Working conditions and work-related health problems among hairdressers in Bulgaria

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Условия на труд и свързани с работата здравословни проблеми сред фризьорите в България

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Abstract:

Background and objective: Hairdressing involves simultaneous exposure to chemical agents, prolonged standing, awkward working postures, intensive contact with clients, and organizational workload. The aim of this exploratory cross-sectional study was to assess associations between demographic and occupational characteristics, work organization, preventive practices, and self-reported work-related health complaints in a sample of women working as hairdressers in Bulgaria. **Materials and methods:** An exploratory cross-sectional correlational study was conducted among 41 women. Data were collected from January to March 2026 using a specially developed anonymous 30-item self-administered questionnaire divided into four thematic sections. Non-parametric analyses were performed using IBM SPSS Statistics, with $p < 0.05$ considered statistically significant. **Results:** Overall, 95.1% reported at least one health complaint that they associated with their work. The most frequently self-reported complaints were skin problems described as allergic dermatitis (53.7%) and joint pain (46.3%). Scheduled rest breaks were absent for 75.6%, while 26.8% worked more than 10 hours per day. Less frequent use of personal protective equipment (PPE) was associated with older age ($\chi^2 = 33.634$; $p < 0.001$), longer occupational tenure ($\chi^2 = 32.414$; $p < 0.001$), and longer working days ($\chi^2 = 16.014$; $p < 0.001$). **Conclusion:** In this exploratory sample, self-reported work-related health complaints were common and occurred alongside organizational and preventive shortcomings. The results do not permit causal conclusions and cannot be generalized for all hairdressers in Bulgaria.

Key words:

hairdressers, occupational medicine, working conditions, self-reported health complaints, personal protective equipment, ergonomics

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Резюме:

Въведение и цел: Фризьорската професия е свързана с едновременна експозиция на химични агенти, продължително стоене, принудителни работни пози, интензивен контакт с клиенти и организационно натоварване. Целта на това проучвателно напречно изследване е да се оценят връзките между демографските и трудовите характеристики, организацията на труда, превантивните практики и самооценените свързани с работата здравословни оплаквания в извадка от жени, работещи като фризьори в България. **Материал и методи:** Проведено е проучвателно напречно корелационно изследване сред 41 жени. Данните са събирани през януари-март 2026 г. чрез специално разработена анонимна самооценъчна анкета с 30 въпроса, структурирани в четири тематични блока. Непараметричните анализи са извършени с IBM SPSS Statistics

при p < 0,05. **Резултати:** 95,1% съобщават поне едно здравословно оплакване, което свързват с работата. Най-често самоотчетени са кожни оплаквания, посочени като „алергичен дерматит“ (53,7%), и болки в ставите (46,3%). Регламентирани почивки липсват при 75,6%, а 26,8% работят над 10 часа дневно. По-рядкото използване на ЛПС е асоциирано с по-висока възраст (χ^2 = 33,634; p < 0,001), по-дълъг трудов стаж (χ^2=32,414; p < 0,001) и по-продължителен работен ден (χ^2 = 16,014; p < 0,001). **Заключение:** В тази проучвателна извадка самооценените свързани с работата здравословни оплаквания са чести и се наблюдават паралелно с организационни и превантивни дефицити. Резултатите не позволяват причинно-следствени заключения и не могат да бъдат генерализирани към всички фризьори в България.

Ключови думи: фризьори; трудова медицина; условия на труд; самооценени здравословни оплаквания; лични предпазни средства; ергономия

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Introduction

Hairdressers are exposed to a complex combination of occupational hazards. Repeated wet work and contact with hair dyes, bleaching agents, persulfates, fragrances, preservatives, and other ingredients of cosmetic products contribute to the development of occupational skin and respiratory diseases, while prolonged standing and awkward working postures increase musculoskeletal and venous strain [1–3]. Bulgarian authors have also emphasized the importance of occupational allergic contact dermatitis and the need for preventive risk management in hairdressing practice [4].

Work organization represents an additional component of occupational risk. Long working hours, insufficient recovery periods, high client flow, and the emotional demands of continuous interpersonal contact may contribute to fatigue, reduced well-being, and work-related stress. Recent studies in the hairdressing and beauty sector have highlighted emotional labour, social fatigue, and the risk of burnout associated with intensive client relationships [5, 6]. These factors may interact with chemical and ergonomic exposures rather than act independently.

Data on the combined occupational burden among hairdressers in Bulgaria remain limited. The aim of the present exploratory cross-sectional study was to assess associations between demographic characteristics, work organization (duration of the working day and scheduled breaks), workplace hygiene conditions and preventive practices, and self-reported work-related health complaints in a sample of women working as hairdressers in Bulgaria.

Materials and methods

The study was exploratory, descriptive, and cross-sectional correlational. The sample included 41 women working as hairdressers in Bulgaria, while men were not included. Data were collected from January to March 2026. Participation was voluntary and anonymous.

Participants were recruited through direct invitations to working hairdressers and professional contacts. Therefore, the sample was a convenience sample and was not representative. Inclusion criteria were age ≥ 18 years, female sex, current employment as a hairdresser at the time of the study, and voluntary consent to participate. Partially completed questionnaires were excluded from the analysis.

A specially developed anonymous self-administered questionnaire was used, structured into four thematic sections: (1) demographic and occupational characteristics; (2) working conditions and work organization, including working-day duration, availability of scheduled breaks, subjective assessment of hygiene conditions, and use of PPE; (3) self-reported work-related health complaints; and (4) satisfaction with working conditions and perceived priorities for improvement. The questionnaire had 30 questions. Responses were analyzed as categorical variables and presented as absolute and relative frequencies. Health indicators reflected self-report rather than clinically confirmed diagnoses. The term “scheduled breaks” refers to employer-organized periods for rest and recovery during work within the meaning of Ordinance No. 15 of 31 May 1999 on physiological work-rest regimes.

Statistical analyses were performed using IBM SPSS Statistics. Given the characteristics of the variables analyzed, non-parametric procedures were used. The comparisons presented were based on the Kruskal–Wallis and Mann–Whitney tests applied in the initial analysis of the database. Statistical significance was set at $p < 0.05$. Results are presented as absolute and relative frequencies and the corresponding test

statistics. Owing to the exploratory nature and small sample size, identified relationships are interpreted as associations, rather than evidence of causality.

Results

The study was conducted in accordance with the principles of voluntary participation, anonymity, and confidentiality. No directly identifying personal data were collected.

Table 1. Distribution by age group

Age group	n	%
≤ 25 years	7	17.1
26–35 years	11	26.8
36–45 years	13	31.7
> 45 years	10	24.4
Total	41	100.0

Table 2. Distribution by place of work

Place of work	n	%
Sofia	15	36.6
Large city	16	39.0
Small town	7	17.1
Village	3	7.3
Total	41	100.0

Table 3. Duration of the working day

Daily workload	n	%
Up to 8 hours	9	22.0
8–10 hours	21	51.2
>10 hours	11	26.8
Total	41	100.0

Working conditions and health complaints

The largest proportion of participants were aged 36-45 years (31.7%), followed by 26–35 years (26.8%), over 45 years (24.4%), and ≤ 25 years (17.1%) (Table 1. Distribution by age group). Most of them work in Sofia or another large city (75.6%) (Table 2. Distribution by place of work). More than half of them work 8–10 hours per day (51.2%), while 26.8% reported working more than 10 hours per day (Table 3. Duration of the working day).

Table 4. Assessment of hygiene conditions in hairdressing salons

Assessment	n	%
Good	9	22.0
Satisfactory	24	58.5
Poor	8	19.5
Total	41	100.0

Scheduled breaks were absent for 31 participants (75.6%). Hygiene conditions were rated as good by only 22.0%, satisfactory by 58.5%, and poor by 19.5% (Table 4. Assessment of hygiene conditions in hairdressing salons). PPE, such as gloves or masks, was used inconsistently or not at all by 85.3% of respondents.

Thirty-nine participants (95.1%) reported at least one health complaint that they associated with their work. Skin complaints described by participants as “allergic dermatitis” related to dyes or chemicals were reported by 22 (53.7%), joint pain by 19 (46.3%), self-reported “varicose veins” by 6 (14.6%), and cough related to dyes or chemicals – by 4 (9.8%). These conditions were not confirmed by clinical examination or medical records. Only 19.5% were completely satisfied with their working conditions.

Associations with age, place of work, length of service, and workload

The improvements most frequently identified as necessary were better ventilation (56.1%), longer breaks (48.8%), avoiding additional client bookings outside the prearranged schedule (24.4%), and products with a less intense odour (17.1%). The latter response should be interpreted solely as a subjective preference and not as an objective indicator of lower chemical risk.

Table 5. Age group and scheduled breaks

Age	Breaks available n (%)	No breaks n (%)
≤ 25 years	3 (42.9)	4 (57.1)
26–35 years	6 (54.5)	5 (45.5)
36–45 years	1 (7.7)	12 (92.3)
> 45 years	0 (0.0)	10 (100.0)

Kruskal–Wallis: $\chi^2 = 11.619$; $p = 0.009$.

Table 6. Age group and assessment of hygiene conditions

Age	Good n (%)	Satisfactory n (%)	Poor n (%)
≤ 25 years	3 (42.9)	4 (57.1)	0 (0.0)
26–35 years	6 (54.5)	4 (36.4)	1 (9.1)
36–45 years	0 (0.0)	10 (76.9)	3 (23.1)
> 45 years	0 (0.0)	6 (60.0)	4 (40.0)

Kruskal–Wallis: $\chi^2 = 13.84$; $p = 0.003$.

Table 7. Age group and PPE use

Age	Always n (%)	Sometimes n (%)	Never n (%)
≤ 25 years	5 (71.4)	2 (28.6)	0 (0.0)
26-35 years	1 (9.1)	10 (90.9)	0 (0.0)
36-45 years	0 (0.0)	2 (15.4)	11 (84.6)
> 45 years	0 (0.0)	0 (0.0)	10 (100.0)

Kruskal–Wallis: $\chi^2 = 33.634$; $p < 0.001$

Table 8. Age group and self-reported work-related health problems

Age	Problems reported n (%)	None n (%)
≤ 25 years	5 (71.4)	2 (28.6)
26–35 years	11 (100.0)	0 (0.0)
36–45 years	13 (100.0)	0 (0.0)
> 45 years	10 (100.0)	0 (0.0)

Kruskal–Wallis: $\chi^2 = 9.963$; $p = 0.019$

Table 9. Selected health complaints by age group

Age	Joint pain n (%)	Allergic dermatitis n (%)	Cough n (%)	Varicose veins n (%)
≤ 25 years	0 (0.0)	4 (57.1)	1 (14.3)	0 (0.0)
26-35 years	4 (36.4)	6 (54.5)	1 (9.1)	0 (0.0)
36-45 years	5 (38.5)	6 (46.2)	2 (15.4)	0 (0.0)
> 45 years	10 (100.0)	6 (60.0)	0 (0.0)	6 (60.0)

Less frequent availability of scheduled breaks was associated with older age ($\chi^2 = 11.619$; $p = 0.009$); none of the participants over 45 years reported having scheduled breaks (Table 5. Age group and scheduled breaks). Older age was also associated with a more negative assessment of hygiene conditions ($\chi^2 = 13.84$; $p = 0.003$) (Table 6. Age group and assessment of hygiene conditions), less frequent use of PPE ($\chi^2 = 33.634$; $p < 0.001$) (Table 7. Age group and PPE use), and more frequent reporting of work-related health complaints ($\chi^2 = 9.963$; $p = 0.019$) (Table 8. Age group and self-reported work-related health problems). Joint pain ($\chi^2 = 17.941$; $p < 0.001$) and self-reported varicose veins ($\chi^2 = 21.257$; $p < 0.001$) were reported more frequently in older age groups, whereas no statistically significant association with age was found for cough or self-reported skin complaints described as “allergic dermatitis” ($p > 0.05$) (Table 9. Selected health complaints by age group).

Participants in Sofia and large cities reported more frequent use of PPE ($\chi^2 = 13.324$; $p = 0.004$). Joint pain ($\chi^2 = 15.152$; $p = 0.002$) and self-reported varicose veins ($\chi^2 = 21.406$; $p < 0.001$) were reported more frequently in smaller towns and villages. Less frequent PPE use was associated with longer occupational tenure ($\chi^2 = 32.414$; $p < 0.001$) and longer working days ($\chi^2 = 16.014$; $p < 0.001$). More frequent reporting of work-related health complaints was associated with longer occupational tenure ($\chi^2 = 11.966$; $p = 0.008$) and greater daily workload ($\chi^2 = 7.293$; $p = 0.026$). Longer working days were associated with more frequent reporting of joint pain ($\chi^2 = 18.203$; $p < 0.001$) and self-reported varicose veins ($\chi^2 = 18.701$; $p < 0.001$). These associations do not demonstrate causality.

Discussion

The present study found a high frequency of self-reported work-related health complaints in the exploratory sample of female hairdressers, together with organizational and preventive shortcomings. The most frequently reported problems were skin complaints described by participants as “allergic dermatitis” and joint pain. Because the data were self-reported, these findings do not represent clinically confirmed diagnoses. They are consistent with international evidence indicating that hairdressers are at increased risk of occupational skin diseases and respiratory symptoms due to repeated exposure to hair cosmetic products and wet work [1-3].

Pesonen et al. reported 290 occupational skin diseases among hairdressers in the Finnish Register of Occupational Diseases, with allergic contact dermatitis accounting for 54%, irritant contact dermatitis for 44%, and contact urticaria for 5% [1]. Piapan et al. also described persistent skin and respiratory symptoms during long-term follow-up and emphasized the importance of ventilation and the use of less irritating products [2]. The Bulgarian review and clinical case by Lyapina et al. likewise demonstrate the substantial risk of occupational sensitization to hair products and emphasize risk-management measures, including appropriate glove selection and worker training [4].

The frequent reporting of joint pain and the observed association between longer working days and joint and self-reported venous complaints are occupationally plausible in the context of work characterized by prolonged standing and static working postures. Previous studies have reported varicose veins among hairdressers and identified prolonged standing as an important occupational factor [7, 8]. In the present sample, a complaint described by participants as “varicose veins” was reported by 14.6% overall and by 60% of participants over 45 years. Because of the cross-sectional design, small sample size, and self-reported nature of the data, the observed associations do not demonstrate that longer working hours or age cause these complaints. Age, occupational tenure, and working-time characteristics are interrelated and may act as confounding factors.

Work organization emerges as an important potentially modifiable area. Three quarters of participants reported an absence of scheduled breaks, more than one quarter worked over 10 hours per day, and only a small proportion were completely satisfied with their working conditions. In the present study, “scheduled breaks” means organized periods for rest and recovery during work within a physiological work-rest regime in accordance with Ordinance No. 15 of

31 May 1999. The specific regime should be determined according to the nature and intensity of the work, workplace environmental factors, and risk assessment. Because the questionnaire did not include a validated psychosocial risk scale, the present study cannot quantitatively assess occupational stress or burnout. Nevertheless, the observed workload, insufficient recovery time, and client-related demands are consistent with recognized psychosocial risk factors. Recent research in the hairdressing and beauty sector describes emotional labour, social fatigue, and potential burnout in relation to intensive client interactions [5, 6]. Future Bulgarian studies should include validated instruments for assessing psychosocial risk, stress, burnout, and work ability.

The association between less frequent PPE use and older age/longer occupational tenure is another important finding. It may reflect differences in safety training, work organization, risk perception, or other unmeasured factors, but the present data do not allow the mechanism to be determined. Prevention should, therefore, be based on the hierarchy of controls, rather than on PPE alone: substitution with products posing lower exposure and sensitization risks where possible, effective local exhaust and general ventilation, organizational measures, and appropriately selected protective gloves and other PPE [3, 4].

Participants most frequently identified better ventilation and longer breaks as priorities. The preference of some participants for products with a less intense odour should not be interpreted as evidence of lower chemical risk. From a preventive perspective, a more appropriate objective is the selection of products with lower exposure and sensitization risks whenever possible. Workplace interventions should combine engineering controls, ergonomic improvements, a structured work-rest regime, training, and periodic occupational health surveillance. Evidence from occupational-health intervention studies indicates that prevention of work-related stress is most meaningful when measures are tailored to the specific work context, rather than relying solely on individual coping strategies [9].

Study Limitations

The main limitations are the small and non-representative sample (n = 41), inclusion of women only, and the cross-sectional design. The sampling method may have introduced selection bias. Health outcomes and exposures were self-reported and were not confirmed through clinical examination, exposure measurements, or occupational-health documentation. The specially developed questionnaire is not presented as a formally validated instrument, and no validated psychosocial risk questionnaire was used. Age, occupational tenure, and working-day duration are interrelated characteristics, and the present exploratory analysis does not allow full control of potential confounding between them. Multiple statistical comparisons were performed in a small sample, increasing the probability of chance statistically significant findings.

Conclusion

Accordingly, the non-parametric analyses should be interpreted as exploratory. These limitations preclude generalization of the results to all hairdressers in Bulgaria and do not permit causal conclusions.

Declarations

In this exploratory sample of women working as hairdressers in Bulgaria, self-reported work-related health complaints were common and occurred alongside long working days, limited scheduled breaks, inconsistent PPE use, and dissatisfaction with certain hygiene characteristics of the work environment. Older age, longer occupational tenure, and greater daily workload were associated with several adverse indicators, including less frequent PPE use and more frequent reporting of joint pain and self-reported venous complaints. These associations do not demonstrate causality. The findings support a preventive approach that includes effective ventilation, improved ergonomics, a structured physiological work-rest regime, appropriate PPE, and periodic occupational safety and health training. Larger representative studies using validated instruments and clinical confirmation of health status are needed.

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