.3		4.6	8.3		4.6	7.4	
Overwork (in fact)			p=0.000			p=0.000			p=0.000
Don't know	6.8	15.9		6.3	12.9		4.9	12.2	
Do not overwork	15.0	36.5		11.4	33.6		11.9	26.2	
More	34.8	25.4		35.9	26.7		34.6	31.1	
A lot more	43.3	22.2		46.4	26.7		48.6	30.5	
24-hour break			p=0.664			p=0.777			p=0.334
Yes	64.9	67.7		64.6	66.1		67.5	62.7	
14-hour work			p=0.041			p=0.009			p=0.043
Yes	56.3	42.2		58.8	44.0		59.3	48.5	

Table 3. Final multivariate logistic regression models for high burnout among medical workers

Personal Burnout:

Variable	p-value	OR	95% CI	
Self-rated health status				
Fair and Poor (ref.)				
Good	0.014	0.386	0.180	0.823
Very good and Excellent	0.000	0.099	0.044	0.222
Number of hours working in fact, compared to official number of hours in contract				
Work less or same hours (ref.)				
Don't know official hours in contract	0.754	1.172	0.434	3.168
Work more hours	0.004	3.156	1.442	6.920
Work a lot more hours	0.000	5.347	2.378	12.025

Work-related burnout:

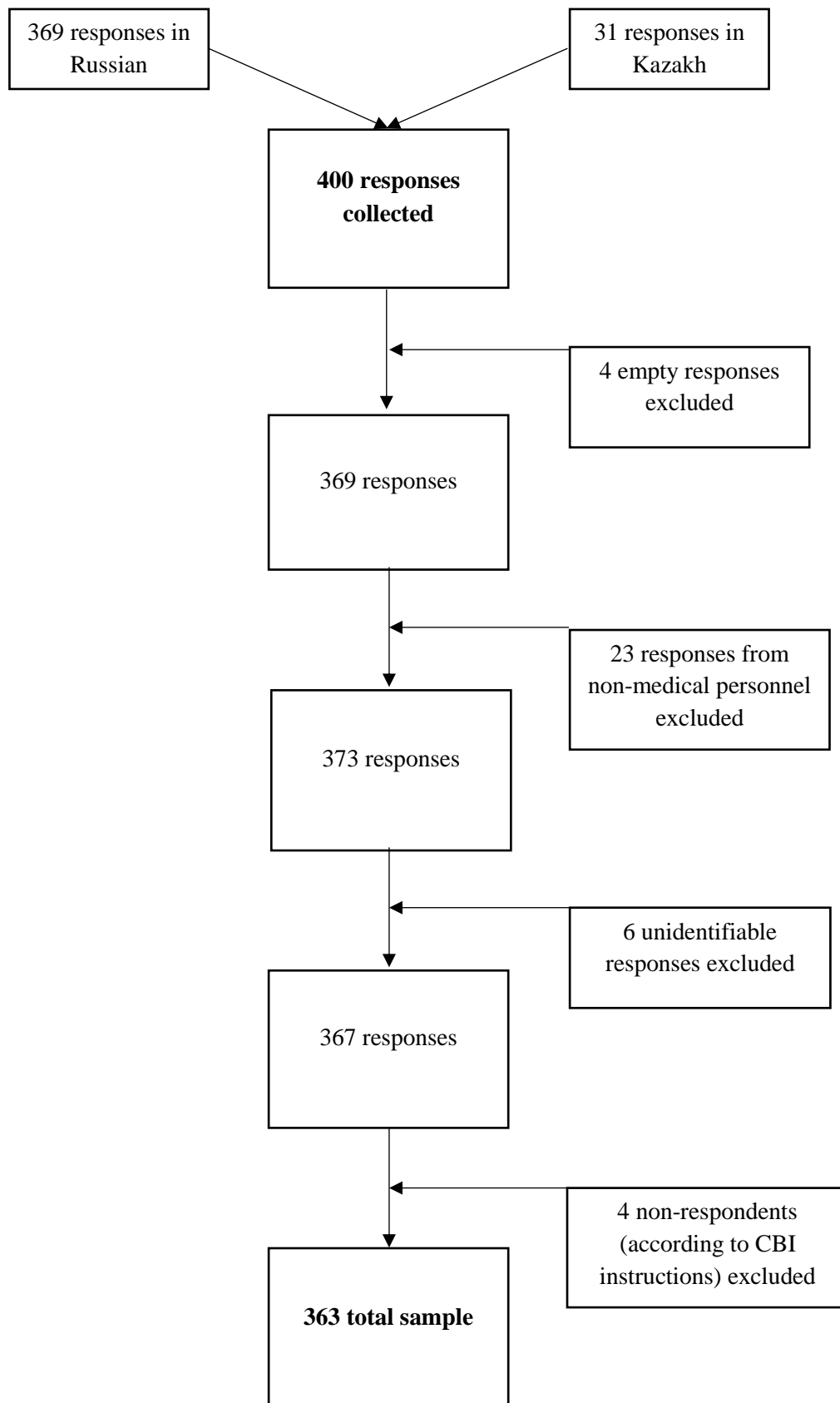
Variable	p-value	OR	95% CI	
Age				
20-29 (ref.)				
30-39	0.891	0.937	0.478	1.837
40-49	0.024	0.409	0.188	0.890
50 and over	0.057	0.444	0.190	1.038
Self-rated health status				
Fair and Poor (ref.)				
Good	0.027	0.518	0.289	0.926
Very good and Excellent	0.000	0.190	0.091	0.397
Number of hours working in fact, compared to official number of hours in contract				
Work less or same hours (ref.)				
Don't know official hours in contract	0.492	1.375	0.555	3.404
Work more hours	0.000	3.759	1.917	7.369
Work a lot more hours	0.000	4.718	2.424	9.182

Patient-related burnout:

Variable	p-value	OR	95% CI	
Number of hours working in fact, compared to official number of hours in contract				
Work less or same hours (ref.)				
Don't know official hours in contract	0.789	0.880	0.344	2.250
Work more hours	0.005	2.453	1.303	4.614
Work a lot more hours	0.000	3.518	1.894	6.535

6. APPENDICES

Appendix 1. Study Population Inclusion/Exclusion Chart



Appendix 2. Questionnaires

English Version

Demographic data

What is your gender?

- M F

What is your age?

- 20-29 30-39 40-49 50-59 60+

Health Status

Please rate you own health status:

- Excellent
- Very good
- Good
- Fair
- Poor

Profession related data

Please choose the type of the organization you are working at:

- Inpatient
- Outpatient
- Diagnostic hospital
- Early treatment clinic (диспансер)
- Dentistry

What is the profile of the department/unit you are working at?

- Consultation
- ICU
- Therapy
- Surgical Unit
- Radiology/Diagnosis
- Emergency/Ambulance
- Other _____

Choose a category that is closest to your specialty

- Anaesthesia
- Dentistry
- Diagnostic and interventional radiology
- Emergency medicine
- General practice
- Internal medicine
- Obstetrics/gynecology
- Paediatrics
- Pathology
- Psychiatry
- Nursing
- Surgery

How long have you been working in this specialty?

1-4 years

5-10 years

11-20 years

21-34 years

36+ years

Working hours

What is the number of hours you have to work in a week officially, i.e. according to your labour contract?

I don't know

How many hours a week do you normally work in practice (including official hours, overtime, call-on duties, etc.)?

- Significantly less than my official working hours
- Less than my official working hours
- Exactly the amount of my official working hours
- More than my official working hours
- Significantly more than my official working hours
- I don't know the amount of my official working hours

How many hours approximately did you work in total, including official hours, overtime, call-on duties, etc. in the past full week (e.g. if you are taking this survey on a Wednesday count from previous Wednesday)

Have you had a continuous 24 hour (or more) break free from work in the past full week?

- Yes
- No

Have you worked more than 14 consecutive hours during the past full week?

- Yes
- No

Personal Burnout

	Always	Often	Sometimes	Seldom	Never
How often do you feel tired?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often are you physically exhausted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often are you emotionally exhausted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often do you think "I can't take it any more"?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often do you feel worn out?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often do you feel susceptible to illness?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Work-related burnout

	Always	Often	Sometimes	Seldom	Never
Do you feel worn out at the end of the working day?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Are you exhausted in the morning at the thought of another day at work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you feel that every working hour is tiring for you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you have enough energy for family and friends during leisure time?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	To a very high degree	To a high degree	Somewhat	To a low degree	To a very low degree
Is your work emotionally exhausting?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does your work frustrate you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you feel burnt out because of your work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Patient-related burnout

	To a very high degree	To a high degree	Somewhat	To a low degree	To a very low degree
Do you find it hard to work with patients?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does it drain your energy to work with patients?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you find it frustrating to work with patients?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you feel that you give more than you get back when you work with patients?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Always	Often	Sometimes	Seldom	Never
Are you tired of working with patients?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you sometimes wonder how long you will be able to continue working with patients?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Kazakh Version:

Демографиялық көрсеткіштер

Жынысыңызды белгілеңіз:

Еркек Әйел

Жасыңызды белгілеңіз:

20-29 30-39 40-49 50-59 60+

Денсаулық күйі

Өзіңіздің жалпы денсаулық күйіңізге қандай баға беретін едіңіз?

- Өте жақсы
- Жақсы
- Орташа
- Қанағаттанарлық
- Нашар

Қызмет туралы деректер

Сіз жұмыс жасап жатқан ұйымның түрін белгілеңіз:

- Стационар/Аурухана
- Поликлиника/Амбулаторлық емхана
- Диагностикалық клиника
- Диспансер
- Стоматология

Сіз жұмыс жасап жатқан бөлім/бөлімшенің бағытын белгілеңіз:

- Консультация/медициналық кеңес беру
- Анестезия және реанимация
- Емдеу
- Хирургия
- Радиология/Диагностика
- Қабылдау бөлімшесі/жедел жәрдем
- Басқа _____

Сіздің жұмыс жасап жатқан мамандығыңызға көбінесе сәйкес келетін категорияны таңдаңыз:

- Анестезия/Реанимация
- Стоматология
- Диагностикалық және интервенциялық радиология
- Жедел жәрдем
- Жалпы тәжірибелік дәрігер
- Терапия
- Акушерлік қызмет/Гинекология
- Педиатрия
- Патология
- Психиатрия
- Мейірбикелік іс
- Хирургия

Бұл мамандық бойынша неше жыл жұмыс істеп келе жатырсыз?

1-4 жыл

5-10 жыл

11-20 жыл

21-34 жыл

36+ жыл

Жұмыс сағаты

Ресми түрде, яғни Сіздің еңбек шартыңыз бойынша, Сіз аптасына неше сағат жұмыс істеуге міндеттісіз?

Білмеймін

Шын мәнінде аптасына неше сағат жұмыс істейсіз (ресми жұмыс сағатын, мерзімнен тыс төленетін/төленбейтін сағаттарды, жоспарланбаған шақыруларды, т.б. жұмысқа жұмсалған сағаттарды есепке алғанда)?

- Еңбек шартымда көрсетілген ресми сағаттан әлдеқайда кем
- Еңбек шартымда көрсетілген ресми сағаттан кем
- Еңбек шартымда көрсетілген ресми сағатқа тең
- Еңбек шартымда көрсетілген ресми сағаттан артық
- Еңбек шартымда көрсетілген ресми сағаттан әлдеқайда артық
- Мен өзімнің еңбек шартымда көрсетілген ресми сағаттардың санын білмеймін

Өткен толық аптада, ресми жұмыс сағатын, мерзімнен тыс төленетін/төленбейтін сағаттарды, жоспарланбаған шақыруларды, т.б. жұмысқа жұмсалған сағаттарды есепке алғанда, неше сағат жұмыс істедіңіз? (мысалы, осы сауалнаманы сәрсенбі күні толтырып жатсаңыз, алдыңғы аптаның сәрсенбісінен бастап санаңыз)

Өткен толық аптада Сізде үздіксіз кем дегенде 24 сағаттық үзіліс болды ма?

- Иә
- Жоқ

Өткен толық аптада Сіз үзіліссіз 14 немесе одан да көп сағат жұмыс жасадыңыз ба?

- Иә
- Жоқ

Жеке себептерге байланысты күйзеліс

	Әрдайым	Жиі	Кейде	Сирек	Ешқашан
Қаншалықты жиі өзіңізді шаршаңқы сезінесіз?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Қаншалықты жиі қажып жүресіз?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Қаншалықты жиі өзіңізді эмоциялық күйзелісте сезінесіз?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Қаншалықты жиі Сізде “менің басқа шыдауға шамам жоқ” деген ой пайда болады?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Қаншалықты жиі өзіңізді қалжыраған, “нәрін сыққан лимондай” сезінесіз?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Қаншалықты жиі өзіңізді ауруларға қарсы әлсіз сезінесіз?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Жұмысқа байланысты күйзеліс

	Әрдайым	Жиі	Кейде	Сирек	Ешқашан
Қаншалықты жиі жұмыс күнінің соңында өзіңіздің қажығаныңызды сезінесіз?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Қаншалықты жиі таңертең кезекті жұмыс күні туралы ойлағанда Сіздің көңіл-күйіңіз түседі?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Қаншалықты жиі әр жұмыс сағаты Сізді қажыртатынын сезінесіз?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Сізде жұмыстан тыс уақытта жанұяңыз бен достарыңызға жұмсауға күш-қуатыңыз қалады ма?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Өте жоғары дәрежеде	Жоғары дәрежеде	Шамамен	Төмен дәрежеде	Өте төмен дәрежеде
Сіздің жұмысыңыз Сізді эмоциялық күйзеліске соқтырады ма?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Сіздің жұмысыңыз Сізді түршіктіріп, ашуыңызды келтіреді ме?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Сіз өзіңіздің жұмыс салдарынан қалжырағаныңызды сезінесіз бе?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Науқастарға байланысты күйзеліс

	Өте жоғары дәрежеде	Жоғары дәрежеде	Шамамен	Төмен дәрежеде	Өте төмен дәрежеде
Науқастармен жұмыс жасау Сізге қиындыққа соғады ма?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Науқастармен жұмыс жасау Сізді шаршатады ма?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Науқастармен жұмыс жасау Сізді түршіктіріп, ашуыңызды келтіреді ме?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Науқастармен жұмыс барысында Сіз “бергеніңізге қарағанда едәуір аз алатыныңызды” сезінесіз бе?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Әрдайым	Жиі	Кейде	Сирек	Ешқашан
Сіз науқастармен жұмыстан шаршайсыз ба?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Сізде “мен науқастармен әлі қанша жұмыс жасай алады екенмін” деген сұрақ пайда болады ма?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Russian Version:

Демографические данные

Укажите Ваш пол:

- М Ж

Укажите Ваш возраст:

- 20-29 30-39 40-49 50-59 60+

Состояние здоровья

Пожалуйста, оцените общее состояние Вашего здоровья:

- Отлично
- Очень хорошо
- Хорошо
- Удовлетворительно
- Неудовлетворительно

Данные о работе

Пожалуйста, укажите вид организации, в которой Вы работаете:

- Стационар/Больница
- Поликлиника/Амбулаторная клиника
- Диагностическая клиника
- Диспансер
- Стоматология

Каков профиль отделения, в котором вы работаете?

- Консультация
- Анестезия и реанимация
- Лечение
- Хирургия
- Радиология/Диангостика
- Приемный покой/Скорая помощь
- Другое _____

Пожалуйста выберите категорию, наиболее подходящую специальности, по которой Вы работаете,

- Анестезия/Реанимация
- Стоматология
- Диангостическая и интервенционная радиология
- Экстренная медицинская помощь
- Врач общей практики
- Терапия
- Окушерство/Гинекология
- Педиатрия
- Патология
- Психиатрия
- Сестринское дело
- Хирургия

Как долго Вы работаете по данной специальности?

1-4 года

5-10 лет

11-20 лет

21-34 лет

36+ лет

Часы работы

Сколько часов в неделю вы должны работать официально, т.е. согласно Вашему трудовому договору?

 _____ Не знаю

Сколько часов в неделю обычно Вы работаете фактически (включая официальные часы, сверхурочное время, незапланированные вызовы, др.)?

- Намного меньше официальных часов, указанных в трудовом договоре
- Меньше официальных часов, указанных в трудовом договоре
- Ровно столько, сколько указано в трудовом договоре
- Больше официальных часов, указанных в трудовом договоре
- Намного больше официальных часов, указанных в трудовом договоре
- Я не знаю количество официальных часов, указанных в трудовом договоре

Сколько часов примерно, включая официальные часы, сверхурочное время, незапланированные вызовы, др., вы проработали за прошедшую полную неделю (например, если Вы заполняете этот опросник в среду, считайте со среды предыдущей недели)?

У Вас был как минимум 24-часовой непрерывный перерыв от работы за прошедшую полную неделю?

- Да
- Нет

Вы работали 14 или более часов подряд за прошедшую полную неделю?

- Да
- Нет

Персональное выгорание

	Всегда	Часто	Иногда	Редко	Никогда
Как часто Вы чувствуете себя уставшим?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Как часто Вы бываете физически изнуренным?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Как часто Вы чувствуете себя эмоционально опустошенным, без ярких эмоций и чувств?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Как часто Вы думаете “Я больше не могу этого терпеть”?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Как часто Вы чувствуете себя измотанным, «выжатым как лимон»?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Как часто Вы чувствуете себя уязвимым к болезням?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Выгорание, связанное с работой

	Всегда	Часто	Иногда	Редко	Никогда
Как часто Вы чувствуете себя измотанным в конце рабочего дня?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Как часто у Вас портится настроение с утра, при мысли об очередном рабочем дне?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Как часто Вы чувствуете, что каждый рабочий час утомляет Вас?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
У Вас остается сил и энергии для семьи и друзей во вне рабочее время?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	В очень высокой степени	В высокой степени	В какой-то мере	В низкой степени	В очень низкой степени
Ваша работа опустошает Вас эмоционально?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ваша работа раздражает Вас?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Вы чувствуете себя измученным из-за работы?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Выгорание, связанное с пациентами

	В очень высокой степени	В высокой степени	В какой-то мере	В низкой степени	В очень низкой степени
Вы затрудняетесь работать с пациентами?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Вас изматывает работа с пациентами?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Вас раздражает работать с пациентами?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Вам кажется, что Вы «отдаете больше чем получаете» при работе с пациентами?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Всегда	Часто	Иногда	Редко	Никогда
Вы устаете работать с пациентами?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Задаются ли Вы вопросом, как долго Вы еще сможете продолжать работать с пациентами?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix 3. Informed Consent

English Version



Улица Керек Жанибек хандар 5/1,
Астана, Республика Казахстан

010000

Title of the Project: Burnout of Medical Workers in Astana, Kazakhstan: Prevalence and Associated Factors.

Names of the Researchers: Alpamys Issanov MD, MPH University of British Columbia

Purpose of the Project

This survey is aimed at studying prevalence and associated factors of emotional and physical burnout of medical workers. This survey is carried out among medical workers in healthcare organizations of Astana. Your participation will help us to provide insight to prevalence of burnout syndrome of medical workers, both physical and emotional, and identify factors associated with this syndrome. This in turn will help detect problem areas in labour management in healthcare organizations, and give recommendations on prevention of burnout of medical workers, and to improve labour management processes.

Procedures

If you decide to participate in the study, you will be asked to complete a short online questionnaire, which will take about 7-10 minutes of your time. The questions will be on general demographic data, health status, working hours, and questions to assess level of personal, work-related and patient-related burnout.

Safeguarding Privacy

Any information provided in the survey will not be released to the outside parties and will be used only by the investigators for further analysis, which is completely anonymous and cannot be used to identify individual participants. You will not be asked to provide neither your name, nor the name of the organization you are working at. Only the researchers will have access to the study data, which will be confidentially secured on a private laptop protected by a strong password. The data we collect from you will be combined with data obtained from other participants to report the results of the study.

Risks and Benefits

Participating in this study is not associated with any known risks for you. Answering to this survey will not affect your work. There are also no known direct benefits to you. However, you may bring overall significant impact for your community, because data collected from this survey will help detect problem areas in employee management in healthcare organizations, and give recommendations on prevention of burnout of medical workers, and improvement of employee management processes.

Participant Rights

Taking this survey is completely voluntary. If you feel uneasy with any of the questions, you can refuse to answer and skip to the next question. You can stop answering the questions at any time. If you decide not to participate or to stop answering, it will in no way affect your work, or attitude toward you at work.

If you have any questions you may call co-researcher Aigerim Abdiorazova on 8-702-266-7700.

This study has been reviewed and cleared by the Nazarbayev University School of Medicine Research Ethics Committee. If you have concerns or questions about your rights as a participant or about the way the study is conducted, you may contact: Nazarbayev University School of Medicine Research Ethics Committee. E-mail: nusom-rec@nu.edu.kz

By proceeding to the questionnaire, you are giving your consent to participate in the study.

Thank you!

Зерттеу атауы: Астана, Қазақстан медицина қызметкерлерінің эмоциялық және физикалық күйзелістің таралуы және онымен байланысты факторлар.

Зерттеушілер: Алпамыс Иссанов MD, MPH University of British Columbia

Зерттеудің мақсаты

Бұл зерттеу сауалнама күйінде өткізілуде. Оның мақсаты – медицина қызметкерлері арасындағы эмоциялық және физикалық күйзелістің таралуы мен оған байланысты факторларды зерттеу. Бұл сауалнама Астана қаласы денсаулық сақтау ұйымдарының медициналық қызметкерлері арасында өткізіледі. Сіздің осы сауалнамаға қатысуыңыз бізге медициналық қызметкерлер арасындағы эмоциялық және физикалық күйзелісі синдромының таралу тенденцияларын, және онымен байланысты факторларды анықтауға көмегін тигізеді. Жиналған ақпарат медициналық ұйымдарда еңбек ұйымдастырудағы күрделі мәселелерді анықтауға, сонымен қатар медициналық қызметкерлердің эмоциялық және физикалық күйзелісін алдын алу және жалпы еңбек ұйымдастыру үрдісін жақсарту бойынша ұсыныстар жасауға көмектеседі.

Зерттеу процедуралары

Егер Сіз осы зерттеуге қатысу туралы шешім қабылдасаңыз, біз Сізден қысқаша онлайн сауалнаманы өз бетіңізше толтыруыңызды сұраймыз, ол Сіздің уақытыңыздың шамамен 7-10 минутын алады. Сауалнама жалпы демографиялық деректер жөнінде, денсаулық халі, жұмыс сағттары, сондай-ақ туралы жеке себептермен, жұмыспен және науқастарға қараумен байланысты эмоциялық және физикалық күйзеліс деңгейін анықтауға арналған сұрақтарды қамтиды.

Құпиялылық кепілдігі

Осы сауалнамадағы еш бір ақпарат бөтен кісілерге жарияланбайды және тек зерттеушілермен ғана одан әрі талдау үшін пайдаланылатын болады, талдау толықтай анонимдік болып табылады және сауалнамаға қатысушының жеке тұлғасын анықтау үшін пайдаланылуы мүмкін емес. Тек зерттеушілер ақпаратты аша алады, ақпарат құписөзбен қорғалған жеке компьютерде сақталады. Сізден өзіңіздің атыңызды, немесе жұмыс жасайтын мекемеңіздің атын айту сұралмайды. Сізден алынған ақпарат басқа

қатысушылардан алынған ақпаратпен біріктіріліп, зерттеудің нәтижелері туралы есеп жасау үшін пайдаланылады.

Тәуекелдер мен пайдалар

Сіздің осы сауалнамаға қатысуыңыз қандай да бір белгілі тәуекелдермен байланысты емес. Сауалнамаға қатысуыңыз Сіздің жұмысыңызға әсерін тигізбейді. Сауалнамаға қатысуыңыз сонымен қатар Сіз үшін ешқандай тікелей пайда әкелмейді. Алайда Сіздің қауымдастықтың пайдасына елеулі үлес қоса аласыз, себебі бұл зерттеу барысында жиналған деректер медициналық ұйымдарда еңбек ұйымдастырудағы күрделі мәселелерді анықтауға, сонымен қатар медициналық қызметкерлерде эмоциялық және физикалық күйзелістің алдын алу және жалпы еңбек ұйымдастыру үрдісін жақсарту бойынша ұсыныстар жасауға көмектеседі.

Қатысушының құқықтары

Бұл сауалнамаға қатысу Сіздің толықтай өз еркіңіз болып табылады. Егер қандай да бір сұраққа жауап беру ыңғайсыздық немесе қиындық туғызса, ол сұраққа жауап бермей, келесі сұраққа аттап кетуге болады. Кез келген уақытта сауалнаманы толтыруды тоқтата аласыз. Сауалнамаға қатысуыңызды тоқтату жөнінде шешім қабылдаған жағдайда, бұл шешім Сіздің жұмысыңызға немесе жұмыстағы қарым-қатынастарыңызға ықпалын тигізбейді.

Сұрақ туындаған жағдайда зерттеуші Әбдіоразова Айгерімге 8-702-266-7700 нөмері бойынша хабарласуыңызға болады.

Бұл жоба Назарбаев Университеті Медицина мектебінің Зерттеу этикасы жөніндегі комитетінің қарастырылуынан өтіп бекітілген. Егер Сізде зерттеуге қатысты сұрақ немесе шағым пайда болса, Сіз Назарбаев Университеті Медицина мектебінің Зерттеу этикасы жөніндегі комитетіне хабарлауыңызға болады. Электрондық мекенжай: nusom-rec@nu.edu.kz

Сауалнамаға кірісу арқылы Сіз зерттеуге қатысуға өз келісіміңізді бересіз.

Рахмет!

Russian Version



Улица Керек Жанибек хандар 5/1,
Астана, Республика Казахстан

010000

Название исследования: Эмоциональное и физическое выгорание медицинских работников в Астане, Казахстан: распространённость и факторы, связанные с выгоранием.

Имя исследователей: Алпамыс Иссанов MD, MPH University of British Columbia

Цель исследования

Данное исследование проводится в виде опроса, целью которого является изучение распространённости эмоционального и физического выгорания медицинских работников, и связующих факторов. Данный опрос проводится среди медицинских работников в организациях здравоохранения Астаны. Ваше участие в опросе поможет нам выявить тенденции распространённости синдрома выгорания медицинских работников, как эмоционального, так и физического, а также выявить факторы, связанные с данным синдромом. Это, в свою очередь, поможет выявить проблемные зоны в организации труда в медицинских организациях, и дать рекомендации по профилактике выгорания медицинских работников, и по улучшению процессов организации труда в целом.

Процедуры

Если Вы примете решение участвовать в этом исследовании, мы попросим Вас заполнить самостоятельно краткий онлайн опросник, что займет около 7-10 минут Вашего времени. Вопросы будут затрагивать общие демографические данные, состояние здоровья, часы работы, а также вопросы, используемые для определения степени выгорания, связанного с личными причинами, с работой, и с пациентами.

Гарантия конфиденциальности

Никакая информация из данного опроса не будет разглашаться посторонним лицам и будет использоваться только исследователями в целях дальнейшего анализа, который является полностью анонимным и не может быть использован для идентификации личности участника опроса. Вам не нужно будет сообщать исследователям ни Вашего имени, ни названия организации, в которой Вы работаете. Только исследователи будут иметь доступ к данным, которые будут сохранены в персональном компьютере, защищенным надежным паролем. Полученная от Вас информация будет объединена с

данными, полученными от других участников, для составления отчета о результатах исследования.

Риски и Выгоды

Ваше участие в опросе не связано с какими-либо известными рисками. Участие в опросе не повлияет на Вашу работу. Участие в опросе не несет также никаких прямых выгод для Вас. Однако Вы можете внести значительный вклад в пользу сообщества в целом, потому что данные, полученные в этом опросе, помогут выявить проблемные зоны в организации труда медицинских работников, и дать рекомендации по профилактике выгорания медицинских работников, и улучшению процессов организации труда в целом

Права Участника

Ваше участие в данном опросе является добровольным. В случае, если Вам будет неловко отвечать на какие-либо из вопросов, можете отказаться от ответа и перейти к следующему вопросу. Вы можете прекратить заполнение опросника в любое время. Если Вы решите прекратить ваше участие в опросе, это никак не скажется на вашей работе или отношении к Вам на работе.

Если у Вас возникли какие-либо вопросы, можете позвонить со-исследователю, Айгерим Абдиоразовой, тел: 8-702-266-7700.

Это исследование было рассмотрено и согласовано Комитетом по исследовательской этике Школы медицины Назарбаев Университета. Если у Вас есть вопросы или жалобы по поводу ваших прав в качестве участника исследования или о том, как проводилось исследование, Вы можете обратиться в Комитет по исследовательской этике Школы медицины Назарбаев Университета. Электронный адрес: nusom-rec@nu.edu.kz

Приступая к опросу, вы даете свое согласие на участие в исследовании.

Спасибо!