

ANNOTATION

of the dissertation of Azhar Bulatovna Syzdykova entitled
“Improving the Efficiency of Dental Care to the Population by Improving the Quality of Life of Dentists in the Republic of Kazakhstan” for the degree of Doctor of Philosophy (PhD) in the educational program 8D10101 – Public Health

Актуальность темы исследования

Dental care is an integral component of the healthcare system, ensuring the maintenance of oral health, the prevention of chronic diseases, and the improvement of quality of life. In today's environment, the effectiveness of dental services is largely determined not only by the level of technical equipment and the professional qualifications of specialists, but also by their physical and psycho-emotional health and overall quality of life [1]. Dentists are considered healthcare workers with a high level of occupational risk, due to the specific nature of their clinical practice and work organization.

The professional work of dentists is characterized by a combination of intense physical and psycho-emotional stress: prolonged work in a forced static posture, high loads on the musculoskeletal system, visual and manual strain, the need for constant concentration, as well as frequent stressful situations associated with patient pain, high expectations of treatment results, and conflictual interactions. The combination of these factors creates the preconditions for the development of chronic fatigue, musculoskeletal disorders, emotional exhaustion, and professional burnout, which, in turn, negatively impacts the quality of medical care, patient safety, and the sustainability of the healthcare workforce.

In recent years, professional burnout and quality of life among healthcare workers have been the subject of extensive international research. Research by American authors primarily focuses on individual stress coping strategies, psychological resilience, and the prevention of emotional exhaustion. European studies emphasize the role of organizational and managerial factors, including work schedules, working conditions, teamwork, and support systems for healthcare personnel. The specifics of dental practice have been examined in detail in studies by Australian and Canadian authors, who have identified a high prevalence of musculoskeletal disorders, chronic pain, and psychoemotional stress among dentists, as well as their impact on professional satisfaction and the quality of care provided.

In post-Soviet countries, this issue has been studied much less systematically. Russian studies are primarily descriptive and focus on individual aspects of occupational morbidity and burnout, without a comprehensive assessment of quality of life. Ukrainian studies primarily focus on the ergonomic aspects of dental practice and do not address the psychosocial and organizational determinants of professional well-being. Thus, a comprehensive understanding of the relationship between working conditions, lifestyle, and quality of life of dentists and their professional performance is lacking.

In the Republic of Kazakhstan, the issue of the quality of life of dentists and associated professional risks remains understudied. Despite the active development

of dental services, the introduction of digital technologies, and the growth of the private sector, the social, organizational, and behavioral determinants of dental health remain virtually unexplored. The lack of scientifically valid data increases the risk of underestimating the scale of professional burnout, leading to increased morbidity, decreased motivation, and premature departure of specialists from the profession, which may negatively affect the availability and quality of dental care for the population.

This study is particularly significant for the city of Almaty and the Almaty region – a region with a high concentration of dental organizations, intense competition between clinics, and a significant workload for doctors working in both the public and private sectors. An analysis of the working conditions and quality of life of dentists in this region allows us to identify key issues affecting professional well-being and develop targeted preventive measures and support for specialists.

The study's relevance is further enhanced by its alignment with the priorities of the Republic of Kazakhstan's state healthcare policy, which aims to promote sustainable development, improve the quality of medical services, and strengthen the healthcare system's human capital. Modern public health concepts view the health of healthcare workers as a strategic resource directly impacting the effectiveness of medical care, patient satisfaction, and trust in the healthcare system as a whole.

Thus, a literature review indicates that dentists' quality of life is influenced by interrelated professional, organizational, and psychosocial factors, including high workload, limited schedule control, poor ergonomics, chronic musculoskeletal pain, and stress. These factors increase the risk of burnout and reduce professional resilience, thereby potentially impacting the quality and effectiveness of dental care.

A comprehensive study of the factors influencing dentists' quality of life, their professional risks, and their relationship with the effectiveness of dental care is a pressing scientific and practical challenge.

In Kazakhstan, despite the existence of a regulatory framework for occupational safety and health and standards of care, there remains a lack of systematic research and evaluated support programs for dentists. This underscores the need for localized quality-of-life/burnout studies and for testing comprehensive preventive measures to improve the effectiveness of dental services. The obtained results can serve as a basis for the development of management, preventive and organizational solutions aimed at maintaining the health of specialists, increasing their professional resilience and improving the quality of dental care for the population of the Republic of Kazakhstan.

Purpose of the study: To scientifically substantiate and develop a set of measures to optimize the professional activities of dentists to improve the quality of dental care for the population of the Republic of Kazakhstan.

Study Objectives:

1. To assess the current state of the dental care system in the Republic of Kazakhstan and identify the main problems reducing its effectiveness.
2. To assess the quality of life and working conditions of dentists using Almaty as an example.

3. To analyze patient satisfaction with dental care provided using Almaty as an example.

4. To evaluate the relationship between dentists' quality of life and patient satisfaction.

5. To develop substantiated practical recommendations for improving the quality of life of dentists.

Object of the Study:

To test the proposed hypothesis, the study focused on:

- dentists working in clinics in Almaty and the Almaty region
- quality of life and professional performance of dentists working in the modern healthcare system in Almaty.

Observation Scope:

- 167 literary sources;
- 254 dentists;
- 401 patients.

Observation Units:

- Dentist

Subject of the Study:

- Lifestyle characteristics,
- Quality of life,
- Level of professional burnout and job satisfaction of dentists.

Research Methods:

- Sociological method.
- Qualitative method (in-depth interviews).
- Statistical method.
- Expert assessment method.

Study Limitations

- Geographical: Results were obtained only for Almaty city and the surrounding region, limiting their representativeness for all of Kazakhstan.

- Study Design: The cross-sectional nature of the study does not allow for establishing causal relationships between the factors studied.

- Methodological: Predominantly subjective assessment methods, possible sample selectivity.

- Time Limits: Lack of long-term monitoring of quality of life indicators.

Scientific Novelty.

This study represents the first comprehensive mixed-methods study examining the relationship between dentists' quality of life and the effectiveness of dental care.

A multifaceted questionnaire, adapted to the specifics of dental practice in Kazakhstan, was developed and validated. It covers key parameters of quality of life, professional burnout, and factors affecting dentists' work activities. It complements internationally recognized scales (SF-36 for assessing quality of life, HLQ for assessing health and literacy) with sections that reflect the specifics of dentists' work. The study identified key professional, organizational, and psychosocial determinants

that significantly affect dentists' quality of life and burnout. These results enable us to substantiate and develop targeted interventions to improve professional performance and optimize working conditions.

Original empirical data were obtained on the relationship between dentists' quality-of-life assessments and patient satisfaction with dental services, thereby complementing existing understanding of the role of subjective factors in shaping the quality of medical care in this area.

Practical recommendations were developed and proposed, along with a model for a comprehensive support system for dentists to improve their quality of life and enhance standards of dental care. These approaches can be integrated into healthcare management processes and the human resources strategy of medical organizations.

Practical significance:

The study's results enable healthcare organizations in Almaty and other regions of Kazakhstan to implement comprehensive measures to improve dentists' working conditions.

These findings enable the adaptation of best international practices for supporting dentists (rehabilitation programs, peer support systems, ergonomic solutions) to the conditions of Kazakhstan's healthcare system, taking into account cultural, economic, and organizational factors.

The key factors influencing dentists' quality of life identified in the study enable dental organization managers and healthcare authorities to develop targeted staff support programs to improve working conditions.

The results, reflecting the relationship between quality-of-life indicators for specialists and patient satisfaction, can inform improvements in the organization of dental care, thereby enhancing its quality and ensuring the safety of medical services.

Practical recommendations derived from the study can inform strategies to enhance the effectiveness of dental care and improve management decisions in the healthcare sector.

Key points to be defended:

1. The dentist's quality of life is a significant factor in the effectiveness of dental care, manifested through the process characteristics of the doctor-patient interaction.

2. It has been established that organizational and psychosocial factors of the professional environment (working time management, working conditions, stress) are key, primarily controllable, determinants of dentists' quality of life.

3. In a highly staffed dental service, patient satisfaction is determined primarily by the process characteristics of care delivery, primarily the quality of the doctor's attitude and engagement, and not just the material and technical equipment.

4. The developed intervention programs confirm the feasibility of implementation without compromising performance indicators. These measures help reduce professional burnout and improve the effectiveness of dental care.

Description of the main research results

The study resulted in new scientifically based data characterizing the quality of life, working conditions, lifestyle and burnout levels of dentists, as well as their

relationship with patients' subjective satisfaction with dental care.

1. A documentary-analytical and sociological approach was used to analyze the current state of dental care in the Republic of Kazakhstan, including the collection, systematization and interpretation of quantitative and qualitative data. This stage of the study was aimed at a comprehensive assessment of the current state of dental care in the Republic of Kazakhstan, including staffing, organizational aspects, accessibility and effectiveness of dental services. A substantive analysis of regulatory documents of the Republic of Kazakhstan was used, including the Labor Code of the Republic of Kazakhstan, orders and sanitary regulations regulating the labor safety of healthcare workers, as well as industry standards related to the working conditions of dentists. The study was conducted using a descriptive method, which included the collection, systematization and analysis of secondary data from open sources, regulations and scientific publications. The sources of information included official statistics of the National Bureau of Statistics of the Republic of Kazakhstan (2020-2024) and statistical collections of the Ministry of Health of the Republic of Kazakhstan (2014-2023).

A quantitative analysis of statistical data was conducted on the following: the number of dentists per 10,000 population by region; equipment availability and service accessibility; and patient visit dynamics and satisfaction. A comparative regional analysis compares indicators between regions and cities of the Republic of Kazakhstan.

The state system ensures priority access to dental care for socially vulnerable citizens, which is consistent with the principles of social justice and equal access enshrined in the Code of the Republic of Kazakhstan "On Public Health and the Healthcare System." The current model promotes the strengthening of preventive healthcare.

An analysis of initial dental visits for 2014–2024 revealed uneven trends. Overall, the number of visits to dentists among adults has declined nationwide (from 10.5 to 5.8 per 100 people), while among children aged 0–14, the rate has decreased slightly (from 33.3 to 32.7 per 100 people). Contrasts were identified at the regional level: a significant decline in large cities and several regions, while visits to the dentist increased in the Aktobe, Atyrau, Karaganda, and East Kazakhstan regions.

The coverage rate for dental sanitation reflects the effectiveness of preventive measures. From 2014 to 2024, minimal growth was observed: among adults aged 15-17 and older, it increased from 60.0% to 62.1%; among children aged 0-14, it increased from 55.0% to 55.4%. Regional data show high variability, with significant increases in Astana, Almaty, Atyrau, and Kyzylorda and declines in the Karaganda, Zhambyl, and Mangystau regions.

At the end of 2024, the number of dentists was 5,213, an 8.3% increase from 2014. However, regional dynamics are characterized by significant fluctuations: the largest resources are concentrated in Almaty, Astana, and Shymkent; a decline is observed in the Karaganda and East Kazakhstan regions; rural areas are experiencing an acute shortage of specialists, particularly in Akmola, Aktobe, and Ulytau regions.

The density of dentists in cities is 3.5 per 10,000 people, while in rural areas it

is only 1.0, which is 3.5 times lower than in cities. A comparison with EU indicators (Germany: 8.3; France: 6.5; Poland: 5.8; South Korea: 6.1) indicates that Kazakhstan lags significantly behind international standards.

A content analysis of Kazakhstani legislation regulating occupational safety and health for healthcare workers, including dentists, revealed several shortcomings: dentists are not identified as a separate category, taking into account specific risks; there is a lack of monitoring of compliance with regulations and an assessment of their effectiveness; measures to prevent psycho-emotional burnout are insufficiently regulated; and there are no national programs for the mental and physical health of healthcare workers similar to European and Canadian models.

2. To study the level and characteristics of quality of life of dentists working in Almaty, an anonymous survey of dentists was conducted using validated questionnaires and a quantitative and qualitative approach to data collection. The study is cross-sectional, descriptive, and analytical.

To comprehensively assess quality of life and related factors among dentists, standardized and validated instruments, as well as an author-developed questionnaire, were used. The use of multiple methods enabled us to address both objective and subjective aspects of respondents' physical, mental, and social well-being. The questionnaire underwent expert validation with specialists in dentistry, public health, and psychology, as well as pilot testing to refine its wording and assess internal consistency. It became an important tool for comprehensively assessing dentists' working conditions and identifying priority areas for intervention.

The study included 254 dentists working in dental clinics in Almaty. The sample size of dentists ($n=254$) was calculated based on the total number of specialists in Almaty ($n=158$) and the Almaty region ($n=96$), at a 95% confidence level and a 5% margin of error, representing 23% of the total population. The sample was drawn using multistage stratified sampling, maintaining proportions by facility type, physician specialty, and geographic location. The sample structure was verified for consistency with official statistical data ($\chi^2 = 2.34$, $p > 0.05$). An analysis of lifestyle survey data revealed that 34.6% ($n=88$) of respondents slept well (enough sleep (7–8 hours) per night), 42.6% ($n=108$) slept 5–6 hours, and 22.8% ($n=58$) slept less than 5 hours. The study found that only 29.5% ($n=75$) of dentists ate regularly and at set times (three times a day). Only 28.3% of participants ($n=72$) exercised regularly, and 30.7% ($n=78$) did not engage in any physical activity.

More than half of respondents—54.7% ($n=139$)—had smoked in the past, and 24.0% ($n=61$) were current smokers. A majority of one-third of respondents, 39% ($n=99$), regularly consume alcohol. Only 26.4% of respondents ($n=67$) had never consumed alcohol.

23.4% of respondents ($n=30$) reported very low pay, 59.4% ($n=76$) reported low pay, and 17.2% ($n=22$) reported it as sufficient. 27.3% of dentists ($n=35$) indicated they were fully realizing their professional potential, while the majority—68.75% ($n=88$)—reported they were only partially realizing it.

Satisfaction with their professional activities was reported by 43.75% of respondents (n=56), and no significant associations were found with gender, age, qualification category, part-time employment, or place of work.

An analysis of the relationship between quality of life and workload revealed that professionals working more than 40 hours per week experienced deterioration in overall health, role-based physical and social functioning, and vitality (Table 14). The length of the workweek has a statistically significant impact on all components of quality of life, including general and mental health. Decreases in scores for the "General Perception of Health," "Role-Based Emotional Functioning," "Pain Intensity," "Vitality," and "Mental Health" scales are also observed.

Physicians who worked more than 40 hours per week scored the lowest on mental health (mean = 52.80), followed by social functioning (mean = 58.42). The highest score in this group was for pain intensity (mean = 70.56). Across all subscales, participants who worked up to 40 hours per week scored the highest on role physical functions (mean = 80.71) and the lowest on role emotional functions (mean = 62.11). Dentists with more than 20 years of experience scored the lowest in all domains compared to physicians with less experience (Table 15). The lowest score was for mental health (mean = 51.81), followed by vitality (mean = 54.24). The highest scores were among physicians with up to 5 years of experience. For the General Health Perception domain, the mean score was 89.41, followed by Social Functioning at 85.21. The lowest score in this group was in the Vitality domain (mean = 71.30).

To assess the relationship between quality of life and dentists' professional effectiveness, a comparative and associative analysis of quality-of-life indicators was conducted using satisfaction with professional activity and a subjective assessment of the realization of professional potential. Self-assessments of job satisfaction and professional fulfillment, reflecting physicians' perceptions of their effectiveness and stability in the professional environment, were considered indicators of professional effectiveness.

It was found that in the absence of unfavorable factors in the professional environment (low salary, high workload, conflicts with patients and within the team), satisfaction with professional activity was reported by 75.8% of dentists. In the presence of one or more unfavorable factors, this figure dropped to 23.4% ($p < 0.001$). This indicates a close relationship between organizational and psychosocial working conditions and dentists' professional well-being. Full realization of professional potential was significantly more common among physicians who were satisfied with their professional activities (27.3%) than among those who were dissatisfied or partially satisfied ($p = 0.018$). In contrast, partial realization of professional potential was more common among dentists dissatisfied with their professional activities (68.8%; $p = 0.021$), demonstrating a relationship between subjective professional self-realization and overall assessment of work activity.

According to the survey data, 43.75% of respondents (n = 56) expressed satisfaction with their professional activities, while more than half indicated partial or low satisfaction with their work. Only 27.3% of dentists (n = 35) reported full realization of their professional potential, while the majority of respondents

(68.75%; n = 88) reported partial realization. A comparative analysis revealed that dentists who were satisfied with their professional work had significantly higher quality-of-life scores on the SF-36 questionnaire than physicians who reported dissatisfaction with their working conditions. The most pronounced differences were observed for the mental health, vitality, and social functioning scales ($p < 0.05$).

A particularly strong association was found between quality of life and the presence of factors that hinder effective professional performance. Among dentists who reported no factors negatively affecting their work, satisfaction with their working conditions was 75.8% (n = 97), whereas among physicians who reported one or more unfavorable factors, this figure dropped to 23.4% ($p < 0.001$). Respondents cited low wages (82.8%), high workload (74.2%), and conflicts with patients (50.0%) as the most significant factors contributing to professional dissatisfaction. These factors were accompanied by declines in quality-of-life indicators, particularly in the domains of mental health and vitality, indicating the influence of organizational and psychosocial working conditions on dentists' subjective well-being.

A qualitative analysis of in-depth semi-structured interviews provided a deeper understanding of dentists' subjective perceptions of their working conditions and lifestyle. Key themes emerged, including a lack of work-life balance, social isolation, emotional exhaustion, and a sense of professional instability. Respondents emphasized a direct link among chronic fatigue, reduced empathy toward patients, and deteriorating professional well-being.

3. To study patient satisfaction with dental care and identify factors influencing perceptions of dentists' performance in dental practices in Almaty, a quantitative cross-sectional survey was conducted using a standardized questionnaire. A self-administered questionnaire, available in both paper and electronic formats, included closed-ended questions and rating scales.

The study utilized the standardized and validated SERVQUAL questionnaire. This instrument is among the most widely used international approaches for assessing service quality and is based on the concept of identifying the gap between patient expectations and their actual perceptions of the care received. SERVQUAL has been successfully adapted to the needs of healthcare and dentistry, as evidenced by recent research, including published data.

The total sample size consisted of 401 respondents. Participants were 18 years of age and older. Inclusion criteria for patients in the sample were: age 18 and receipt of dental care. Exclusions included emergency visits and inability to complete the questionnaire.

An analysis of the data revealed that average satisfaction scores for the characteristics examined ranged from 3.76 to 4.75. The overall patient satisfaction score for dental care was 4.39 ± 0.51 , indicating predominantly high satisfaction, ranging from satisfactory to good. This result is confirmed by the fact that the overwhelming majority of respondents expressed a willingness to recommend the clinic to their friends and/or relatives in need of dental care. However, the lowest level of satisfaction was recorded for the cost of dental services (3.76 ± 0.80 points),

indicating that the affordability of dental care remains a concern for some respondents.

These data demonstrate a high level of patient satisfaction with dental care in Almaty (an average of 4.38 ± 0.58 points on the Likert scale), despite the high level of professional burnout among dentists registered in the country (up to 68%).

In-depth interviews with patients revealed that key determinants of the effectiveness of dental care include dentists' professionalism, staff comfort and attentiveness, and the ease of service organization. Psychological factors and the quality of communication significantly influence perceptions of treatment and patient satisfaction. The data obtained will help further improve the quality of dental care by increasing service transparency, streamlining the appointment process, and enhancing patient support.

4. To quantitatively assess the impact of dentists' quality of life on their professional performance, as measured by subjective patient satisfaction, a regression analysis was conducted using empirical data collected in a cross-sectional study.

This approach is theoretically justified within both the healthcare quality management system and the patient-centered care paradigm, where the professional well-being of medical personnel is recognized as a factor in service quality.

A simple linear regression model was used to quantify the relationship between physician quality-of-life indicators (assessed using the SF-36) and the average patient satisfaction score (on a 1-5 scale).

The aggregated data were categorized into five quality-of-life levels (ranging from "very low" to "very high"). For each level, the average SF-36 score and the corresponding average patient satisfaction score were calculated from the survey data ($n = 401$).

The dependent variable (Y) was the integrated patient satisfaction index, calculated as the arithmetic mean of the nine survey scale parameters (1-5). The main explanatory variable (X) was the SF-36 total score (0–100), reflecting the dentist's quality of life. To construct a descriptive regression model, the aggregated data were distributed across five categorical levels of quality of life (from "very low" to "very high"): for each category, the mean SF-36 and the corresponding mean patient satisfaction score were calculated (a total of 5 aggregated points; original individual data: $n_{\text{patients}} = 401$, $n_{\text{doctors}} = 254$).

5. Based on the results of a comprehensive study, including a quantitative survey of dentists and a qualitative analysis of their professional conditions, a system of practical recommendations was developed aimed at improving the quality of life of dentists as a factor in enhancing the effectiveness of dental care for the population.

The developed recommendations are based on the integration of organizational, ergonomic, and psychosocial interventions and were partially tested in dental clinics in Almaty. During the pilot implementation, a decrease in subjective fatigue among dentists, a reduction in the frequency of complaints of pain in the cervical, shoulder, and lumbar regions, and an increase in satisfaction with their professional activities were recorded, without deteriorating the accessibility and quality of dental care.

Patient satisfaction with the quality of treatment remained high, indicating that improving dentists' working conditions does not reduce, but potentially enhances, the effectiveness of dental care. The results obtained confirm the practical significance of the proposed recommendation system and justify its implementation in dental organizations to improve staff sustainability and the quality of medical services.

Our study led to the following **conclusions**:

1. An analysis of the current state of dental care in the Republic of Kazakhstan revealed significant structural imbalances in the availability of dental personnel, accessibility of services, and the even distribution of specialists across regions and types of settlements. Despite an increase in the total number of dentists from 4,812 in 2014 to 5,213 in 2024 (an increase of +8.3% from 2014 to 2024), the urban/rural imbalance confirms the strong centralization of resources in megacities. In 2024, the availability of dentists was 3.5 per 10,000 population in cities and only 1.0 per 10,000 in rural areas. A decline in initial visits among adults (-44.8% nationally) indicates barriers to access and insufficient preventive care. 2. A study examining the lifestyle and quality of life of dentists revealed lifestyle violations: 34.6% of respondents sleep the recommended 7-8 hours, while 65.4% do not sleep enough (5-6 hours – 42.6%; less than 5 hours – 22.8%). Only 29.5% of dentists maintain a regular balanced diet, while 22.1% eat an irregular and unbalanced diet. Almost one in three (30.7%) individuals do not engage in any physical activity, and only 28.3% meet the WHO minimum recommendations. 24.0% continue to smoke, and 39% currently consume alcohol.

Dentists working more than 40 hours per week show a statistically significant decrease in all key domains of the SF-36: physical functioning: 70 vs. 78 ($p=0.032$); Role physical functioning: 68 vs. 75 ($p=0.041$); energy: 58 vs. 65 ($p=0.018$); mental health: 65 vs. 72 ($p=0.027$); social functioning: 70 vs. 76 ($p=0.039$). The "pain intensity" domain dropped sharply to 60.18 points among dentists with more than 20 years of experience, compared to 78.21 points among those with ≤ 5 years of experience. Lower back and neck pain were reported by more than 70% of dentists.

3. Patients were more likely to express dissatisfaction in clinics with high staff turnover and low physician engagement. A survey of 401 patients revealed a high level of satisfaction with dental care: the overall score was 4.39 ± 0.51 points, with the highest scores for physician attitude (4.75 ± 0.49) and the lowest for cost of services (3.76 ± 0.80). A qualitative analysis of 18 in-depth interviews confirmed that the key factors in satisfaction are the physician's professionalism, engagement, and communication. Patients also reported signs of burnout among their dentists, which reduces the quality of interactions and underscores the importance of the dentist's emotional state in determining the quality of care.

4. A regression analysis revealed a positive relationship between physician quality of life indicators (SF-36) and average subjective patient satisfaction. An aggregated analysis based on five quality-of-life levels yielded a linear relationship, indicating that a 10-point increase in the SF-36 total score was associated with an approximately 0.23-point increase in average patient satisfaction. The model demonstrated a high degree of fit ($R^2 = 0.994$; $p < 0.001$), indicating a clear trend

toward higher patient ratings as the quality of life among medical personnel improved.

5. The developed set of recommendations for improving the quality of life of dentists includes organizational, psychosocial, and managerial measures. As part of the pilot project (in four Almaty clinics), micro-breaks and incentives for quitting multiple jobs were introduced, resulting in a 38% reduction in back pain complaints and a 17% reduction in burnout.

Work validation:

The main results, propositions, conclusions, and findings of the work are presented in publications. Four scientific papers have been published on the topic of the dissertation research, including:

- One article in an international scientific journal included in the Scopus database with a 77th percentile for 2024;
- Three articles in publications recommended by the Committee for Quality Control in Education and Science of the Ministry of Science and Higher Education of the Republic of Kazakhstan.

Implementation of research results.

The results of the study were applied in four dental clinics in Almaty (Dento Kids, MK Clinic, Nanodent, and Vita Dens and K), where recommendations were implemented to improve the working conditions of dentists, aimed at improving the quality of life of dentists and increasing the effectiveness of dental care for the population.

Author's Contribution.

The author's contribution lies in formulating the study's goals and objectives. As part of this dissertation, the author independently collected and processed primary data, including organizing and administering patient surveys at dental clinics in Almaty and conducting in-depth interviews with dentists.

The author developed and validated questionnaires and interview guides, pilot-tested them, and made necessary adjustments to improve data collection quality.

The author conducted statistical and qualitative analyses of the data using specialized software, interpreted the results, and formulated key conclusions and recommendations.

Based on the study's findings, the author developed proposals to improve dentists' working conditions and enhance the quality of dental care. These proposals have practical implications for healthcare in Almaty.

Scope and structure of the dissertation.

The dissertation comprises an introduction, 5 sections, a conclusion, findings, practical recommendations, and a bibliography with 167 references.

The dissertation is presented on 124 typewritten pages, illustrated with 26 tables and 4 figures, and contains 4 appendices.