

Sociodemographic Determinants of Burnout Syndrome and Quality of Life in Professional Private Security Employees: A Cross-Sectional Study from Central Serbia

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Abstract

Burnout syndrome occurs as a result of long-term stress in the workplace. The main purpose of this investigation was to explore which socio-demographic traits of workers may be associated with the emergence of job-related burnout and to determine the link between occupational burnout and quality of life among security guards in the private professional security field in Central Serbia. A multi-center cross-sectional survey using questionnaires was conducted. Data were analyzed with multivariate logistic regression and the ANOVA post hoc test.

Altogether 353 individuals (330 men and 23 women) joined the research. Women and older employees were more likely to experience overall burnout and emotional exhaustion. On the other hand, men, those with advanced education, and people in management roles tended to report higher personal accomplishment and faced a reduced risk of total burnout. Being male, being married, having at least 2 children, and working in positions with frequent client contact were all clearly associated with a poorer quality of life. A strong negative relationship was observed between total burnout and the Physical Health Composite Score (PHC), with a Spearman correlation coefficient (r_s) of -0.265 (95% CI: -0.361 to -0.163). Similar negative associations appeared between total burnout and the Mental Health Composite Score (MHC) at $r_s = -0.391$ (95% CI: -0.480 to -0.301), and between total burnout and the TQL score at $r_s = -0.351$ (95% CI: -0.445 to -0.258). Women and older age groups faced higher risks of total burnout and emotional exhaustion (EE). In contrast, holding a managerial post and having higher education served as factors that helped protect against burnout. Male gender, being married, having two or more children, and having regular direct contact with clients were all significantly linked to a lower quality of life. Working shifts were associated with a notable drop in overall quality of life, whereas managerial positions were associated with better quality of life.

Keywords: Sociodemographic, Burnout Syndrome, Quality of Life, Serbia

Introduction

Law enforcement is widely viewed as a demanding and stressful profession that often leads to long-term negative effects on both physical and mental well-being, with burnout being a prominent outcome [1, 2]. In many countries, roles in the private security industry closely mirror those of police officers, as security staff handle nearly identical duties and responsibilities [3, 4].

According to Russell *et al.* [5], security work ranks among the most stressful occupations, leading security personnel to experience greater burnout and health problems than workers in other sectors [5]. The stress level in private security is considered comparable to that found in public security positions [6]. Burnout syndrome typically emerges from extended periods of chronic workplace stress, especially in high-risk, protective, or caregiving roles that involve direct assistance to others [7]. Christiana Maslach described burnout as “a psychological syndrome of emotional exhaustion (EE), depersonalization (DP), and a lowered sense of personal accomplishment (PA) that can be observed in people working with others in a certain specific manner” [8].

Emotional exhaustion is a feeling of emotional depletion and overburdening due to job demands.

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Depersonalization involves developing emotional detachment, indifference, and a dehumanizing perspective toward the people being served. A reduced sense of personal accomplishment is marked by perceptions of professional stagnation, inadequacy, incompetence, and lack of achievement. DP further includes adopting a cynical, callous attitude toward service recipients, harboring negative views of the job itself, and experiencing a diminished sense of personal identity. Lowered PA manifests as unfavorable self-judgment regarding one's abilities and workplace successes, often accompanied by decreased motivation, reduced self-confidence, and declining productivity [9, 10].

In the United States of America (USA), an investigation of 13,000 police officers drawn from 89 agencies revealed that 19% reported weekly emotional exhaustion, and 13% displayed severe depersonalization [11]. In Sweden [12], a survey of 856 patrol officers found that 28% had high emotional exhaustion and 56% reported elevated depersonalization. Research conducted in Spain on 747 police officers and prison guards found a burnout rate of 43.6% [13]. Lastvikova *et al.* [13] noted that roughly 8% of Germany's working population within the European Union (EU) self-identify as suffering from burnout syndrome [14]. In Costa Rica, the overall prevalence of total burnout stood at 44.4% [15].

Aguayo *et al.* [16] highlighted the key role of socio-demographic variables in burnout development for two primary reasons: these characteristics can exert a direct effect on burnout intensity and its component dimensions, and recognizing vulnerable profiles supports the design of targeted primary and secondary prevention strategies.

Earlier investigations into burnout have often uncovered gender-based variations [17], yet the findings are not uniform. Certain studies suggest women are more affected by burnout than men [18, 19]. In contrast, others report that men tend to show higher burnout scores [20–23], often attributing this to job-specific factors such as extended working hours [21]. De Solana observed that younger age was associated with higher burnout [18]. In contrast, multiple studies have identified an inverse pattern, in which burnout tends to decrease with advancing age [12, 24].

A comprehensive systematic review of predictors of job burnout [25] found a notable association between greater age and an increased likelihood of depersonalization, alongside higher personal accomplishment. However,

some scholars have reported the reverse, indicating that older workers may actually face heightened vulnerability [26, 27]. It is commonly accepted that unmarried individuals carry a greater risk than those living with a partner [28, 29] or those in marriage. Family composition, particularly the number of children, also appears to influence burnout susceptibility [30–33]. Dutch researchers [32] found that caring for young children and managing additional domestic responsibilities intensified burnout symptoms, whereas the mere presence of children generally alleviated these feelings. Conversely, Brady *et al.* [33] found that having more children was associated with reduced burnout.

The bulk of existing research indicates that higher-educated individuals are more susceptible to burnout [30, 34], although outcomes in this domain remain inconsistent. A review focused on stress risk factors for police officers concluded that personnel assigned to large urban areas encountered elevated stress and post-traumatic stress disorder, largely due to more frequent encounters with violent or extreme incidents [35].

Burnout produces substantial professional and personal repercussions, including diminished professionalism (manifested in increased absenteeism, reduced work performance, disengagement, and reduced teamwork), strained interpersonal relationships, higher rates of divorce, social withdrawal, loss of friendships, feelings of isolation, and heightened aggression [33, 35]. These outcomes adversely affect employees. Numerous studies have linked elevated burnout to a range of physical ailments, including muscle and joint pain, digestive issues, heart-related conditions, headaches, sleep disorders, persistent fatigue, and weakened immune function [36, 37]. In addition, job burnout is associated with a decline in quality of life for security personnel.

The following hypotheses were examined:

Hypothesis 1: Males display significantly higher overall burnout, elevated scores on the EE and PA subscales, and poorer quality of life than females.

Hypothesis 2: Advancing age shows a significant association with increased burnout.

Hypothesis 3: Married security employees exhibit a higher quality of life.

Hypothesis 4: Security employees who have no children or only one child achieve significantly higher MHC scores and greater total quality of life than those with two or more children.

Hypothesis 5: Holding a managerial position and possessing higher education are significantly and

positively linked to elevated PA subscale scores and improved quality of life.

Hypothesis 6: Shift work demonstrates a significant negative association with quality of life.

Hypothesis 7: Job burnout exerts a significant negative influence on the quality of life of security employees.

Materials and Methods

Private security sector in Central Serbia

Several defining features mark the professional private security industry in Central Serbia. It ranks as the third-largest armed force nationwide, with approximately 40,000 personnel [38]. Personnel display a wide range of training backgrounds and educational qualifications, and most hold relatively modest social and economic standing. Workers in this field regularly encounter multiple hazards that can trigger considerable personal stress. Given that Serbia has undergone major economic, political, social, and security-sector reforms, the relative importance of different job stressors is likely to differ from patterns typically seen in more advanced economies. While eliminating every source of pressure inside a private firm is unrealistic, it is vital to detect and address these stressors so that their impact can be lessened and the emergence or worsening of burnout syndrome can be avoided [14, 39, 40].

Study design

A multi-center cross-sectional survey was performed. The research relied on a representative sample, with the required number of participants calculated via the online resource available at <http://www.psychologie.hhu.de/arbeitsgruppen/allgemeine-psychologie-und-arbeitspsychologie/gpower.html> [41].

Security personnel from private agencies located in seven cities across Central Serbia took part: Nis, Kraljevo, Kragujevac, Cacak, Krusevac, Belgrade, and Novi Sad. The target representative sample size was fixed at 439, providing 80% statistical power and a type 1 error probability (α) of 0.05. In the end, 353 fully completed questionnaires were collected, yielding an 80% response rate. Fieldwork occurred between March 3 and April 30, 2019.

Ethical clearance was issued by the Ethics Committee of the Faculty of Medicine at the University of Pristina (temporary seat in Kosovska Mitrovica) through Decision No. 09-972-1, dated September 10, 2018.

Participants had to meet the following inclusion criteria: age between 18 and 65 years, Serbian citizenship, full-time employment status, possession of a valid private security license, completion of basic weapons training, and at least 12 months of continuous service in the sector. Individuals were excluded if they were still applying for their license, had experienced work interruptions longer than one year, had taken extended medical leave, or switched workplaces multiple times during the previous five years, had recently faced major psychophysical trauma (for example, serious illness or death of a family member, divorce, etc.), or declined to join the study.

Each participant's overall score was computed by adding responses according to a predefined scoring key for each of the three subscales. The comprehensive level of occupational burnout was then derived using a standardized calculation method. Elevated burnout is indicated by high scores on the emotional exhaustion and depersonalization subscales, together with low scores on the personal accomplishment subscale.

Put simply, strong scores on the EE and DP dimensions raise the risk of burnout syndrome, whereas strong scores on the personal accomplishment dimension help lower it. Average burnout corresponds to moderate scores across all three dimensions. Minimal burnout is characterized by low scores on EE and DP combined with high scores on PA. Scores on the PA dimension are only considered meaningful when supported by corresponding results from either the EE or DP dimension.

The maslach burnout inventory human services questionnaire

This tool is an internationally recognized benchmark for evaluating burnout. It assesses three separate dimensions of burnout and is commonly used as a reference when checking the accuracy of other burnout evaluation instruments. The present study used the Human Services Survey (MBI-HSS), intended for professionals who interact directly with clients and containing 22 items [42].

In the Republic of Serbia, formal authorization to use the Maslach Burnout Inventory Human Services Survey (MBI-HSS), including the scoring guidelines and usage rights, was acquired straight from the license holders — SINAPSA EDITION Company (license No. 2/2018, issued May 9, 2018).

Directors of the participating private security agencies gave written permission for the research to proceed. Every individual received thorough explanations about

the study objectives and procedures before signing informed consent documents.

The Maslach Burnout Inventory Human Services Survey includes 22 statements that are later combined to produce scores for the three burnout dimensions, each capturing a distinct aspect of work-related burnout.

It is a self-completed questionnaire. Respondents rate each statement on a seven-point Likert scale from 0 to 6, where 0 means “never,” 1 means “once a year or less,” 2 means “once a month or less,” 3 means “a few times a month,” 4 means “once a week,” 5 means “a few times a week,” and 6 means “every day.”

Each respondent’s total score was determined by summing the answers using a specific key for each of the three subscales. The overall degree of occupational burnout was then calculated with a standard composite formula. High levels of work-related burnout are characterized by high scores on emotional exhaustion and depersonalization, along with low scores on personal accomplishment. In other words, elevated EE and DP scores support the development of burnout syndrome, while elevated personal accomplishment scores work against it. Moderate burnout is shown by average scores on all three subscales. Low burnout is reflected in low EE and DP scores, paired with high PA scores. The PA subscale carries interpretive weight only when supported by outcomes from the EE or DP subscales.

Short form 36 health survey

The Short Form 36 (SF-36) Health Survey is among the most widely adopted broad tools for assessing people’s perceptions of their health, particularly health-related quality of life (HRQoL). As a versatile, non-disease-specific measure, it provides a standardized way to gauge general health status and its impact on everyday living. Its high sensitivity makes it effective for capturing how health conditions affect the overall quality of life. The survey includes 36 items that focus on the preceding 4 weeks and aims to record individuals’ personal evaluations of their health condition, daily functioning, and general sense of wellness [43]. These items span eight key health areas: physical functioning, role restrictions stemming from physical problems, bodily pain, overall health outlook, energy levels, social activities, role limitations linked to emotional issues, and psychological well-being. After computing scores for each domain separately, researchers then derive two summary measures — the Physical Health Composite Score (PHC) and the Mental Health Composite Score

(MHC) — both of which feed into broader quality-of-life assessments.

The eight domains help examine different aspects of functional health and personal well-being, split evenly between four physical and four mental components. Among the most critical for physical health evaluation are physical functioning, physical role limitations, pain levels, and general health perceptions. Every domain score, along with the two composite scores, is scaled from 0 to 100, with 0 representing extremely low quality of life and 100 indicating the best possible outcome linked to strong physical and mental condition. These physical and mental composite scores are further combined to generate an overall total quality of life (TQL) value. The vitality and general health domains show particularly solid validity. Because of its reliability, the SF-36 is often chosen to compare outcomes across various medical conditions and is widely accepted as the “gold standard” for health-related quality-of-life measurement.

Statistical analyses

All data processing was performed in SPSS version 22. Descriptive statistics, including means, were calculated, along with odds ratios (ORs) and confidence intervals (CIs). Analysis of variance (ANOVA) was performed, and a repeated-measures ANOVA was used to determine whether observed shifts in quality-of-life indicators were statistically meaningful. Comparisons involving continuous variables relied on Student’s t-test. Categorical variables were examined using the chi-squared test, or Fisher’s exact test when any expected cell count dropped below 5. The links between burnout and participants’ socio-demographic traits (collected via questionnaires) were first explored through univariate logistic regression and then refined with multivariate logistic regression. Tukey’s post hoc test allowed for direct comparisons between specific groups. Associations between burnout levels and quality of life were investigated using Spearman’s rank correlation, with the corresponding correlation coefficient (r) also reported. Results were judged statistically significant when $P < 0.05$.

Results and Discussion

Socio-descriptive characteristics of the respondents

Of the 439 individuals approached, 353 ultimately joined the study, comprising 330 men and 23 women. This

produced an overall response rate of 80%. Males made up 93.5% of the final sample and were, on average, markedly older than the female participants: 44.09 ± 11.44 years compared with 36.91 ± 7.92 years ($F = 8.752$; $P = 0.003$).

Across the whole group, 224 participants (64.3%) reported being married. Around one-third had no children (33.7%), and slightly more than half had completed only high school education (54.7%). University-level qualifications were held by just 7.6% of the sample. The clear majority — 300 individuals, or 78.00% — worked in non-managerial operational roles, while 22.7% occupied supervisory or managerial positions. Shift schedules were common, involving 288 participants (81.6%). A large portion of the workforce (277 individuals, representing 78.5%) reported working 8 to 12 hours per day.

Burnout in security employees in the private sector

Figure 1 presents the breakdown of burnout syndrome subscale scores according to three severity categories: high, moderate, and low.

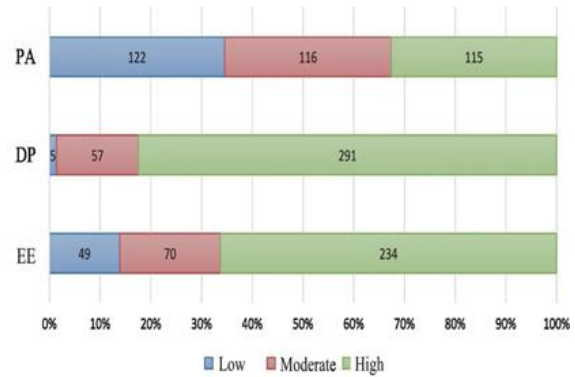


Figure 1. MBI-HSS subscales about the severity of burnout symptoms. Reprinted with permission from Veljkovic [44].

Over half the participants — 234 employees, or 66.3% — displayed high emotional exhaustion (EE). Moderate EE was seen in 19.8% ($n = 70$), while low EE appeared in 13.9% ($n = 49$). Taken together, high or moderate emotional exhaustion affected 86.1% of the workforce. Depersonalization (DP) reached high levels in the largest share of employees: 82.4% ($n = 291$). Moderate DP was noted in 16.2% ($n = 57$), and low DP in only 1.4% ($n = 5$). Regarding personal accomplishment (PA), low scores occurred in 34.5% ($n = 122$), moderate scores in 32.9% ($n = 116$), and high scores in 32.6% ($n = 115$) of the sample (**Figure 1**).

Multivariate logistic regression was applied separately to each burnout subscale (EE, DP, and PA) and to overall burnout, with the outcomes summarized in **Table 1**.

Table 1. Results of multivariate logistic regression analyses of dependent variables EE, DP, and PA, as well as total burnout.

Characteristics	Category	Total burnout OR		Personal accomplishment (PA) OR		Depersonalization (DP) OR		Emotional exhaustion (EE) OR	
		OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Sex	Female (reference)	—	—	—	—	—	—	—	—
	Male	0.303	0.088–1.041	2.644	0.879–7.954	0.689	0.198–2.395	0.277	0.081–0.951
Age	Continuous variable	1.006	0.987–1.024	0.997	0.955–1.048	0.989	0.898–1.005	0.962	0.943–0.982
Marital status	Married (reference)	—	—	—	—	—	—	—	—
	Unmarried	1.139	0.704–1.844	1.067	0.316–1.961	0.921	0.207–2.206	5.731	0.561–3.338
	Extramarital union	1.122	0.363–3.462	1.448	0.283–4.217	1.037	0.139–4.542	7.038	0.183–2.535
	Divorced	0.321	0.092–1.113	1.559	0.746–4.459	0.747	0.196–1.885	4.200	0.455–3.042

	Widowed	3.365	0.637–17.793	2.027	—	—	—	6.857	0.13–1.491
	Reference value	—	—	—	—	—	—	—	—
Number of children	1	0.386	0.415–1.314	0.884	0.299–1.775	1.586	0.403–4.463	1.088	0.594–3.399
	2	0.907	0.637–1.682	0.884	0.314–1.834	0.891	0.249–2.462	0.880	0.526–2.847
	3	0.685	0.293–2.099	0.952	0.238–2.770	0.500	0.116–2.108	0.731	0.281–2.978
	3 years of secondary school (reference)	—	—	—	—	—	—	—	—
	4 years of secondary school	0.927	0.635–1.661	1.050	0.631–1.805	0.663	0.323–1.285	0.944	0.582–1.613
Education	Higher education – 2-year vocational studies	0.813	0.415–3.236	3.698	1.354–12.598	0.682	0.165–2.829	1.612	0.492–5.571
	Higher education – 3-year vocational or academic studies	0.939	0.303–2.966	2.219	0.753–7.699	0.577	0.093–1.740	1.343	0.380–4.740
	University degree	0.693	0.536–2.765	1.525	0.550–3.539	0.692	0.195–2.067	2.364	0.864–7.937
Managerial position	No (reference)	—	—	—	—	—	—	—	—
	Yes	0.980	0.546–1.759	1.293	0.356–1.306	1.049	0.434–2.118	0.813	0.397–1.397

Abbreviation: OR = odds ratio; 95% CI = 95% confidence interval.

Table 2 presents the findings from multivariate logistic regression models applied to the emotional exhaustion (EE), depersonalization (DP), personal accomplishment (PA), and overall burnout subscales. Socio-demographic

factors served as predictors, including sex, age, marital status, number of children, educational attainment, and managerial responsibility.

Table 2. Average scores of the eight domains of the SF-36 questionnaire.

Domains	N	Minimum	Maximum	\bar{x}	SD
PF	353	35.00	100.00	93.68	9.31
RF	353	0.00	100.00	74.50	35.62
RE	353	0.00	100.00	85.08	26.30
VT	353	20.00	100.00	62.15	17.19
MH	353	44.00	100.00	80.00	10.61
SF	353	25.00	100.00	82.11	15.77
BP	353	22.50	100.00	85.13	18.25
GH	353	5.00	100.00	66.60	19.27

Abbreviation: PF = physical functioning; RF = physical role; RE = emotional role; VT = vitality; MH = mental health; SF = social functioning; BP = body pain; GH = general health. \bar{x} = arithmetic mean; SD = standard deviation.

The predictor “sex” reached marginal significance at $P = 0.10$. The odds ratio for the male category (with females as reference) was 0.277 (95% CI: 0.098–0.780). This result indicates that male workers were 82% less prone to high emotional exhaustion than female workers.

Employee “age” also exerted a clear influence on the likelihood of high emotional exhaustion ($P < 0.001$). The odds ratio of 0.962 (95% CI: 0.946–0.979) indicates that the risk of elevated EE increases by about 3.8% per additional year of age. No meaningful associations were identified between the predictors and the depersonalization dimension.

High and moderate levels of personal accomplishment served as the reference category. Sex proved to be a

notable factor when modeling the PA outcome. The odds ratio for males versus females stood at 2.644 ($P = 0.10$; 95% CI: 0.879–7.954). Consequently, the likelihood that male participants would show signs of burnout, as indicated by reduced personal accomplishment, was 164% lower than for females.

Educational background likewise emerged as significant for the PA subscale. University graduates had an odds ratio of 3.698 compared with those with the highest education level of 3 years of secondary school ($P = 0.10$; 95% CI: 1.237–11.051). This translates to a 269% lower probability of experiencing burnout-related decline in personal accomplishment among university-educated respondents.

Table 2 also reports the mean values for the eight primary domains of the SF-36 questionnaire. Quality of life is a deeply personal aspect of well-being, and its measurement is vital for identifying potential hazards to the workforce.

Physical functioning (PF) had the highest mean score at 93.68, while vitality (VT) and general health (GH) had the lowest mean scores at 62.15 and 66.60, respectively (**Table 3**).

Table 3. Composite PHC score in relation to the socio-descriptive characteristics of employees.

Characteristics	Category	Mean (\bar{x})	N	SEM	SD	95% CI Upper	95% CI Lower	Max	Min
Sex	Male	79.35	330	0.97	17.75	81.27	77.43	100.00	27.50
	Female	88.99	23	2.45	11.79	94.09	83.89	100.00	49.38
F = 6.574; P = 0.011									
Marital union	Married	76.72	227	1.21	18.34	79.12	74.32	100.00	27.50
	Unmarried	88.23	87	1.37	12.78	90.95	85.50	100.00	38.75
	Extramarital union	91.19	12	3.07	10.64	97.95	84.43	100.00	64.38
	Divorced	79.05	23	2.63	12.65	84.52	73.58	100.00	57.50
	Widower/widow	56.87	4	12.4	24.91	96.53	17.22	92.50	34.38
F = 10.785; P = 0.001									
Number of children	0	86.76	120	1.22	13.36	89.18	84.35	100.00	38.75
	1	79.65	84	1.95	17.94	83.55	75.76	100.00	33.75
	2	74.74	129	1.63	18.61	77.98	71.49	100.00	27.50
	3	74.44	20	4.20	18.79	83.23	65.64	96.25	42.50
F = 11.382; P = 0.001									
Education	3 years of high school	78.99	103	1.73	17.57	82.42	75.55	100.00	33.75
	4 years of high school	79.80	193	1.28	17.80	82.32	77.27	100.00	33.75
	Higher education – 2 years of vocational studies	72.85	16	4.93	19.72	83.36	62.34	97.50	27.50
	Higher education – 3 years of vocational or academic studies	84.15	14	4.84	18.12	94.61	73.68	100.00	48.75
F = 2.076; P = 0.083									
Shift work	Yes	78.72	288	1.07	18.26	80.84	76.60	100.00	27.50
	No	85.54	65	1.59	12.82	88.72	82.37	100.00	55.00
F = 8.157; P = 0.005									
Work hours	≤8 h	84.96	36	2.23	13.39	89.50	80.43	97.50	55.63
	8–12 h	79.71	277	1.06	17.68	81.80	77.61	100.00	27.50
	≥12 h	77.37	40	3.09	19.56	83.63	71.11	100.00	33.75
F = 1.931; P = 0.147									
Workplace	The boss of the security service	85.81	53	1.75	12.79	89.34	82.28	100.00	54.38
	Security officer	78.95	300	1.02	18.11	81.00	76.89	100.00	27.50
F = 6.986; P = 0.009									

Abbreviation: \bar{x} = arithmetic mean; SD = standard deviation; SEM = standard error of mean; 95% CI = 95% confidence interval; Min = minimum value; Max = maximum value; and F = ANOVA.

Table 3 presents the Physical Health Composite (PHC) scores broken down by various socio-demographic traits. Women achieved significantly higher PHC scores than men ($P = 0.011$). Unmarried individuals also recorded notably elevated PHC values ($P = 0.001$). Participants without children obtained significantly higher PHC scores than those with children ($P = 0.001$). Staff on shift

schedules showed significantly better average PHC scores ($P = 0.005$). Daily working hours produced no meaningful effect on PHC ($P = 0.147$), but occupying a managerial role was associated with a clear increase in PHC score ($P = 0.009$).

Table 4 presents the Mental Health Composite (MHC) scores by the workforce's socio-demographic profile.

Table 4. Composite MHC score in relation to socio-descriptive characteristics of employees.

Characteristics	Category	Mean (\bar{x})	N	SEM	SD	95% CI upper	95% CI lower	Max	Min
Sex	Male	77.00	330	0.71	13.00	78.41	75.59	100.00	30.38
	Female	82.11	23	3.00	14.41	88.35	75.88	100.00	48.71
F = 3.275; P = 0.071									
Marital union	Married	76.53	227	0.81	12.22	78.13	74.93	100.00	30.38
	Unmarried	80.99	87	1.47	13.77	83.93	78.05	100.00	33.75
	Extramarital union	76.85	12	5.23	18.13	88.37	65.32	95.25	37.00
	Divorced	75.42	23	2.66	12.78	80.95	69.89	95.50	39.46
	Widower/widow	55.63	4	4.05	8.10	68.53	42.73	66.50	48.71
F = 4.961; P = 0.001									
Number of children	0	79.55	120	1.23	13.49	81.99	77.11	100.00	33.75
	1	78.06	84	1.52	13.99	81.10	75.03	100.00	39.46
	2	75.17	129	1.09	12.48	77.34	72.99	100.00	30.38
	3	74.93	20	2.02	9.06	79.17	70.69	91.00	56.33
F = 2.653; P = 0.049									
Education	3 years of high school	103	103	12.8	77.18	74.68	1.26	40.13	79.690
	4 years of high school	193	193	13.4	76.99	75.09	0.96	30.38	78.903
	Higher education – 2 years of vocational studies	16	16	14.7	74.96	67.07	3.69	37.00	82.850
	Higher education – 3 years of vocational or academic studies	14	14	13.7	81.19	73.26	3.67	48.42	89.129
F = 0.692; P = 0.598									
Shift work	Yes	76.73	288	0.79	13.45	78.29	75.17	100.00	30.38
	No	80.00	65	1.40	11.36	82.82	77.19	100.00	53.75
F = 3.305; P = 0.070									
Work hours	≤8 h	79.14	36	1.85	11.14	82.91	75.37	96.50	53.75
	8–12 h	77.60	277	0.77	12.83	79.11	76.08	100.00	30.38
	≥12 h	73.89	40	2.57	16.29	79.11	68.68	96.75	39.46
F = 1.773; P = 0.171									
Workplace	The boss of the security service	78.88	53	1.68	12.25	82.25	75.50	100.00	50.88
	Security officer	77.06	300	0.76	13.29	78.57	75.55	100.00	30.38
F = 0.857; P = 0.355									

Abbreviation: \bar{x} = arithmetic mean; SD = standard deviation; SEM = standard error of mean; 95% CI = 95% confidence interval; Min = minimum value; Max = maximum value; and F = ANOVA.

Average MHC scores did not differ significantly by sex ($P = 0.071$). Widowed employees registered markedly lower MHC scores than those in other marital categories ($P = 0.001$). Workers with no children or only one child obtained significantly higher MHC scores than those raising two or three children ($P = 0.049$). Educational attainment was not significantly associated with MHC scores ($P = 0.598$). Neither shift work ($P = 0.070$), daily working hours ($P = 0.171$), nor managerial status ($P =$

0.355) exerted a statistically significant influence on average MHC levels.

The mean total quality of life (TQL) score across the sample was 78.66 ± 13.77 . The corresponding composite means were 79.98 ± 17.57 for PHC and 77.33 ± 13.14 for MHC.

Table 5 reports the TQL scores by employees' socio-demographic characteristics.

Table 5. TQL score in relation to the socio-descriptive characteristics of employees.

Characteristics	Category	Mean (\bar{x})	N	SEM	SD	95% CI Upper	95% CI Lower	Max	Min
Sex	Female	85.55	23	2.48	11.90	90.70	80.41	100.00	49.04
	F = 6.260; p = 0.013								

Age	Male	44.09	33 0	—	11.44	—	—	—	—
	Female	36.91	23	—	7.92	—	—	—	—
F = 8.752; p = 0.003									
Marital union	Married	76.63	22 7	0.90	13.64	78.41	74.84	100.00	33.63
	Unmarried	84.61	87	1.31	12.25	87.22	82.00	100.00	36.25
	Extramarital union	84.02	12	3.75	13.01	92.29	75.75	97.00	56.00
	Divorced	77.23	23	2.39	11.48	82.20	72.26	95.25	54.42
	Widower/widow	56.25	4	7.05	14.10	78.70	33.80	74.79	42.31
F = 9.248; P = 0.001									
Number of children	0	83.16	12 0	1.09	11.94	85.32	81.00	100.00	36.25
	1	78.86	84	1.60	14.67	82.04	75.67	100.00	36.69
	2	74.95	12 9	1.22	13.93	77.38	72.52	100.00	33.63
	3	74.68	20	2.59	11.61	80.12	69.25	93.63	52.02
Education	3 years of high school	78.09	10 3	1.35	13.77	80.78	75.39	100.00	36.94
	4 years of high school	78.39	19 3	1.00	13.94	80.37	76.41	100.00	33.63
	Higher education – 2 years of vocational studies	73.90	16	3.78	15.14	81.97	65.84	97.13	41.71
	Higher education – 3 years of vocational or academic studies	82.67	14	4.14	15.52	91.63	73.71	97.75	48.58
Shift work	Yes	77.73	28 8	0.84	14.32	79.39	76.06	100.00	33.63
	No	82.77	65	1.25	10.11	85.28	80.27	100.00	56.46
F = 7.247; P = 0.007									
Work hours	≤8 h	10.20	36	1.67	10.06	85.46	78.64	97.00	64.38
	8–12 h	78.47	27 7	0.82	13.75	80.28	77.02	100.00	33.63
	≥12 h	11.33	40	2.55	16.18	80.81	70.46	97.63	36.69
F = 2.069; P = 0.128									
Workplace	The boss of the security service	12.00	53	1.38	10.09	85.12	79.56	100.00	57.90
	Security officer	78.00	30 0	0.82	14.24	79.62	76.39	100.00	33.63
F = 4.513; p = 0.034									

Abbreviation: \bar{x} = arithmetic mean; SD = standard deviation; SEM = standard error of mean; 95% CI = 95% confidence interval; Min = minimum value; Max = maximum value; and F = ANOVA.

Men had significantly lower average total quality-of-life scores than women ($P = 0.013$). Married staff showed markedly lower TQL scores than unmarried colleagues ($P = 0.001$), with widowed participants showing the lowest scores. Employees without children or with just one child achieved significantly higher TQL scores than those with two, three, or more children ($P = 0.001$). Level of education did not have a significant effect on average TQL ($P = 0.160$). Shift-based schedules were

linked to a clear decline in average TQL scores ($P = 0.007$). In contrast, individuals in managerial positions enjoyed significantly higher TQL scores than non-managerial staff ($P = 0.034$).

The first hypothesis predicted that males would face greater overall burnout risk than females; however, males actually scored higher on personal accomplishment. Females demonstrated a higher risk of both total burnout

and emotional exhaustion than males ($P < 0.001$), while males reported significantly poorer quality of life.

The second hypothesis predicted a meaningful connection between increasing age and higher emotional exhaustion, a relationship strongly confirmed by the data ($P < 0.001$).

Hypothesis 3 anticipated that married employees would experience a lower quality of life than their unmarried counterparts. ANOVA testing ($F = 9.248$; $P = 0.001$) verified that married participants indeed had substantially diminished quality of life, with subsequent post hoc tests reinforcing this finding.

The fourth hypothesis proposed that staff without children or with only one child would obtain significantly higher MHC scores and total quality of life than those with two or more children. This was supported by the finding that childless employees or those with a single

child had higher MHC scores than those with two or three children ($P = 0.049$).

The fifth hypothesis foresaw positive links between managerial roles and higher education with improved personal accomplishment scores, reduced overall burnout risk, and better quality of life. Managerial positions were associated with significantly higher PHC scores ($P = 0.009$) and greater total quality of life ($P = 0.034$) than non-managerial roles.

The sixth hypothesis posited that shift work would substantially lower total quality of life, and the analysis confirmed this ($P = 0.007$). Extended daily working hours also correlated negatively with quality of life. Schedules ranging from 8 to 12 hours per day were associated with reduced quality of life, as indicated by ANOVA results ($F = 2.069$; $P = 0.128$) (Table 6).

Table 6. Spearman correlations linking overall burnout scores and their three subscales (EE, DP, PA) to the physical and mental health composite scores (PHC and MHC), as well as the overall quality of life measured by the SF-36 instrument.

Burnout variable	Statistical measure	TQL	MHC	PHC
Total burnout	r	-0.351**	-0.391**	-0.265**
	p	0.000	0.000	0.000
	N	353	353	353
	Bootstrap ^c Bias	0.000	0.000	0.000
	Bootstrap ^c SE	0.048	0.046	0.050
	95% CI (lower)	-0.445	-0.480	-0.361
	95% CI (upper)	-0.258	-0.301	-0.163
	Emotional exhaustion (EE)	r	-0.393**	-0.434**
p		0.000	0.000	0.000
N		353	353	353
Bootstrap ^c bias		-0.001	0.000	-0.001
Bootstrap ^c SE		0.047	0.043	0.051
95% CI (lower)		-0.482	-0.516	-0.407
95% CI (upper)		-0.297	-0.344	-0.205
Depersonalization (DP)		r	-0.302**	-0.331**
	p	0.000	0.000	0.000
	N	353	353	353
	Bootstrap ^c bias	-0.002	-0.002	-0.002
	Bootstrap ^c SE	0.048	0.049	0.049
	95% CI (lower)	-0.402	-0.433	-0.327
	95% CI (upper)	-0.212	-0.233	-0.140
	Personal accomplishment (PA)	r	0.200**	0.230**
p		0.000	0.000	0.006
N		353	353	353
Bootstrap ^c bias		-0.001	-0.001	-0.001
Bootstrap ^c SE		0.054	0.052	0.055
95% CI (lower)		0.094	0.123	0.033
95% CI (upper)		0.305	0.328	0.253

** : Statistically significant; rs = Spearman correlation coefficient; SE = standard error; 95% CI = 95% confidence interval; Bootstrap = internal validation.

Hypothesis 7: Job burnout shows a significant negative association with quality of life among security personnel. Results revealed a clear negative relationship between total burnout and PHC, as indicated by a Spearman correlation coefficient (rs) of -0.265 [95% CI from -0.361 to -0.163]. Similarly, total burnout correlated negatively with MHC at $rs = -0.391$ [95% CI from -0.480 to -0.301] and with total QOL (TQL) at $rs = -0.351$ [95% CI from -0.445 to -0.258].

EE demonstrated significant negative associations with PHC ($r = -0.311$ [95%CI from -0.407 to -0.205]), with MHC ($r = -0.434$ [95% CI from -0.516 to -0.344]), and with TQL ($r = -0.393$ [95% CI from -0.482 to -0.297]). DP also displayed notable negative links to PHC ($r = -0.231$ [95% CI from -0.327 to -0.140]), to MHC ($r = -0.331$ [95% CI from -0.433 to -0.233]), and to TQL ($r = -0.302$ [95% CI from -0.402 to -0.212]).

In contrast, PA exhibited significant positive correlations with PHC ($r = 0.145$ [95% CI from 0.033 to 0.253]), with MHC ($r = 0.230$ [95% CI from 0.123 to 0.328]), and with TQL ($r = 0.200$ [95% CI from 0.094 to 0.305]).

Private security involves protection services provided by private organizations to prevent crime, safeguard people and property, and maintain order in clients' workplaces (4–6). In most countries, jobs in the private security field closely resemble those of police officers [5, 11]. The main distinction is that public police officers possess official legal authority granted by the state, whereas private security staff do not hold the status of sworn officers.

In numerous countries, security roles are traditionally viewed as male-dominated, and Serbia is no exception; therefore, gender differences were anticipated. Our research indicated that female gender and advancing age were linked to an elevated risk of overall burnout and the emotional exhaustion (EE) subscale. As a result, the first hypothesis was only partially supported. The second hypothesis was fully supported. We identified a meaningful connection between certain socio-demographic traits—specifically male gender, advanced education, and supervisory roles—with elevated personal accomplishment (PA) subscale scores and a reduced likelihood of total burnout. No notable link was observed between socio-demographic factors and the depersonalization (DP) subscale.

Based on the findings, male gender, being married, having two or more children, and frequent direct

interaction with clients were all significantly associated with diminished overall quality of life among the workers. Hypotheses 1, 3, 4, and 5 were thereby confirmed. Working in shifts was associated with a marked decline in total quality of life, whereas holding a managerial position was associated with improved quality of life. Hypotheses 5 and 6 were thus supported. Approximately one-third of participants exhibited signs of overall burnout. A substantially larger proportion showed moderate or high levels of burnout symptoms across the individual subscales: EE (high 66.3%, moderate 19.8%, and low 13.9%); DP (high 82.4%, moderate 16.2%, and low 1.4%); and PA (low 34.5%, moderate 32.9%, and high 36.2%). In comparison with a comparable Brazilian group, scores for total burnout, EE, and DP subscales were all higher in our sample, while the PA subscale was lower: EE 46, 25, and 29%; DP 21, 30, and 49%; PA 41, 31, and 28% [45]. Similarly, among Mexican police officers, the prevalence of total burnout stood at 23.36%, with high EE at 44.16%, high DP at 49.29%, and high PA at 41.03% [20].

Our results align with earlier research showing that women face a greater risk of burnout [23–25, 36, 46]. In the present study, male gender also emerged as an important factor associated with higher PA subscale scores. Adecola [47] similarly reported that men displayed higher PA levels than women, even though this subscale was decreased in both genders. Literature findings have varied, with some indicating that men in stable emotional relationships are shielded from emotional exhaustion, whereas women with family responsibilities are more vulnerable to developing EE [19, 35, 36]. One investigation, consistent with our own, found that the EE subscale produced the highest scores among participants [47].

State police officers in emotional relationships were more likely to experience EE yet reported higher PA, with no meaningful difference in burnout development between those with or without children [16, 21, 30, 35, 36]. Working women often struggle to balance family duties and professional demands. Several studies have noted that women tend to be more susceptible to EE [33, 36], while men show greater vulnerability to DP.

Our observations align with previous studies linking older age to increased risk of job burnout. A study on Serbian Armed Forces personnel [46] revealed the highest burnout levels on the EE subscale among those

aged 23–30 years ($P < 0.05$). De Solana found that younger age was associated with greater burnout [18].

Regarding marital status, unmarried employees in our sample appeared more vulnerable to burnout than those living with a partner. This pattern seemed especially relevant for men; for working women, marriage may represent an added risk because they typically bear primary responsibility for domestic tasks, complicating the balance between personal and work life [21, 22, 34, 36]. However, some research has reported no significant relationship with burnout [10]. This outcome may relate to the emotional support provided by a spouse or children. Married individuals can also divide financial burdens with a partner, thereby reducing feelings of economic pressure.

The number of children can likewise influence burnout levels. Brady *et al.* [33] reported that having more children was tied to lower burnout. Dutch researchers observed that caring for young children and performing more household duties increased feelings of burnout, whereas the presence of children overall decreased these feelings [32]. Having children has been associated with reduced PA in several studies [16, 29, 32, 36]. Our data showed that employees with no children or only one child recorded significantly higher MHC scores and better total quality of life than those with two or more children. According to our findings, holding a managerial position and possessing higher education served as protective factors against burnout. Hypothesis 5 was confirmed. In our sample, $\leq 10\%$ of participants held a university degree. By comparison, a study of state police officers in Spain found nearly twice as many university-educated staff, yet no significant link between education level and burnout emerged [29]. Our results suggest that higher academic qualifications are associated with a lower risk of job burnout, consistent with findings in the literature [14, 28, 31, 48]. In EU countries, a considerably larger share of private security workers hold higher education or university qualifications [12, 13, 33, 49–51] than is the case in Serbia.

According to research by Ronen and Pines [19], Te Brake *et al.* [21], and Maccacaro [22], being male, working shifts, and having strained relationships with supervisors were associated with higher burnout levels than among females. Comparable investigations suggest that women are more inclined to apply emotion-focused coping methods and seek social support, which frequently intensifies conflicts between professional and family responsibilities [36, 52].

A plausible reason for this pattern is that supervisory staff experience reduced direct exposure to clients and potential aggressors. They also tend to avoid shift schedules, prefer shorter duty hours, and are not required to carry firearms on-site. Furthermore, better-educated personnel with extensive professional backgrounds typically display higher self-assurance in task execution, stronger emotional regulation when encountering stressors, and reduced psychological strain [16, 18, 22, 53].

Occupational burnout significantly influences employees' quality of life (QOL) and various socio-demographic traits. Our data revealed that male gender, marriage, having two or more children, and regular direct interaction with clients were all markedly linked to poorer quality of life among security personnel. Hypothesis 7 is therefore supported. Although married workers recorded relatively low overall quality of life, those who were widowed displayed the poorest scores. Shift-based schedules led to a notable decline in total quality of life, whereas holding a management role contributed to its improvement. A clear negative association was detected between job burnout and quality of life in security staff. Only the personal accomplishment (PA) subscale demonstrated an inverse link with quality of life. Brazilian correctional officers exhibited both pronounced burnout and compromised quality of life [45]. In the study by De Moraes *et al.* [54], 19.2% of the sample reported severe burnout, and these individuals also showed diminished quality of life.

Evidence regarding gender differences in perceived quality of life among police officers remains inconsistent. One Greek investigation found that overall scores for female and male officers were broadly similar; however, women reported lower health-related quality-of-life scores, which, like job satisfaction, correlated negatively with experienced stress. No notable interaction effects were observed [55]. Multiple other studies have failed to identify meaningful gender-based differences in police officers' quality of life [48–51, 56, 57]. That said, scholarly attention to quality-of-life issues in policing has only begun to expand in recent years [50–52, 58]. Both government bodies and employees in the EU have prioritized burnout prevention, acknowledging that the syndrome imposes high economic costs [53]. From the standpoint of workforce productivity and well-being, proactive measures are essential. In this spirit, the European Agency for Safety and Health at Work (EU-OSHA) actively promotes reducing work-related stress

through its “Healthy workplaces manage stress” initiative [53].

The likelihood of occupational burnout among private security professionals in Central Serbia should be considered in the broader context of societal values, political conditions, economic circumstances, and regional instability. Given the distinctive nature of security duties, it is advisable to evaluate the socio-demographic profiles of job applicants during the recruitment process. This step would enable early detection of individuals at greater risk of burnout, thereby enabling more effective candidate selection. Such practices could help lower burnout incidence, minimize its harmful consequences on personal well-being, and ultimately protect employees’ quality of life. Ongoing assessment of job satisfaction levels, refinement of work processes, regular professional development training for security staff, and increased recognition of early burnout indicators can support timely interventions, rehabilitation efforts, or short— or long-term job reassignments to safeguard employee health and safety.

One notable strength of the present research is its status as the inaugural examination of burnout and quality of life among professional private security workers in Central Serbia. Study participants demonstrated genuine engagement with the topic and readily volunteered to take part. The findings highlighted that the most pressing concerns for staff were shift work and extended daily schedules lasting 8–12 hours.

The study was subject to several constraints. Because the design was cross-sectional, causal inferences could not be drawn. Quality-of-life measures relied on self-evaluation, which may have introduced social desirability bias. Additionally, the sample included a substantially greater number of male than female participants.

The insights gained from this investigation can be translated into immediate practical steps within daily security operations. Staff members recording high total burnout scores should be directed to psychological support services and, when indicated, to psychiatric care. Collaboration with an occupational health specialist may also prove beneficial. Based on professional recommendations, employees could be reassigned to alternative roles on a temporary or permanent basis. Officers most affected by shift patterns can be moved exclusively to daytime duties, and in selected cases, working hours may be shortened. It is worth noting that

inadequate preparation and training remain common issues for many private security personnel [18].

Conclusion

Drawing on the results, female gender and greater age were associated with higher overall occupational burnout and more pronounced emotional exhaustion. Conversely, male gender, higher educational attainment, and managerial responsibilities were associated with greater personal accomplishment and lower overall burnout risk. Socio-demographic variables, including male gender, marital status, having two or more children, and frequent client-facing duties, were significantly associated with reduced quality of life among the workforce. Shift schedules substantially impaired total quality of life, while management positions enhanced it. Occupational burnout was negatively associated with employees’ quality of life. Our observations suggest that individuals with elevated total burnout or high scores on emotional exhaustion or depersonalization subscales should receive psychological counseling and be encouraged to consider temporary or permanent workplace adjustments. The swift expansion of the professional private security industry in Central Serbia underscores the importance of further research on burnout and quality of life among this occupational group.

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