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Original article

Work-Related Musculoskeletal Disorders Among Libyan Dentists

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Abstract
Musculoskeletal disorders are common in dentistry due to repetitive hand movements and sustained static working postures. These conditions often lead to chronic pain and reduced productivity. In Libya, musculoskeletal problems are the most frequently reported occupational health complaint among dentists, yet detailed information, particularly regarding gender and age, is still limited. This study aimed to estimate the prevalence and anatomical distribution of WMSDs among dentists in Western Libya and examine their associations with gender and age. A cross-sectional survey was conducted among 126 dentists employed in public and private clinics. Data were collected using self-administered questionnaires that included demographic and professional characteristics, as well as the Nordic Musculoskeletal Questionnaire. Participants were predominantly female (61.1%) and largely in their early to mid-career years. Over 70% of the participants reported WMSD symptoms in at least one body region in the previous year. The most frequently affected areas were the neck (73.8%), lower back (62.7%), and shoulders (50.0%), followed by the wrists/hands (37.3%) and upper back (34.1%). Neck, lower back, and wrist/hand symptoms prevented normal work in 64.5%, 60.8%, and 61.7% of affected dentists, respectively. Approximately 40%–45% of individuals with neck or lower back pain reported experiencing symptoms in the week preceding their assessment. The overall prevalence did not differ significantly by gender or age, although mid-career dentists reported a greater impact on functional capacity in Western Libya. WMSDs are widespread and frequently persistent, placing substantial strain on dentists and limiting their ability to carry out their professional responsibilities effectively. Most evident in the cervical, lumbar, and upper-extremity regions. The findings underscore the necessity for context-specific ergonomic measures, early preventive education, and ongoing occupational health support to promote healthy practice.
Keywords. Work-Related Musculoskeletal Disorders, Dentistry, Ergonomics, Occupational Health.

Introduction

Work-related musculoskeletal disorders (WMSDs) encompass a range of injuries and chronic conditions that affect the musculoskeletal system, often arising from or exacerbated by occupational exposures [1,2]. They commonly result from repetitive movements, prolonged static postures, awkward working positions, and continuous exposure to mechanical factors such as vibration [1,3]. Dentistry is widely recognized as one of the most ergonomically demanding health professions, requiring fine motor accuracy, sustained concentration, and close visual proximity within a restricted operating field [4,5]. These demands frequently require dentists to maintain fixed or uneven working postures, which in turn substantially increase the risk of developing WMSDs [3,4,5]. Globally, WMSDs represent a substantial occupational health burden among dental professionals, with prevalence estimates ranging from 63% to 93% and a pooled global prevalence of 78.4% [5-7]. The neck, lower back, shoulders, and wrists/hands are the most frequently affected sites [2,8]. Among Western populations, annual prevalence rates of 58.5% for neck pain (NP) and 56.4% for lower back pain (LBP) have been reported, highlighting the biomechanical strain associated with posture, working height, and instrument handling [2]. The consequences of WMSDs extend beyond discomfort; they contribute to reduced job satisfaction, absenteeism, decreased productivity, and, in some cases, early retirement [6].

Evidence from the Middle East and North Africa region remains comparatively limited. The first national survey examining occupational health concerns among Libyan dentists identified musculoskeletal conditions as the most frequently reported problem, with 48.2% of respondents describing musculoskeletal symptoms within the previous year [9]. The study further highlighted notable associations between musculoskeletal complaints and factors such as full-time work, private practice, and prolonged seated postures [9]. Demographic characteristics such as gender, age, and professional experience have been consistently examined in several research studies [3,6,7,10] as potential modifiers of WMSD risk. Worldwide, females are more likely than males to report musculoskeletal symptoms, with an estimated odds ratio of 1.42. This gender disparity is frequently attributed to variations in muscle strength, body composition, and fatigue thresholds [6]. Despite growing international evidence on WMSDs among dental professionals, important gaps remain in the characterization of these conditions within the Libyan context. Comprehensive data describing the anatomical distribution of WMSD symptoms and their relationship with key demographic and occupational variables are scarce. Moreover, previously published studies have not identified significant gender-based differences in musculoskeletal complaints, contrasting with global trends and highlighting the need for updated, systematically collected evidence [9].

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Age and cumulative years of professional practice, often used as proxies for prolonged biomechanical loading, have been consistently associated in the international literature with an increased risk of WMSD, especially in the neck and lower back regions. [7,10]. However, these associations have not been uniformly observed among Libyan dentists. The observed discrepancy warrants a targeted investigation into local practice conditions, ergonomic behaviours, and workload characteristics among Western Libyan dentists. Accordingly, this study was designed to address these existing knowledge gaps by providing a comprehensive evaluation of work-related musculoskeletal disorders among dentists practicing in Western Libya. Given the substantial global burden of WMSDs in the dental profession and the limited scope and inconsistency of available evidence from Libya, there is a clear need for robust, region-specific data to inform both practice and policy. Therefore, the present study seeks to determine the prevalence of WMSDs among dentists in Western Libya and examine their associations with key demographic characteristics, particularly gender and age, thereby contributing empirical evidence to a currently underrepresented context.

Methodology

A cross-sectional study was conducted to assess the prevalence of WMSDs among dental practitioners operating in Western Libya. Dentists from both public and private clinics located between Janzour and Subrata were recruited through convenience sampling during site visits from June 1, 2025, to August 3, 2025. Of the 130 questionnaires distributed, 126 were fully completed and included in the analysis; four were excluded due to substantial missing data. Ethical approval was obtained from the Biosafety and Bioethics Committee (NBC:018.H.24), and every participant signed a consent form.

Data were collected using survey packets that included a demographic questionnaire and the Nordic Musculoskeletal Questionnaire (NMQ). The NMQ is an instrument recognized for its proven reliability and validity in evaluating musculoskeletal symptoms in occupational environments [11].

Statistical analyses were performed using SPSS version 27. Descriptive statistics offered summaries of participant demographics and symptom profiles. The relationships between WMSDs and categorical variables, including gender and age group, were analyzed using Chi-square tests of independence. Independent-samples t-tests were employed for continuous variables where appropriate. A p-value < 0.05 was considered statistically significant.

Results

Participant profile and work patterns

A total of 126 dentists participated in the study, the characteristics of whom are presented in Fig.1 as follows: 61.1% were females and 38.9% were males (a). Most were in early to mid-career, with 29.4% aged 25–30 years and 40.5% aged 31–35 years (b). Over 40% had 1–5 years of clinical experience, and nearly one-third had 6–10 years; only a small minority had been in practice for more than 15 years (c). Workload patterns suggested a moderate, but potentially risky level of clinical demand. The largest subgroup worked three days per week, while relatively few worked all seven days (d). Most treated fewer than 10 patients per day (e). The majority (86.5%) took at least one resting break per day, typically lasting 1–15 minutes (f,g). Almost two-thirds reported working predominantly in a seated position, whereas the remaining primarily worked in a standing position (h).

Prevalence and distribution of WMSDs

Table 1 shows the results. More than 70% of the participants reported musculoskeletal symptoms. These occurred in at least one body region. The timeframe was the past 12 months. The neck was the most common site (73.8%), followed by the lower back (62.7%) and shoulders (50.0%). Wrist and hand symptoms were reported by 37.3%, and elbow symptoms by 19.0%, while upper-back symptoms occurred in 34.1%. Lower-limb issues were less common, with knee pain in 18.3%, ankle and foot symptoms in 23.0%, and hip or thigh discomfort in 10.6%.

Impact on work and symptom persistence

WMSDs had a substantial impact on work performance (Table 2). Among those with neck symptoms, 64.5% reported that their pain had prevented them from performing normal working activities in the previous 12 months. Comparable figures were observed for LBP (60.8%) and wrist/hand symptoms (61.7%). Shoulder and elbow pain limited work in 52.4% and 54.2% of affected dentists, respectively, whereas upper-back pain, though prevalent, restricted work in only 30.2% of those reporting symptoms. Symptom persistence was also notable (Table 3). About 43% of participants with neck symptoms and 45.6% of those with lower-back symptoms reported ongoing complaints during the week preceding the survey, indicating that WMSDs in this study were typically persistent rather than episodic.

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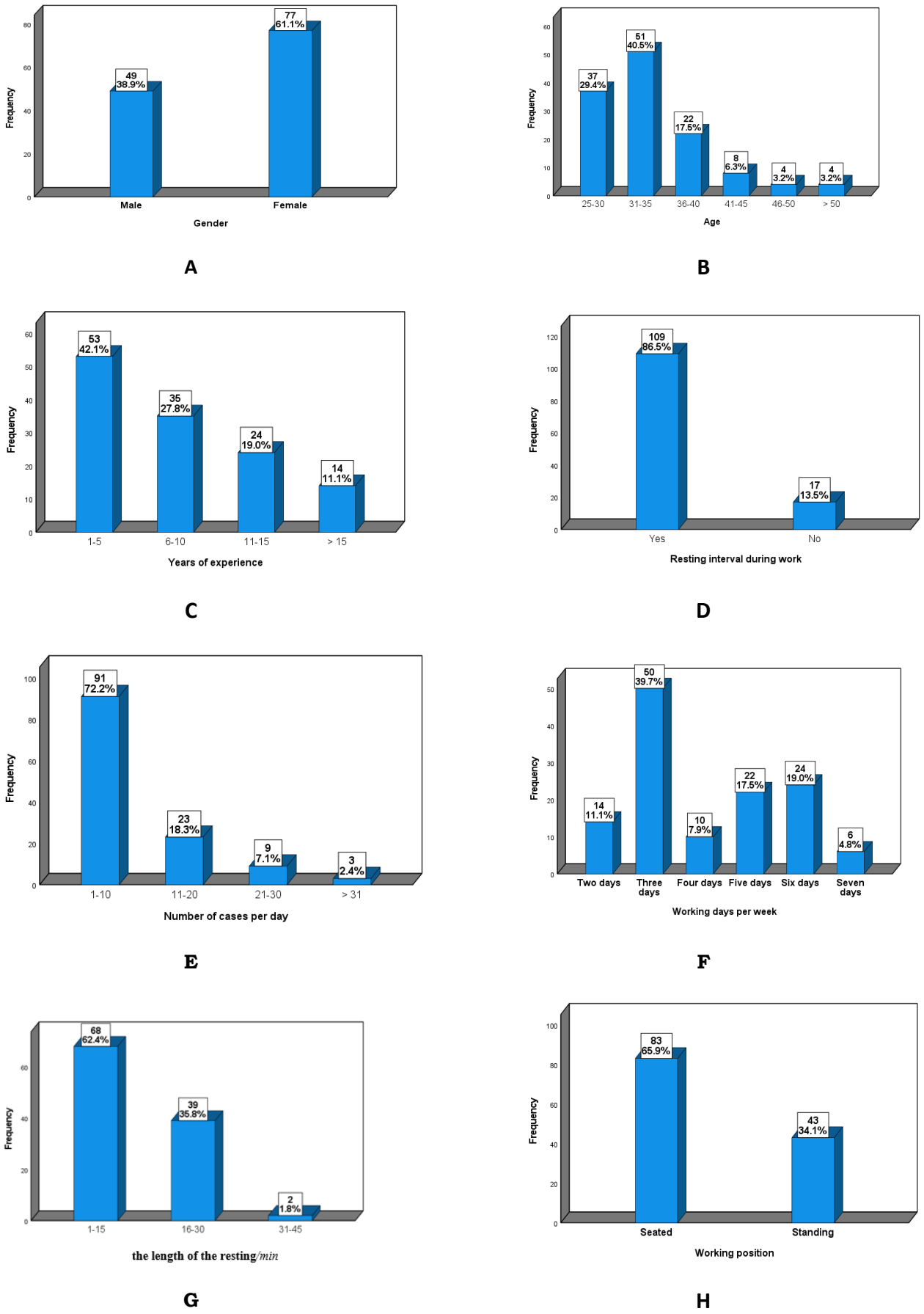

Figure 1: Sample distribution based on a) gender, b) age, c) years of experience, d) working days per week, e) number of cases per day, f) resting interval during work, g) length of resting interval/min, h) working position.

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Table 1. Prevalence of Musculoskeletal Pain by Body Region in the Past 12 Months

Location of Pain	Count	%
Neck		
Yes	93	73.8
No	33	26.8
Shoulder		
Yes	63	50.0
No	63	50.0
Elbows		
Yes	24	19.0
No	102	81.0
Wrists/Hands		
Yes	47	37.3
No	79	62.7
Upper back		
Yes	43	34.1
No	83	65.9
Lower back		
Yes	78	62.7
No	47	37.3
One or both hips/thighs		
Yes	13	10.6
No	113	89.7
One or both knees		
Yes	23	18.3
No	103	81.7
One or both ankles/feet		
Yes	29	23.0
No	97	77.0

Table 2. Impact of Musculoskeletal Pain on Normal Work Activities in the Past 12 Months

Location of Pain	Count	%
Neck		
Yes	60	64.5
No	33	35.5
Shoulder		
Yes	33	52.4
No	30	47.6
Elbows		
Yes	13	54.2
No	11	45.8
Wrists/Hands		
Yes	29	61.7
No	18	38.3
Upper back		
Yes	13	30.2
No	30	69.8
Lower back		
Yes	48	60.8
No	31	39.2
One or both hips/thighs		
Yes	6	46.2
No	7	53.8
One or both knees		
Yes	7	30.4
No	16	69.6
One or both ankles/feet		
Yes	13	44.8
No	16	55.2

Table 3. Prevalence of Musculoskeletal Pain by Body Region in the Past 7 Days

Pain location	Count	%
Neck		
Yes	27	42.9
No	36	57.1
Shoulder		

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Yes	12	50.0
No	12	50.0
Elbows		
Yes	18	38.3
No	29	61.7
Wrists/Hands		
Yes	18	38.3
No	29	61.7
Upper back		
Yes	15	34.9
No	28	65.1
Lower back		
Yes	36	45.6
No	43	54.4
One or both hips/thighs		
Yes	3	23.1
No	10	76.9
One or both knees		
Yes	7	30.4
No	16	69.6
One or both ankles/feet		
Yes	11	37.9
No	18	62.1

Gender and age patterns

In Table 4, gender analysis revealed generally similar 12-month prevalence rates of neck, shoulder, back, and lower limb complaints in both genders. However, female dentists report significantly higher rates of elbow symptoms (p = 0.044). They also report higher wrist/hand symptoms (p = 0.018). Females were also more likely to report work-limiting upper-back and ankle/foot symptoms and more persistent upper-back complaints. No significant association was found between age group and the overall 12-month symptom prevalence in any body region (Table 5). However, neck pain was significantly more likely to limit work among dentists aged 31–35 years, and recent knee symptoms were more frequent among those aged 36–40 years, suggesting age-related differences in functional impact rather than occurrence.

Table 4. The association between musculoskeletal disorders and gender

Pain location	**Male**		**Female**		**Chi square**	**P-value**
	Count	%	Count	%		
Neck						
Yes	36	28.6	57	45.2	0.005	0.945
No	13	10.3	20	15.9		
Shoulder						
Yes	22	17.5	41	32.5	0.835	0.361
No	27	21.4	36	28.6		
Elbows						
Yes	5	4.0	19	15.1	4.067	**0.044***
No	44	34.9	58	46.0		
Wrists/Hands						
Yes	12	9.5	35	27.8	5.627	**0.018***
No	37	29.4	42	33.3		
Upper back						
Yes	12	9.5	31	24.6	3.313	0.069
No	37	29.4	46	36.5		
Lower back						
Yes	34	27.0	45	35.7	1.534	0.215
No	15	11.9	32	25.4		
One or both hips/thighs						
Yes	3	2.4	10	7.9	1.525	0.217
No	46	36.5	67	53.2		
One or both knees						
Yes	5	4.0	18	14.3	3.482	0.062
No	44	34.9	59	46.8		
One or both ankles/feet						
Yes	42	33.3	55	43.7	3.449	0.063
No	7	5.6	22	17.5		

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Table 5. The association between musculoskeletal disorders and age

Body Area	Age/yrs												Chi square	P-value
	25-30		31-35		36-40		41-45		46-50		> 50			
Neck	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%		
Yes	22	17.5	45	35.7	15	11.9	5	4.0	3	2.4	3	2.4	10.327	0.066
No	15	11.9	6	4.8	7	5.6	3	2.4	1	0.8	1	0.8		
Shoulder														
Yes	20	15.9	30	23.8	7	5.6	2	1.6	2	1.6	2	1.6	6.741	0.241
No	17	13.5	21	16.7	15	11.9	6	48	2	1.6	2	1.6		
Elbows														
Yes	5	4.0	10	7.9	6	4.8	2	1.6	0	0.0	1	0.8	2.927	0.711
No	32	25.4	41	32.5	16	12.7	6	4.8	4	3.2	3	2.4		
Wrists/Hands														
Yes	9	7.1	24	19.0	7	5.6	3	2.4	2	1.6	2	1.6	5.5757	0.350
No	28	22.2	27	21.4	15	11.9	5	4.0	2	1.6	2	1.6		
Upper back														
Yes	13	10.3	17	13.5	8	6.3	3	2.4	1	0.8	1	0.8	0.417	0.995
No	24	19.0	34	27.0	14	11.1	5	4.0	3	2.4	3	2.4		
Lower back														
Yes	21	16.7	37	29.4	12	9.5	6	4.8	1	0.8	2	1.6	6.524	0.259
No	16	12.7	14	11.1	10	7.9	2	1.6	3	2.4	2	1.6		
One or both hips/thighs														
Yes	2	1.6	6	4.8	4	3.2	1	0.8	0	0.0	0	0.0	3.512	0.622
No	35	27.8	45	35.7	18	14.3	7	5.6	4	3.2	4	3.2		
One or both knees														
Yes	3	2.4	11	8.7	7	5.6	0	0.0	1	0.8	1	0.8	7.671	0.175
No	34	27.0	40	31.7	15	11.9	8	6.3	3	2.4	3	2.4		
One or both ankles/feet														
Yes	6	4.8	9	7.1	8	6.3	2	1.6	2	1.6	2	1.6	7.313	0.198
No	31	24.6	42	33.3	14	11.1	6	4.8	2	1.6	2	1.6		

**Statistically significant at 0.05 from Chi-Squar Test*

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Discussion

The demographic profile of the 126 participants indicates a predominantly female workforce, with women comprising 61.1% of the sample and men 38.9%. Most participants were relatively young and belonged to the early to mid-career professional group: 29.4% aged 25–30 years and 40.5% aged 31–35 years. Consistent with these age distributions, over 40% of the participants reported having only 1–5 years of clinical experience, while nearly one-third had 6–10 years in practice. Only a small proportion had been practising for more than 15 years. This pattern suggests that many dentists in Western Libya are in the earlier stages of their careers and have had limited long-term occupational exposure, underscoring the importance of implementing early preventive interventions [1,4].

The occupational pattern observed in this study suggests a workload that is generally moderate but potentially hazardous. The largest subgroup reported working approximately three days per week, and most treated fewer than 10 patients per day, indicating that extreme patient volumes were uncommon. Nevertheless, the vast majority (86.5%) reported taking at least one rest break during the working day, usually of short duration (1–15 minutes). Micro-breaks offer clear benefits to musculoskeletal health. Their short duration, nonetheless, remains insufficient to mitigate cumulative postural strain in prolonged clinical work.

Notably, almost two-thirds of respondents reported working predominantly in a seated position. This finding is highly relevant, as previous Libyan research identified a preference for seated work as significantly associated with increased musculoskeletal complaints [9]. The finding corresponds to established ergonomic evidence. Prolonged static postures represent primary risk factors. Awkward positions exacerbate this. Key examples include trunk flexion, neck flexion, and raised upper limbs during dental procedures [1,2,4]. The current work patterns highlight the need for targeted ergonomic training. This training should emphasise optimal working posture, patient positioning, and task variation [5].

The overall burden of WMSDs in this sample was remarkably high. Seven out of ten dentists reported pain in at least one body region over the past 12 months. This prevalence aligns with international reports. Those reports often exceed 75% in dental populations [3,6,8]. The anatomical distribution of symptoms provided compelling evidence that the vertebral column serves as the principal site of pathology. The neck region was the most frequently affected, with 73.8% of the participants reporting symptoms, followed by the lower back (62.7%) and the shoulders (50.0%). These figures indicate that cervical and lumbar regions are particularly vulnerable in Western Libyan dentists, confirming global findings that identify the neck and lower back as key hotspots for WMSDs in dentistry [2,7]. This study found higher prevalence rates. Neck pain affected 73.8% of participants. Low back pain affected 62.7%. Comparable Western estimates stand at 58.5% and 56.4%, respectively [2,6]. This suggests that dentists in Western Libya may face a more pronounced occupational health burden, possibly reflecting differences in ergonomic resources, workload organisation, or access to preventive training. Additionally, the overall 12-month prevalence of musculoskeletal problems documented in this study substantially exceeds the earlier national figure of 48.2% reported among Libyan dentists, indicating a possible worsening trend or regional concentration of risk [9]. Upper extremity complaints were prevalent among participants, with 37.3% reporting wrist or hand symptoms, 34.1% upper back discomfort, and 19.0% experiencing elbow pain. These findings are consistent with the fine motor demands and prolonged precision required in dental procedures, which are known to place considerable load on the upper limbs and scapulothoracic region [4,5]. Lower limb involvement was relatively limited, with knee pain reported by 18.3%, ankle/foot symptoms by 23.0%, and hip/thigh discomfort by 10.6%. This distribution aligns with the biomechanical demands of dental practice, in which static upper body postures and upper limb loading are more prominent than weight-bearing lower limb activities [8,10]. The findings reveal a pattern of WMSDs consistent with international benchmarks. However, prevalence appears elevated in key areas among Western Libyan dentists. These results underscore the pressing need for targeted ergonomic and occupational health interventions.

The findings of this study clearly demonstrate that WMSDs represent a serious and widespread occupational health concern among dentists in Western Libya. The reported symptoms were not limited to mild episodic discomfort; rather, they frequently progressed to a level that interfered with clinical duties. A substantial proportion of practitioners experiencing symptoms reported that musculoskeletal pain had prevented them from performing their daily clinical activities at some point in the preceding 12 months. This pattern is consistent with international literature. WMSDs consistently link to reduced productivity, decreased job satisfaction, and increased risk of early withdrawal from clinical practice [5,12].

The most functional impact in this research was concentrated in the spine and key upper extremity regions. Among affected individuals, neck symptoms limited normal work in 64.5%, wrist/hand complaints in 61.7%, and lower-back pain in 60.8% of cases. These findings are notably high compared to international studies in which approximately one-third of symptomatic dentists reported activity-limiting discomfort, and only about one-fifth indicated reductions in workload attributed to WMSDs [3]. Shoulder and elbow pain were also highly consequential, resulting in work limitations in 52.4% and 54.2% of affected participants, respectively. The substantial functional consequences of wrist and hand disorders are particularly significant in the dental profession. Dentistry demands fine motor control. Repetitive precision tasks compromise this control. Consequently, clinical accuracy, efficiency, and safety suffer [5,12]. In contrast,

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although upper-back pain was relatively common in this study, it was less often described as functionally disabling. Only 30.2% of those with upper-back symptoms indicated that their complaints interfered with their normal clinical activities. This gradient in functional impact across anatomical regions suggests that disorders affecting structures most directly involved in patient positioning, visual access, and precise instrument handling have a disproportionately greater effect on daily dental practice [2,6]. The high levels of work limitation observed in this study are comparable to those reported in populations where WMSDs have been shown to contribute to increased healthcare utilisation, sickness absence, and enforced reductions in clinical hours [12,13].

The temporal pattern of the reported symptoms further emphasises the chronic nature of WMSDs among dentists in Western Libya. A considerable proportion of participants who experienced musculoskeletal complaints in the preceding 12 months also reported symptoms in the week before data collection, indicating that these issues are not episodic. Specifically, 43% of those with NP and 45.6% of those with LBP reported ongoing discomfort in the last seven days, suggesting limited recovery and a persistent burden in these key axial regions. These findings correspond with international evidence demonstrating the chronic progression of WMSDs in dental populations. For example, research among Egyptian dentists revealed that 29.3% experienced chronic pain. This highlights how musculoskeletal issues become persistent. It occurs when preventive ergonomic strategies prove insufficient [10]. Similar trends have been documented in Western and Asian contexts, where NP and LBP commonly follow recurrent or chronic routes rather than resolving spontaneously [2,3,14]. Collectively, these findings support the view that WMSDs among Western Libyan dentists represent ongoing occupational health conditions that accumulate over time and require proactive intervention rather than passive monitoring. From a public health perspective, the combination of high prevalence, substantial functional limitations, and persistent symptoms represents a serious occupational health concern. In the absence of targeted ergonomic interventions, regular monitoring, and access to preventive measures, these chronic WMSDs may lead to progressive reductions in work capacity, increased rates of absenteeism, and even early retirement [5,6,12].

The analysis of gender differences in WMSD occurrence and impact revealed a complex pattern. Over the past 12 months, the prevalence of neck, shoulder, and upper and lower back symptoms did not differ significantly between male and female dentists, mirroring earlier findings among Libyan practitioners [9]. Indicating that, at least for spinal and shoulder involvement, WMSDs affect both genders similarly in this setting. In contrast, the data revealed pronounced gender-related differences in musculoskeletal complaints affecting peripheral regions of the upper extremities. Among female dentists, the 12-month prevalence of elbow pain was markedly higher (15.1%) compared to male counterparts (4.0%), and wrist/hand symptoms were reported by 27.8% of women versus 9.5% of men. This pattern aligns with international meta-analytic evidence indicating consistently higher odds of WMSDs in female dentists and other health professions, a difference often attributed to sex-related variations in muscle strength, fatigue resistance, and neuromuscular load tolerance [6,13,14]. Gender differences were also evident in the functional impact of symptoms. Female practitioners were more likely to report work limitations due to upper back and ankle/foot problems, with no male participant indicating that symptoms in these regions had interfered with their routine practice. A greater proportion of females experience persistent upper back symptoms during the week preceding data collection. Underscoring greater chronicity and severity of musculoskeletal burden among female dentists. Taken together, these findings suggest that although overall symptom presence in major regions may be comparable between genders, female dentists experience a higher burden of disabling upper extremity and postural complaints. Gender-sensitive ergonomic interventions are essential. These must emphasise upper limb loading. Postural stability requires focus. Task design merits priority for female practitioners [6,13,14].

Age influences WMSDs differently in this cohort. These trends differ from common international findings. In the present study, no statistically significant associations were identified between age group and the 12-month prevalence of symptoms in any anatomical region. This lack of a clear age gradient contrasts with extensive evidence indicating that older age (commonly >30 or >40 years) and longer clinical experience (>10 years) are cumulative risk factors for WMSDs, particularly neck and back disorders [2,3,7,10]. The consistency of this null association with earlier Libyan data suggests that local practice conditions, workload patterns, or adaptive strategies that mitigate the typically observed accumulation of risk over time [9].

Although age did not appear to influence symptom presence, it demonstrated a notable relationship with functional impact. NP was more likely to restrict work among dentists aged 31–35 years, suggesting that mid-career practitioners may experience greater disability from cervical conditions despite similar prevalence across groups. In addition, recent (7-day) knee symptoms were significantly more frequent in the 36–40-year age band, suggesting that lower limb loading and postural strain may become particularly consequential in this stage of professional life. These findings indicate that prolonged occupational exposure may not increase the incidence of WMSD. However, intensifies symptom severity. It also heightens potential impairment of work performance over time.

The results endorse prevention over reaction. Transition from end-stage remediation to proactive, early-stage interventions. Targeted ergonomic education, workload management, and exercise-based preventive programmes implemented in younger and early mid-career dentists could help mitigate the progression from

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subclinical or mild symptoms to function-limiting disability in later years [2,3,7]. This study relied solely on self-administered questionnaires, which may introduce recall bias, and reported symptoms may not fully reflect their true symptom frequency and severity. Additionally, the lack of a comprehensive national dental registry and the limited functional postal distribution system in Libya restricted the sampling options and precluded random selection. Although the convenience sampling method granted a high response rate, it limits the generalizability of the results to the wider population of Libyan dentists.

Conclusion

This study shows that WMSDs are highly prevalent and functionally significant among dentists in Western Libya. The neck, lower back, and upper extremities were the most affected regions, with several prevalence estimates surpassing international pooled figures. Most of the participants reported symptoms in the previous year, and a large proportion experienced work limitations and persistent discomfort, indicating a considerable occupational health burden. Work patterns shape risk profiles. Prolonged seated postures represent a primary factor. Gender differences emerge clearly. Female dentists show higher rates of upper extremity and postural complaints. Prevalence did not vary by age. Mid-career practitioners reported greater functional impact. This affected lower back and knee pain most prominently. The results underscore key requirements. Implement context-specific ergonomic interventions. Provide early preventive education. Ensure sustained occupational health support. These measures will alleviate WMSD prevalence. Implementing such measures is essential for protecting the long-term health, clinical performance, and workforce sustainability of dentists in Western Libya.

Conflict of interest. Nil

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