

Evaluation of Knowledge Levels and Awareness of Dentists Working in Sivas Province about Ergonomics

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ABSTRACT

Aim: Dentists are among the occupational workers at ergonomic risk. Musculoskeletal system diseases constitute the largest class of occupational injuries that occur when ergonomic rules are not followed and the prevalence is high in dentists. Appropriate working posture is the starting point in the prevention of damages. If dentists are aware of this issue, the profession can be continued in a healthy way for many years.

Materials and Methods: The aim of this structured questionnaire study was to determine the awareness of ergonomics in 103 dentists working in the centre of Sivas province and to determine their level of knowledge about occupational diseases that may occur when ergonomic conditions are not complied with and to raise awareness. The questionnaire consists of demographic information, awareness, risk factors and Nordic musculoskeletal questionnaire (NMQ). IBM SPSS 23® programme was used for statistical analysis.

Results: 96.1% of dentists stated that they knew occupational ergonomics and 94.2% knew the correct working position. However, 68.9% reported that they worked in the same position for a long time and 52.4% reported that they did not do stretching or breathing exercises. NMQ results were found to be statistically significantly different according to gender and place of work ($p<0.05$). A statistically significant positive correlation was found between NMQ and awareness section ($p<0.05$). Age and body mass index values were found to have no statistically significant effect on NMQ ($p>0.05$).

Conclusion: Our study revealed that dentists working in Sivas province have insufficient awareness of ergonomic working conditions and occupational musculoskeletal disorders.

Sivas İlinde Görev Yapan Diş Hekimlerinin Ergonomi Hakkında Bilgi Düzeylerinin ve Farkındalıklarının Değerlendirilmesi

Makale Bilgisi

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ÖZET

Amaç: Diş hekimleri ergonomik olarak risk altındaki meslek çalışanları arasındadır. Ergonomik kurallara uygun olmayan çalışmalar sonucunda oluşan mesleki hasarların en büyük sınıfını kas ve iskelet sistemi hastalıkları oluşturmaktadır ve bu hastalıkların diş hekimlerinde prevalansı oldukça yüksektir. Uygun çalışma duruşu, hasarların önlenmesinde başlangıç noktasıdır. Bu konuda diş hekimlerinin kişisel farkındalığı olduğu takdirde meslek uzun yıllar sağlıklı bir şekilde sürdürülebilmektedir.

Gereç ve Yöntemler: Bu yapılandırılmış anket çalışmasının amacı; Sivas ili merkezinde çalışan 103 diş hekiminde ergonomi bilincini ve ergonomik koşullara uyulmadığında oluşabilecek mesleki hastalıklara ilişkin bilgi düzeylerini belirlemek ve farkındalık oluşturmaktır. Anket formu demografik bilgiler, farkındalık bölümü, risk faktörleri bölümü ve İskandinav kas-iskelet sistemi anketi (İKİSA) bölümünden oluşmaktadır. Verilerin istatistiksel analizinde IBM SPSS 23® programı kullanılmıştır.

Bulgular: Diş hekimlerinin %96,1'i mesleki ergonomi hakkında bilgisi olduğunu, %94,2'si doğru çalışma pozisyonunu bildiğini belirtmiştir. Ancak %68,9'u uzun süre aynı pozisyonda çalıştığını ve %52,4'ü hastalar arasındaki zamanlarında esneme veya nefes egzersizi yapmadıklarını bildirmiştir. İKİSA sonuçları, cinsiyete ve görev yapılan yere göre istatistiksel olarak anlamlı farklı bulunmuştur ($p<0,05$). İKİSA ile farkındalık bölümü arasında istatistiksel olarak anlamlı pozitif korelasyon belirlenmiştir ($r=0,201$, $p=0,042$). Yaş ve vücut kitle indeksi değerlerinin İKİSA üzerine istatistiksel olarak anlamlı bir etkisi olmadığı bulunmuştur ($p>0,05$).

Sonuç: Çalışmamız Sivas ilinde görev yapan diş hekimlerinin ergonomik çalışma koşulları ve mesleki kas ve iskelet sistemi hastalıklarına karşı farkındalıklarının yetersiz olduğunu ortaya koymuştur.

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INTRODUCTION

With the realisation of the link between safety at work and productivity, the search began for a discipline to study the relationship between man and his working environment. This is how the science of ergonomics, which studies the relationship between man, work and the environment, came into being. Ergonomics is the discipline of designing the working and living environment in accordance with human characteristics, or "the scientific study of the relationship between man and his workplace and environment".¹ The science of ergonomics, which is at the heart of occupational health and safety, is related to various branches of science and covers a wide range of applications.

Rehabilitation specialists state that the profession of dentistry necessarily requires frequent and prolonged mechanical stress.² Dentists have many risks that may cause occupational diseases because they perform repetitive and forceful movements in a narrow and localised working area, use high-precision technical instruments that cause mechanical stress in the musculoskeletal system, and stand in a certain position continuously.³ Furthermore, the profession of dentistry is inherently stressful, requiring the practitioner to pay close attention to detail and maintain concentration throughout the course of their duties. This can result in dentists neglecting their own health and well-being, leading to a tendency to prioritise the maintenance of their patients' dental health.

The provision of ergonomic working conditions serves to establish a harmonious relationship between the employee and their work, protects the physical and psychological health of the employee, reduces work-related stress, and reduces the risk of occupational accidents and occupational diseases. The implementation of ergonomic working

conditions enhances the quality of work, ensures the safety and health of employees, and creates a comfortable and productive work environment. These factors collectively contribute to enhanced work efficiency and performance.⁴ In the field of dentistry, ergonomics is the science of designing devices, machines, equipment and environments in a way that optimises the efficiency and safety of the physician. The key principle is to ensure that the physician can adopt the correct working posture. In addition, ergonomic measures are employed to enhance the effectiveness of the physician in their use of devices, machines, equipment and environments, thereby improving the standard of treatment and protecting the health of both the physician and the patient.

The musculoskeletal system constitutes the largest class of occupational injuries resulting from the disregard of ergonomic rules and non-ergonomic work.⁵ Dental practices may result in muscular imbalances, neuromuscular limitations, pain and dysfunction due to cumulative microtrauma and non-ergonomic work.⁶ Even in the most optimal work positions, dentists are required to maintain a posture in which over 50% of their muscles are engaged to resist gravity, which may result in prolonged, repetitive muscle contractions.⁷ The prevalence of musculoskeletal disorders (MSDs) in oral health workers is estimated to range from 62% to 93%.⁸ Although there is a wide variety of CMDs defined in the literature, the most commonly observed in dentists are carpal tunnel syndrome, shoulder and low back pain.⁹ The most common symptoms of MSDs include painful joints, pain in the wrists, shoulders, elbows and knees, pain, tingling and numbness in the hands or feet, neck and back pain, swelling or inflammation, and weakness in the hands.

These occupational illnesses are regarded as a significant public health concern in numerous developed nations, accounting for one-third of the reasons for leaving work due to health issues.¹⁰ Musculoskeletal system disorders represent the primary cause of both temporary and permanent work incapacity, resulting in human resource shortages and financial expenditures. They are also a significant factor contributing to the early retirement of dentists.^{11,12} When the general and occupational health of dentists is analysed, musculoskeletal system diseases are an important health problem, with a significant number of cases leading to medical reports and retirement from the profession.¹³ A study conducted in our country revealed that health problems arising over time were the most unfavourable aspect of the profession, with a rate of 43%.¹⁴ The economic impact of musculoskeletal system diseases caused by ergonomic risks is significant, with high treatment costs and loss of work resulting in considerable financial strain.

In light of the aforementioned information, a study was conducted among 103 dentists working in the centre of Sivas province. This was due to the fact that their knowledge and awareness levels regarding ergonomics and occupational diseases that may occur in the event of non-compliance with ergonomic conditions were deemed to be insufficiently developed.

MATERIALS AND METHODS

The sample size was calculated with a 95% confidence level in accordance with the methodology summarised in 2001. It was determined that data should be collected from at least 101 individuals.¹⁵ This structured questionnaire study was conducted in 103 dentists working in the centre of Sivas province to ascertain their awareness of ergonomics and the extent of their knowledge

about occupational diseases that may result from non-compliance with ergonomic conditions. Furthermore, the study aimed to raise awareness about the importance of ergonomics in dentistry. The study was conducted in accordance with the ethical principles set forth in the Declaration of Helsinki and was approved by the Sivas Cumhuriyet University Clinical Research Ethics Committee (21.12.2023; 2023-12/48). All physicians were provided with comprehensive information regarding the objectives and methodology of the study. Prior to the commencement of the study, each participant was provided with an informed consent form, which was accepted by the ethics committee.

The study included all dentists aged 24 to 64 years who were actively engaged in their profession. Individuals who had undergone musculoskeletal surgery, were pregnant or lactating, had rheumatic, neuromuscular or genetic muscle and bone diseases, or who did not wish to participate in the study were excluded from the study.

A structured questionnaire was administered to the participants by a dentist, who has five years of dental expertise, through a face-to-face interview. The questionnaire comprised four sections: demographic information, awareness section, risk factors section, and a section on the Nordic musculoskeletal system (Figure 1, 2 and 3). The first three sections were derived from a comprehensive literature review. In the demographic information section, data on age, gender, place of work, years of active work, daily working hours, educational status, height, weight, chronic disease status, smoking and alcohol use status were recorded. In the awareness section, data on ergonomics, occupational diseases, correct working position and environment were recorded. In the risk factors section, data pertaining to physical working conditions, psychosocial factors and exercise were

recorded.

Figure 1: The structured questionnaire form for the awareness section

1- Do you have information on ergonomics in the dental profession?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
2- Do you know the working position according to the watch dial?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
3- Are you aware of the occupational diseases specific to the dental profession?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
4- Do you have information on the most common musculoskeletal disorders in dentistry?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
5- Are you familiar with four-handed dentistry?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
6- Do you know the correct physician working posture?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
	Never	Rarely	Mostly	Always
7- Does ergonomic work affect fatigue and work stress?				
8- Does ergonomic work affect accidents at work and occupational diseases?				
9- Does ergonomics affect work efficiency and performance?				
10- Are ergonomic conditions influenced by the anthropometric characteristics of the individual?				

Figure 2: The structured questionnaire form for the risk factors section

	Never	Rarely	Mostly	Always
1- I treat patients while standing.				
2- I work under intense stress				
3- I work in the same position for a long time				
4- I exercise regularly.				
5- My rest time between patients is sufficient.				
6- I do stretches/breathing exercises between patients.				
7- Noise and vibration of the equipment used affect my comfort at work.				
8- Psychosocial factors affect my working conditions.				
9- The time allocated to a patient is appropriate for my treatment.				
10- I work with auxiliary staff.				

Figure 3: Nordic Musculoskeletal Questionnaire (NMQ)*

Have you at any time during the last 12 months had trouble (ache, pain, discomfort, numbness) in:	Have you at any time during the last 12 months been prevented from doing your normal work (at home or away from home) because of the trouble?	Have you had trouble at any time during the last 7 days?
Neck <input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
Shoulders <input type="checkbox"/> No <input type="checkbox"/> Yes, right shoulder <input type="checkbox"/> Yes, left shoulder <input type="checkbox"/> Yes, both shoulders	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
Elbows <input type="checkbox"/> No <input type="checkbox"/> Yes, right elbow <input type="checkbox"/> Yes, left elbow <input type="checkbox"/> Yes, both elbows	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
Wrists/Hands <input type="checkbox"/> No <input type="checkbox"/> Yes, right wrist/hand <input type="checkbox"/> Yes, left wrist/hand <input type="checkbox"/> Yes, both wrists/hands	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
Upper Back <input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
Lower Back (small of back) <input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
One or Both Hips/Thighs <input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
One or Both Knees <input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes
One or Both Ankles/Feet <input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes	<input type="checkbox"/> No <input type="checkbox"/> Yes

In the Nordic musculoskeletal section, data were collected on musculoskeletal complaints in the previous seven days and the previous 12 months. This section constitutes a component of the Standardised Nordic Musculoskeletal Questionnaire (NMQ), which was first introduced to the literature in 1987.¹⁶ The NMQ assesses general musculoskeletal complaints over the past 12 months and seven days in nine specific symptom areas using standardised questions. The NMQ is completed by self-administration or personal interview, which provides reliable information.

Statistical Analysis

The IBM SPSS 23® (IBM Corp., 2012) computer programme was employed for the purposes of this study. Descriptive statistical methods were used to calculate mean, percentage distribution and standard

deviation values. The normality of distribution was tested by means of the Kolmogorov-Smirnov test. Given that the data did not exhibit a normal distribution, Mann-Whitney U and Kruskal-Wallis tests were employed to ascertain the significance of the values obtained, with a p-value of less than 0.05 considered to be statistically significant. Logistic regression analyses were conducted to identify potential NMQ risk factors.

RESULTS

In the general reliability analysis of the study, the Cronbach alpha coefficient was determined to be 0.775, thereby establishing the reliability of the study's results. In our study, 65 (63.1%) of 103 participants were female, 38 (36.9%) were male, and the mean age was 31.3 ± 5.16 years. The mean BMI of the participants was 24 ± 3.88. The majority

of dentists who participated in our study (85.4%) were employed in the public sector, while 30% were specialists. The majority of dentists (65%) work between six and eight hours per day, while 93.2% do not suffer from any chronic diseases. The data on the demographic characteristics of the participants are presented in Table 1. The data on the daily working hours and years of active work are presented in Table 2.

Table 1: Demographic information of participants

Demographic Information	
Average Age	31.3
BMI Mean	24
Percentage of Female Participants	% 63.1
Participant Working In The Public Sector	% 85.4
Participants Who Do Not Smoke And/Or Drink Alcohol	% 78.6
Specialist dentist	% 30

Table 2: Participants' active working years and daily working hours

Active Working Year	
1-3 Years	%29,1
3-6 Years	% 22,3
6-9 Years	% 13,6
9 Years And Over	% 35
Daily Working Hours	
2-4 Hours	% 1
4-6 Hours	% 5.8
6-8 Hours	% 65
8 Hours And Over	% 28.2

A total of 96.1% of dentists indicated that they possessed knowledge about occupational ergonomics, while 94.2% stated that they were aware of the correct working position (Table 3). Despite these data, 21.4% of the participants indicated that they mostly saw patients standing, and 68.9% of them reported working in the same position for extended periods. Similarly, 52.4% of

dentists reported that they did not perform stretching movements or breathing exercises during the time between patients. A total of 86.4% of the participants reported that they were aware of occupational diseases, 87.4% were aware of working according to the clock dial, 82.5% were aware of the most common musculoskeletal diseases in dentistry, and 85.4% were aware of four-handed dentistry. Furthermore, 43.7% of the participants indicated that ergonomic working conditions are always associated with fatigue and stress, while 30.1% asserted that ergonomics is always linked to occupational accidents and occupational diseases. A total of 35% of the participants indicated that ergonomics is always associated with enhanced work efficiency and performance, while 24.3% reported that anthropometry is always affected by ergonomics.

The Nordic musculoskeletal questionnaire was found to be statistically significantly different according to the place of employment and gender. Those employed in the public sector ($p=0.030$) and women reported a higher prevalence of musculoskeletal system-related complaints ($p=0.031$). It was observed that there was no significant correlation between the active working years of dentists and their awareness of ergonomic work, risk factors and Nordic musculoskeletal questionnaire results ($p>0.05$).

When compared according to educational status, specialised dentists reported that psychosocial factors among the risk factors affected their working status more ($p=0.009$).

As physicians aged, they reported greater familiarity with occupational health and specific diseases associated with particular work schedules ($p=0.046$, 0.016 , 0.019). Furthermore, as the age of the physicians increased, they employed a greater number of auxiliary personnel ($p=0.000$).

Table 3: Participants' answers to the awareness section

	Yes	No		
1- Do you have information on ergonomics in the dental profession?	96.1% (n=99)	3.9% (n=4)		
2- Do you know the working position according to the watch dial?	87.4% (n=90)	12.6% (n=13)		
3- Are you aware of the occupational diseases specific to the dental profession?	86.4% (n=89)	13.6% (n=14)		
4- Do you have information on the most common musculoskeletal disorders in dentistry?	82.5% (n=85)	17.5% (n=18)		
5- Are you familiar with four-handed dentistry?	85.4% (n=88)	14.6% (n=15)		
6- Do you know the correct physician working posture?	94.2% (n=97)	5.8% (n=6)		
	Never	Rarely	Mostly	Always
7- Does ergonomic work affect fatigue and work stress?	0% (n=0)	6.8% (n=7)	49.5% (n=51)	43.7% (n=45)
8- Does ergonomic work affect accidents at work and occupational diseases?	0% (n=0)	9.7% (n=10)	60.2% (n=62)	30.1% (n=31)
9- Does ergonomics affect work efficiency and performance?	1% (n=1)	4.9% (n=5)	59.2% (n=61)	35.0% (n=36)
10- Are ergonomic conditions influenced by the anthropometric characteristics of the individual?	0% (n=0)	12.6% (n=13)	63.1% (n=65)	24.3% (n=25)

As the duration of active work increased, physicians indicated that they possessed greater knowledge of occupation-specific diseases and collaborated more frequently with auxiliary personnel ($p=0.010$, $p=0.001$).

Individuals with a BMI below 18.5 indicated that psychosocial factors had a greater impact on their working status. Physicians who reported an increase in their daily working hours indicated that the noise and vibrations associated with the instruments they used had a negative impact on their working comfort ($p=0.045$).

The results of the NMQ indicated that the majority of physicians reported experiencing neck (85.4%), shoulder (74.8%), back (87.4%), wrist (59.2%) and low back pain (80.6%) in the previous 12 months. Similarly, in the previous seven days, 59.2% of physicians reported experiencing pain in the neck, 50.5% in the shoulder, 57.3% in the back, and 50.5% in the lower back. Nevertheless, the proportion of respondents who reported negative effects on

their ability to perform ordinary work was lower.

A statistically significant positive correlation was observed between age and BMI, as well as between the NMQ and the awareness section ($p < 0.05$).

The results of the linear regression analysis indicated that age and BMI values did not have a statistically significant effect on the NMQ.

DISCUSSION

Ergonomics is a discipline that aims to create a suitable work environment for employees. In the context of dentistry, ergonomics seeks to ensure that dentists adopt the correct working posture and that the equipment and environment are designed in a way that allows dentists to use them most effectively. In the field of dentistry, the successful implementation of ergonomic principles ensures that physicians and their employees perform their duties in a manner that does not compromise their health and physical well-being.³ Moreover, by enhancing treatment standards, productivity and efficiency can be

optimised. The human body is not designed to maintain the same body position for an extended period of time. However, in instances where the working order is not aligned with ergonomic principles, dentists are compelled to adapt to a role that exceeds their physical capabilities. This usually occurs as a result of performing their profession with high concentration, long-term repetitive movements, and uncomfortable posture, and this causes occupational injuries.¹⁷

The NMQ was first introduced to the literature in 1987 and has since been employed in numerous national and international studies. The NMQ assesses musculoskeletal complaints in the back, neck, shoulders, and general areas with standardised questions. The NMQ is a self-administered or self-interviewed questionnaire that provides reliable information about discomforts in the last 12 months and seven days in nine specific symptom areas (feet-ankles, knees, thighs-hip, wrists-hands, waist, elbows, back, shoulders, neck).¹⁶ It has been demonstrated to be a reproducible, sensitive, valid and reliable screening test in studies.¹⁸

The results of the NMQ in our study indicate that the majority of physicians reported experiencing neck, shoulder, back and low back pain in the short and long term. These results are consistent with those of previous studies indicating that dentists are exposed to mechanical stresses in their professional lives and are affected by musculoskeletal system problems due to a lack of application of ergonomic principles.^{2,5} Furthermore, in our study, the complaints of dentists working in the public sector and women were found to be more pronounced according to the NMQ. These results can be explained by the fact that public sector employees have more intensive patient intake than private sector employees, they do not have enough time between patients, the psychosocial risk factors scores of public sector employees are 97% and there are physiological differences between men and women in terms of muscle strength, cardiovascular function,

aerobic work capacity.^{19,20}

The results of our study indicate that dentists possess sufficient knowledge about occupational ergonomics and the correct working position. However, approximately one-quarter of them treated patients while standing, 68.9% of them remained in the same position for extended periods, and 52.4% of them did not perform stretching movements or breathing exercises between patients. These results demonstrate that dentists possess knowledge regarding the subject matter. However, difficulties in implementing this knowledge may be attributed to a number of factors, including insufficient time allocated to dental treatments due to patient density, inadequate intervals between patients to facilitate stretching or breathing exercises for physicians, and clinical infrastructures that are not optimally designed from an ergonomic perspective.

Musculoskeletal disorders represent the primary cause of both short-term and permanent work disabilities, resulting in significant financial expenses due to human shortages and high treatment costs.¹¹ Although there are a number of recommendations for the treatment of musculoskeletal disorders, including exercise, heat application, drug treatments, massage and weight loss, the most important point is that the most ideal treatment is to take precautions before the disease occurs.²¹

The prevention of these damages begins with the adoption of an ergonomically appropriate working posture. During normal conditions, damaged tissues are repaired during rest. However, due to insufficient rest periods, the repairable stage is often passed. It is therefore evident that the personal awareness of dentists is of great importance in this regard. If a balance between work and rest can be established through awareness, ergonomic arrangements can be made in the clinics, regular exercise programmes can be implemented, correct posture and position strategies can be

applied, and appropriate working strategies can be developed. This will result in the prevention of damage, a reduction in cognitive and physical stress, an increase in productivity, quality and comfort, and the continuation of the dentist's profession successfully and healthily for many years.³

In our study, dentists stated that they knew more about occupation-specific diseases and worked with more auxiliary personnel as age and active working time increased. These results can be interpreted as the awareness of dentists about occupation-specific diseases increases with increasing age and active working time and they pay more attention to continue their professional life in this direction.

In our results specialised dentists reported that psychosocial factors affected their working status more. These results are consistent with the fact that a high percentage of specialised dentists are women and with the study which found that women have a higher score of psychosocial risk factors in their working environment than men.¹⁹

In our study, a statistically significant positive correlation was found between the NMQ and the awareness section ($p < 0.05$). These results can be explained as the presence of a musculoskeletal disorder in dentists increases their awareness.

According to the results of regression analysis, it was found that age and BMI values had no statistically significant effect on the NMQ questionnaire. These results can be explained by the fact that the average age and BMI of the dentists participating in the study were not high.

Consequently, dentists must be cognizant of the ergonomic risk factors present in their work areas and implement ergonomic principles accordingly. This entails providing a suitable working environment, equipping the workplace with appropriate equipment, and formulating a

rational work plan and time adjustment. In light of the aforementioned information, the present study sought to ascertain the knowledge and awareness levels of dentists working in the Sivas province regarding ergonomics awareness and occupational diseases that may result from work that is not aligned with ergonomic standards. The findings of this study indicate that dentists residing in Sivas province exhibit a lack of awareness regarding ergonomic work conditions and occupational musculoskeletal diseases. Furthermore, they demonstrate a limited ability to translate this knowledge into practice.

CONCLUSION

It has been established that there is a lack of awareness among dentists with regard to ergonomic working conditions and occupational musculoskeletal disorders. The enhancement of knowledge in this field will facilitate the formulation of recommendations that can be readily implemented in professional practice. Furthermore, it will provide a foundation for future studies on the design and production of ergonomically appropriate materials and equipment.

Ethical Approval

This study has been approved by the Non-Interventional Clinical Research Ethics Committee of Sivas Cumhuriyet University. (Decision No: 2023-12/48 Date: 21.12.2023)

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Conflict of Interest

The authors deny any conflicts of interest related to this study.

Author Contributions

Design: ŞA, AK, Data collection and processing: ŞA, AK Analysis and interpretation: ŞA, Literature review: ŞA, Writing: ŞA.

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