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Original Article

Frequency of Heel Pain and Its Association with Quality of Life Among Hair Dressers in Lahore

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ABSTRACT

Background: Heel pain is a common occupational musculoskeletal complaint among workers who spend prolonged periods standing, including hairdressers, and may negatively affect physical functioning, psychological wellbeing, work performance, and overall quality of life. **Objective:** To determine the frequency of heel pain and assess its association with quality of life among hairdressers in Lahore. **Methods:** This cross-sectional observational study included 279 male and female hairdressers aged 18–35 years who had been practicing professionally for at least two years and worked 7–8 hours per day. Participants were recruited from salons in Lahore using convenience sampling. Heel pain intensity was assessed using the Numeric Pain Rating Scale and categorized as no pain, mild pain, moderate pain, or severe pain. Quality of life was assessed using domain-based questionnaire responses covering general health, physical health, psychological health, social relationships, and environmental health. Data were analyzed using descriptive statistics and tests of association, with statistical significance set at $p < 0.05$. **Results:** Most participants were male (61.6%). Heel pain was reported by 65 participants (23.3%), while 214 participants (76.7%) reported no pain. Mild pain was present in 21 participants (7.5%), moderate pain in 33 participants (11.8%), and severe pain in 11 participants (3.9%). Heel pain intensity showed a statistically significant association with poorer quality-of-life outcomes across general, physical, psychological, social, and environmental domains ($p < 0.001$). **Conclusion:** Heel pain affected nearly one-fourth of hairdressers and was significantly associated with reduced quality of life, particularly in physical and psychological domains. Early screening, ergonomic education, supportive footwear, rest breaks, and preventive workplace strategies may help reduce heel pain burden and improve wellbeing among hairdressers. **Keywords:** Heel pain; hairdressers; quality of life; occupational health; Numeric Pain Rating Scale; musculoskeletal pain; Lahore.

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INTRODUCTION

Heel pain is a frequent musculoskeletal complaint that can interfere with mobility, occupational performance, and health-related quality of life, particularly in workers whose jobs require prolonged standing, repetitive lower-limb loading, and sustained pressure on the feet. Hairdressers represent an occupational group at increased risk because their daily work commonly involves standing for several hours, shifting body weight during cutting and styling, and maintaining static or awkward postures while providing client services. In this context, heel pain may not only reflect localized foot discomfort but may also contribute to reduced work efficiency, limitation of daily activities, psychological distress, and impaired overall wellbeing. Previous evidence has shown that chronic plantar heel pain can negatively affect health-related quality of life, while occupational factors such as prolonged standing and repetitive biomechanical stress are recognized contributors to foot and lower-limb symptoms (1,2).

Quality of life is a multidimensional construct that includes physical functioning, emotional wellbeing, social participation, environmental comfort, and perceived general health. For working populations,

pain-related impairment may extend beyond physical discomfort and influence productivity, job satisfaction, social engagement, and mental health. This relationship is particularly important among hairdressers because their work requires continuous use of the lower limbs in a standing position, often with limited opportunities for rest or ergonomic adjustment. Studies on occupational health among hairdressers have reported a substantial burden of work-related musculoskeletal disorders, including pain in the lower back, knees, feet, shoulders, hands, and wrists, supporting the need to examine profession-specific musculoskeletal risks in this group (3,4).

Existing literature suggests that foot and heel pain are associated with reduced functional capacity and poorer quality-of-life outcomes. A study on young professionals reported a high frequency of heel pain and showed that pain affected work quality in a considerable proportion of participants, indicating that occupational pain can influence professional performance and daily functioning (5). Similarly, research among urban hairdressers in India identified a high prevalence of work-related musculoskeletal symptoms, including foot and knee pain, and highlighted the role of prolonged working hours, posture, and occupational exposure in the development of these symptoms (6). Evidence from Northern Ethiopia also showed that hairdressers frequently experience musculoskeletal problems related to work posture and workload, reinforcing the occupational relevance of pain assessment in this profession (7). Local evidence from Lahore has further demonstrated that musculoskeletal complaints are common among hairdressers, although available studies have generally focused on broader musculoskeletal disorders rather than specifically examining heel pain and its relationship with quality of life (8,9).

Despite the growing recognition of occupational musculoskeletal problems among hairdressers, limited local evidence is available regarding the frequency of heel pain and its association with quality-of-life domains among hairdressers in Lahore. This gap is important because heel pain may be overlooked as a minor symptom despite its potential to impair physical activity, emotional wellbeing, social functioning, and work-related productivity. Identifying the burden of heel pain and its relationship with quality of life can help inform preventive strategies, ergonomic education, footwear recommendations, workplace modifications, and early rehabilitation approaches for this occupational group. Therefore, using a PICO framework, the population of interest is hairdressers working in Lahore, the exposure is the presence or intensity of heel pain, the comparison is hairdressers with lower or absent pain, and the outcomes are quality-of-life domains including physical, psychological, social, environmental, and general health measures. This study aimed to determine the frequency of heel pain and evaluate its association with quality of life among hairdressers in Lahore. It was hypothesized that higher heel pain intensity would be associated with poorer quality-of-life outcomes among hairdressers.

MATERIALS AND METHODS

A cross-sectional observational study was conducted to determine the frequency of heel pain and assess its association with quality of life among hairdressers working in salons in Lahore. The cross-sectional design was selected because it allowed simultaneous measurement of heel pain status, pain intensity, and quality-of-life outcomes in an occupational group exposed to prolonged standing and repetitive work-related postures. The target population comprised professional hairdressers aged 18–35 years who were actively working in salons and had at least two years of professional experience. Both male and female hairdressers were eligible for participation. Participants were included if they routinely worked 7–8 hours per day and were willing to provide informed consent. Hairdressers with diagnosed musculoskeletal disease, degenerative pathology, bony changes, systemic disease such as diabetes or hypertension, pregnancy, or obesity were excluded to reduce the influence of pre-existing medical conditions that could independently affect heel pain or quality-of-life scores.

A non-probability convenience sampling technique was used. Eligible participants were approached at different salons in Lahore, informed about the purpose and procedure of the study, and invited to participate voluntarily. Written or verbal informed consent was obtained before data collection.

Participants were assured that their responses would remain confidential, their identity would not be disclosed, and they could withdraw from the study at any stage without penalty. Data were collected through face-to-face interviews and questionnaire administration. The final sample consisted of 279 hairdressers who fulfilled the eligibility criteria and completed the required study measures (10). Heel pain was assessed using the Numeric Pain Rating Scale, an 11-point scale ranging from 0 to 10, where 0 indicated no pain and 10 indicated the worst possible pain. Pain intensity was operationally categorized as no pain for a score of 0, mild pain for scores of 1–3, moderate pain for scores of 4–6, and severe pain for scores of 7–10.

Frequency of heel pain was defined as the proportion of participants reporting any heel pain on the Numeric Pain Rating Scale. Quality of life was assessed using the SF-36 Health Survey, which evaluates perceived health status and functioning across multiple health-related domains (11,12). A self-structured questionnaire was also used to collect demographic and occupational information, including age, gender, duration of professional practice, working hours, and eligibility-related clinical information. The main exposure variable was heel pain intensity, measured through the Numeric Pain Rating Scale. The primary outcome variable was quality of life, measured through domain-based quality-of-life responses. Demographic and occupational characteristics, including age, gender, work experience, and daily working hours, were treated as descriptive variables and potential contextual factors. To reduce selection-related bias, the same eligibility criteria were applied to all participants before enrolment. To reduce information bias, data were collected using a standardized questionnaire format and direct interviews, and the pain scale categories were defined before analysis. Participants with medical conditions likely to confound the relationship between occupational standing, heel pain, and quality of life were excluded during screening.

The sample size of 279 participants was calculated using the WHO sample size calculator. Data were checked for completeness, coded, and entered into SPSS version 24 for statistical analysis. Categorical variables, including gender, pain category, and quality-of-life response categories, were summarized as frequencies and percentages. Continuous or ordinal variables were summarized using appropriate descriptive statistics, including mean, median, mode, and standard deviation where applicable. The frequency of heel pain was calculated by dividing the number of participants reporting mild, moderate, or severe pain by the total sample size. Associations between pain intensity and quality-of-life domains were assessed using correlation analysis and relevant tests of association according to the measurement level of each variable. A p-value of less than 0.05 was considered statistically significant, and highly significant findings were reported as $p < 0.001$ rather than $p = 0.000$. Data integrity was maintained by checking completed questionnaires before data entry, verifying coded responses, and reviewing the dataset for missing or inconsistent values before analysis. Participant confidentiality was protected throughout the study by anonymizing responses and using the data only for research purposes. The study followed ethical principles of voluntary participation, informed consent, confidentiality, anonymity, avoidance of harm, and honest reporting of findings, affiliations, funding sources, and potential conflicts of interest.

RESULTS

A total of 279 hairdressers were included in the analysis. Participants were aged 20–33 years, with a mean age of 27.4 ± 3.4 years and a median age of 28 years. The largest age group was 30 years, comprising 53 participants (19.0%), followed by 26 years with 42 participants (15.1%), and 28 years with 33 participants (11.8%). Most participants were male, with 172 males (61.6%) and 107 females (38.4%).Heel pain was absent in the majority of participants. Overall, 214 hairdressers (76.7%) reported no heel pain, whereas 65 participants (23.3%) reported some degree of heel pain. Among those with pain, 21 participants (7.5%) had mild pain, 33 participants (11.8%) had moderate pain, and 11 participants (3.9%) had severe pain. Moderate pain was the most frequent pain category among symptomatic participants, accounting for 50.8% of all participants with heel pain.

Table 1. Sociodemographic Characteristics of Participants

Variable	Category / Summary	Frequency	Percentage
Age, years	Mean ± SD	27.4 ± 3.4	—
Age, years	Median	28.0	—
Age, years	Range	20–33	—
Age	20 years	11	3.9
Age	22 years	11	3.9
Age	23 years	11	3.9
Age	24 years	32	11.5
Age	25 years	22	7.9
Age	26 years	42	15.1
Age	28 years	33	11.8
Age	29 years	21	7.5
Age	30 years	53	19.0
Age	32 years	32	11.5
Age	33 years	11	3.9
Gender	Male	172	61.6
Gender	Female	107	38.4
Total	—	279	100.0

Table 2. Frequency and Severity of Heel Pain Among Hairdressers

Pain Intensity Category	NPRS Score Range	Frequency	Percentage of Total Sample	Percentage Among Participants With Pain
No pain	0	214	76.7	—
Mild pain	1–3	21	7.5	32.3
Moderate pain	4–6	33	11.8	50.8
Severe pain	7–10	11	3.9	16.9
Any heel pain	1–10	65	23.3	100.0
Total	—	279	100.0	—

Quality-of-life responses showed generally favorable ratings across several domains, although a meaningful proportion of responses reflected reduced wellbeing in some areas. In the general health domain, pooled responses showed that 44.4% were rated as very good, 41.8% as good, and 13.8% as neither poor nor good. In the physical health domain, the largest response category was very much, representing 711 responses (36.4%), followed by an extreme amount with 584 responses (29.9%). However, 363 responses (18.6%) were recorded as not at all, indicating that a subgroup reported lower physical-domain responses. Psychological health showed a similar pattern, with 773 responses (46.2%) in the very much category and 458 responses (27.4%) in an extreme amount category. Social relationship responses were predominantly positive, with 416 responses (49.7%) classified as very satisfied and 344 responses (41.1%) as satisfied. Environmental health responses were also favorable, with 1,129 responses (50.6%) categorized as very much and 863 responses (38.7%) as extremely.

Table 3. Distribution of Quality-of-Life Responses by Domain

Quality-of-Life Domain	Response Category	Frequency	Percentage
General Health	Neither poor nor good	77	13.8
General Health	Good	233	41.8
General Health	Very good	248	44.4
Physical Health	Not at all	363	18.6
Physical Health	A little	54	2.8
Physical Health	A moderate amount	241	12.3
Physical Health	Very much	711	36.4
Physical Health	An extreme amount	584	29.9
Psychological Health	Not at all	213	12.7
Psychological Health	A little	44	2.6
Psychological Health	A moderate amount	186	11.1
Psychological Health	Very much	773	46.2
Psychological Health	An extreme amount	458	27.4
Social Relationships	Neither satisfied nor dissatisfied	77	9.2
Social Relationships	Satisfied	344	41.1
Social Relationships	Very satisfied	416	49.7
Environmental Health	A moderate amount	240	10.8
Environmental Health	Very much	1,129	50.6
Environmental Health	Extremely	863	38.7

The association analysis showed statistically significant relationships between heel pain and all measured quality-of-life domains, with reported p-values < 0.001 across general health, physical health,

psychological health, social relationships, and environmental health. The findings indicate that increasing pain intensity was associated with poorer quality-of-life status across multiple domains.

Table 4. Association Between Heel Pain and Quality-of-Life Domains

Exposure Variable	Quality-of-Life Domain	Statistical Test	Direction of Association	Reported p-Value
Heel pain intensity	General health	Correlation analysis	Negative	<0.001
Heel pain intensity	Physical health	Correlation analysis	Negative	<0.001
Heel pain intensity	Psychological health	Correlation analysis	Negative	<0.001
Heel pain intensity	Social relationships	Correlation analysis	Negative	<0.001
Heel pain intensity	Environmental health	Correlation analysis	Negative	<0.001

Overall, heel pain was present in approximately one in four hairdressers, with 23.3% reporting mild-to-severe pain. Although most participants reported no pain, those with pain showed evidence of poorer quality-of-life outcomes across general, physical, psychological, social, and environmental domains. The strongest descriptive burden was observed in the moderate pain group, which represented 11.8% of the total sample and more than half of all symptomatic participants. These findings suggest that heel pain, even when not present in the majority of workers, remains clinically relevant because symptomatic participants may experience multidimensional impairment in wellbeing and daily functioning.

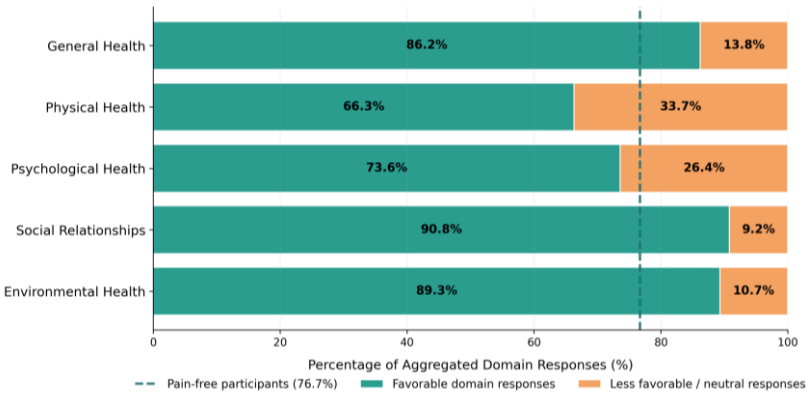

Figure 1. Quality-of-Life Favorability Profile Relative to Pain-Free Status Among Hairdressers

The derived quality-of-life favorability profile showed the highest favorable response proportions in social relationships (90.8%), environmental health (89.3%), and general health (86.2%), all exceeding the 76.7% pain-free benchmark. In contrast, physical health (66.3%) and psychological health (73.6%) fell below the pain-free proportion, indicating that these domains may carry a greater functional and emotional burden despite most participants reporting no heel pain. The largest less favorable response burden was observed in physical health (33.7%), followed by psychological health (26.4%), suggesting that occupational standing-related discomfort may be more clinically reflected in bodily functioning and mental wellbeing than in social or environmental quality-of-life perceptions.

DISCUSSION

The present study evaluated the frequency of heel pain and its association with quality of life among hairdressers in Lahore. The findings showed that 23.3% of participants reported heel pain, while 76.7% reported no pain. Among symptomatic participants, moderate pain was the most common category, affecting 33 participants, representing 11.8% of the total sample and 50.8% of those with pain. Mild pain was reported by 21 participants (7.5%), while severe pain was reported by 11 participants (3.9%). These findings suggest that although most hairdressers in the sample were pain-free, heel pain remained clinically relevant in nearly one-fourth of participants, particularly because moderate-to-severe pain accounted for 44 of 65 symptomatic cases (67.7%). In an occupation characterized by prolonged standing, repetitive postural loading, and limited opportunity for lower-limb rest, even a moderate frequency of heel pain may have important implications for work tolerance, physical functioning, and long-term occupational wellbeing. The observed frequency of heel pain in this study was lower than the prevalence reported in some previous occupational studies involving musculoskeletal pain among hairdressers and

other young professionals. Nawaz et al. reported heel pain among 62.4% of young professionals, with a higher burden among females and a measurable impact on work quality, indicating that heel pain can be a substantial occupational concern in working-age adults (13,14). In contrast, the current study found heel pain in 23.3% of hairdressers. This difference may be explained by variation in population characteristics, occupational categories, age restriction, exclusion criteria, pain definitions, sampling strategy, and the focus on heel pain rather than broader musculoskeletal pain. The present sample included only hairdressers aged 18–35 years with at least two years of experience and excluded participants with obesity, systemic disease, diagnosed musculoskeletal conditions, degenerative pathology, pregnancy, or bony changes. These exclusions may have reduced the observed pain frequency by removing participants at higher baseline risk of foot pain or chronic pain-related impairment.

The findings are also lower than those reported in studies assessing broader musculoskeletal disorders among hairdressers. A recent study reported that approximately half of urban metropolitan hairdressers experienced knee and foot pain and identified occupational factors such as prolonged working hours and posture-related exposures as contributors to work-related musculoskeletal symptoms (15). Similarly, a study reported low back pain among 47.5% of hairdressers in Northern Ethiopia, with work frequency, awkward posture, and hair-washing tasks associated with higher pain prevalence (16). Another study reported musculoskeletal pain among 77.6% of hairdressers in Lahore, with commonly affected regions including the hand, wrist, thumb, shoulder, and lower back (17). Compared with these studies, the lower frequency observed in the present research may reflect the narrower anatomical focus on heel pain, differences in symptom recall period, exclusion of participants with comorbidities, and the younger age range of the sample. Nevertheless, the presence of heel pain in nearly one-fourth of participants remains important because foot discomfort may affect standing endurance and occupational productivity even when other musculoskeletal regions are not assessed.

The distribution of pain intensity provides additional clinical context. Although 76.7% of participants reported no pain, the symptomatic group was not dominated by minimal symptoms; instead, moderate pain represented the largest subgroup. The finding that 11.8% of the total sample had moderate pain and 3.9% had severe pain suggests that a subset of hairdressers may experience symptoms substantial enough to interfere with prolonged standing, mobility, and daily work performance. This pattern is consistent with previous evidence showing that plantar heel pain and foot-related disorders can impair physical functioning and health-related quality of life (18,19). Because hairdressing requires sustained standing and frequent positional adjustments, heel pain may increase fatigue, reduce work efficiency, and contribute to compensatory postures that could increase strain in the knees, hips, or lower back. Therefore, early identification of heel pain among hairdressers may help prevent progression to broader musculoskeletal impairment.

Quality-of-life findings showed generally favorable responses in several domains, particularly social relationships, environmental health, and general health. Favorable responses were highest for social relationships (90.8%), followed by environmental health (89.3%) and general health (86.2%). These findings suggest that many participants perceived their social and environmental wellbeing positively despite occupational exposure to prolonged standing. However, physical health and psychological health showed comparatively lower favorable response proportions, with 66.3% favorable responses in physical health and 73.6% in psychological health. The less favorable response burden was highest in the physical domain (33.7%) and psychological domain (26.4%), suggesting that bodily function and mental wellbeing may be more sensitive to pain-related or occupational strain than social or environmental domains. This pattern aligns with evidence that foot problems can reduce quality-of-life scores related to physical activity, vitality, footwear comfort, and functional participation (20).

The association analysis indicated statistically significant relationships between heel pain intensity and all measured quality-of-life domains, including general health, physical health, psychological health, social relationships, and environmental health, with reported p-values < 0.001. These findings support

the interpretation that increasing heel pain intensity is associated with poorer quality-of-life status across multiple dimensions. The relationship is clinically plausible because pain can restrict mobility, reduce standing tolerance, interfere with work performance, and contribute to emotional distress. Previous research has shown that chronic plantar heel pain can negatively affect health-related quality of life, particularly through limitations in physical function and daily activity (12). Similarly, a study demonstrated that individuals with foot problems had poorer quality-of-life outcomes than those without foot problems, emphasizing the broader functional impact of foot health on wellbeing (11). In the present study, the lower favorable response proportions in physical and psychological domains provide additional support for the possibility that heel pain may be linked most strongly with functional and emotional aspects of quality of life.

The occupational relevance of the findings is important. Hairdressers commonly stand for long periods while cutting, styling, washing, and coloring hair. These tasks may involve repeated weight shifting, static loading of the plantar surface, limited seated rest, and prolonged work in footwear that may not provide adequate arch support or shock absorption. Over time, these exposures can contribute to heel discomfort and reduced physical endurance. The relatively high proportion of favorable social and environmental responses suggests that pain-related impairment may not be uniformly reflected across all quality-of-life domains; instead, it may first emerge in domains directly related to bodily function and psychological wellbeing. This distinction is relevant for preventive planning because interventions focused only on general wellbeing may miss early physical strain. Ergonomic education, scheduled rest breaks, anti-fatigue mats, supportive footwear, stretching exercises, and early referral for persistent heel pain may be practical strategies to reduce symptom burden and preserve work capacity.

This study has several limitations. First, the cross-sectional design limits causal interpretation because heel pain and quality of life were measured at the same time. Therefore, the study cannot determine whether heel pain led to poorer quality of life or whether participants with lower wellbeing were more likely to report pain. Second, convenience sampling may limit generalizability to all hairdressers in Lahore, particularly those working in different salon types, informal settings, or longer work schedules. Third, the reliance on self-reported pain and questionnaire responses may introduce recall bias, response bias, or social desirability bias. Fourth, although exclusions were used to reduce confounding from systemic disease, obesity, pregnancy, and pre-existing musculoskeletal conditions, other relevant factors such as footwear type, body mass index category, standing duration beyond eligibility criteria, rest breaks, salon workload, physical activity, and prior foot injury were not fully analyzed. Fifth, quality-of-life domain scoring requires clarification and standardization to ensure that participant-level domain scores, rather than pooled item-response counts, are used for inferential analysis.

Despite these limitations, the study contributes useful local evidence on heel pain among hairdressers in Lahore. The sample size of 279 participants provides a meaningful description of pain frequency in a young occupational group, and the findings highlight that heel pain is present in approximately one-fourth of participants. The study also suggests that quality-of-life impairment may be more pronounced in physical and psychological domains than in social or environmental domains. Future studies should use probability-based sampling where possible, clearly define the recall period for heel pain, apply validated quality-of-life scoring procedures, and conduct adjusted regression analyses to identify independent predictors of poor quality of life. Longitudinal research would also help determine whether persistent heel pain predicts future decline in work capacity, physical function, or psychological wellbeing among hairdressers.

Overall, the findings indicate that heel pain is a relevant occupational health concern among hairdressers in Lahore, even though most participants reported no pain. The burden was concentrated among symptomatic participants, particularly those with moderate pain, and the observed association with quality-of-life domains suggests that heel pain may have multidimensional consequences. These results support the need for early screening, workplace ergonomic measures, supportive footwear

practices, and preventive education to reduce heel pain and improve occupational wellbeing among hairdressers.

CONCLUSION

In conclusion, this cross-sectional study found that heel pain was present in 23.3% of hairdressers in Lahore, while 76.7% reported no pain. Among symptomatic participants, moderate pain was the most common category, affecting 11.8% of the total sample and 50.8% of those with pain, followed by mild pain in 7.5% and severe pain in 3.9%. The findings indicate that heel pain is an important occupational health concern in this population and is significantly associated with poorer quality-of-life outcomes across general health, physical health, psychological health, social relationships, and environmental health domains. The comparatively lower favorable response proportions in the physical and psychological domains suggest that heel pain may most strongly affect functional capacity and emotional wellbeing. Although the cross-sectional design does not establish causality, the results support the need for early screening, ergonomic education, supportive footwear, scheduled rest breaks, and preventive workplace strategies to reduce heel pain and protect quality of life among hairdressers.

REFERENCES

1. Agyekum EK, Ma K. Heel pain: a systematic review. Chin J Traumatol. 2015;18(3):164-169.
2. Irving DB, Cook JL, Young MA, Menz HB. Impact of chronic plantar heel pain on health-related quality of life. J Am Podiatr Med Assoc. 2008;98(4):283-289.
3. Khumalo NP, Jessop S, Ehrlich R. Prevalence of cutaneous adverse effects of hairdressing: a systematic review. Arch Dermatol. 2006;142(3):377-383.
4. Gupta AK, Mays RR. The impact of onychomycosis on quality of life: a systematic review of the available literature. Skin Appendage Disord. 2018;4(4):208-216.
5. Chen HC, Chang CM, Liu YP, Chen CY. Ergonomic risk factors for the wrists of hairdressers. Appl Ergon. 2010;41(1):98-105.
6. Nawaz I, Bukhari A, Shafique W, Quratulain, Aiman U, Rafique U, et al. Factors associated with heel pain in young professionals. Pak J Med Health Sci. 2023;17(5):16.
7. Mishra S, Sarkar K. Work-related musculoskeletal disorders and associated risk factors among urban metropolitan hairdressers in India. J Occup Health. 2021;63(1):e12200.
8. Tsegay GS, Gebremeskel BF, Gezahegn SD, Teklemichael DM. Low back pain and associated factors among hairdressers in Northern Ethiopia: a cross-sectional study. Pain Res Manag. 2021;2021:2408413.
9. Kamal F, Gillani MHZ, Nawaz A, Aman Z, Waseem A, Anwar A. Frequency of musculoskeletal disorders among hairdressers; a cross-sectional study. Healer J Physiother Rehabil Sci. 2023;3(5):540-548.
10. López-López D, Pérez-Ríos M, Ruano-Ravina A, Losa-Iglesias ME, Becerro-de-Bengoa-Vallejo R, Romero-Morales C, et al. Impact of quality of life related to foot problems: a case-control study. Sci Rep. 2021;11(1):14515.
11. Nshunju RK. Compliance to occupational and public health requirements and associated factors in barbershops and hair dressing salons: a case of Kinondoni Municipality, Dar es Salaam [dissertation]. Dar es Salaam: Muhimbili University of Health and Allied Sciences; 2012.
12. Cooper MT. Common Painful Foot and Ankle Conditions: A Review. Jama. 2023;330(23):2285-94.

13. Kim DH, Lee Y. Effect of Dynamic Taping versus Kinesiology Taping on Pain, Foot Function, Balance, and Foot Pressure in 3 Groups of Plantar Fasciitis Patients: A Randomized Clinical Study. Med Sci Monit. 2023;29:e941043.

14. Charles R, Fang L, Zhu R, Wang J. The effectiveness of shockwave therapy on patellar tendinopathy, Achilles tendinopathy, and plantar fasciitis: a systematic review and meta-analysis. Front Immunol. 2023;14:1193835.

15. Cortés-Pérez I, Moreno-Montilla L, Ibáñez-Vera AJ, Díaz-Fernández Á, Obrero-Gaitán E, Lomas-Vega R. Efficacy of extracorporeal shockwave therapy, compared to corticosteroid injections, on pain, plantar fascia thickness and foot function in patients with plantar fasciitis: A systematic review and meta-analysis. Clin Rehabil. 2024;38(8):1023-43.

16. Melese H, Alamer A, Getie K, Nigussie F, Ayhualem S. Extracorporeal shock wave therapy on pain and foot functions in subjects with chronic plantar fasciitis: systematic review of randomized controlled trials. Disabil Rehabil. 2022;44(18):5007-14.

17. Morrissey D, Cotchett M, Said J'Bari A, Prior T, Griffiths IB, Rathleff MS, et al. Management of plantar heel pain: a best practice guide informed by a systematic review, expert clinical reasoning and patient values. Br J Sports Med. 2021;55(19):1106-18.

18. Boob MA, Jr., Phansopkar P, Somaiya KJ. Physiotherapeutic Interventions for Individuals Suffering From Plantar Fasciitis: A Systematic Review. Cureus. 2023;15(7):e42740.

19. Noriega DC, Cristo Á, León A, García-Medrano B, Caballero-García A, Córdova-Martinez A. Plantar Fasciitis in Soccer Players-A Systemic Review. Int J Environ Res Public Health. 2022;19(21).

20. Rhim HC, Kwon J, Park J, Borg-Stein J, Tenforde AS. A Systematic Review of Systematic Reviews on the Epidemiology, Evaluation, and Treatment of Plantar Fasciitis. Life (Basel). 2021;11(12).