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Organizational, Operational and Individual Risk Factors of Mental Health Issues in a Belgian Police Officers' Sample

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Highlights

Public health relevance—How does this work relate to a public health issue?

- Mental health issues were highly prevalent in this Belgian police sample, with 11.4% reporting probable PTSD, 19.4% burnout, and 43.9% psychological distress, highlighting a substantial occupational health burden within a key public safety workforce.
- Mental health among police officers is a public health concern because impaired wellbeing can affect decision-making, occupational functioning, service quality, and the capacity of police organizations to ensure public safety and community protection.

Public health significance—Why is this work of significance to public health?

- Organizational stressors—including administrative burden, leadership issues, staff shortages, and lack of resources—emerged as stronger determinants of mental health problems than operational exposure to traumatic events, challenging trauma-centered perspectives on police wellbeing.
- Resilience and adaptive coping are protective but insufficient to offset chronic organizational stress, emphasizing the importance of workplace environments as determinants of mental health.

Public health implications—What are the key implications or messages for practitioners, policy makers and/or researchers in public health?

- Public health and occupational health interventions should prioritize organization-level prevention strategies, including improvements in workload management, leadership practices, resource allocation, and reduction in administrative burden.
- Policies aimed at reducing stigma, strengthening organizational support, and integrating accessible mental health services with broader organizational reforms are likely to have greater impact than individual-focused interventions alone.

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Abstract

This study investigated organizational, operational, and individual risk factors associated with mental health issues among Belgian police officers within a multifactorial framework. A cross-sectional quantitative survey was conducted with 289 French-speaking officers. Participants completed self-report measures assessing post-traumatic stress disorder (PCL-5), burnout (MBI-GS), psychological distress including anxiety, depression and suicidal ideation (GHQ-28), substance use (ASSIST), police occupational stressors (PSQ), coping strategies (Brief-COPE), and resilience (CD-RISC-10). Results revealed substantial mental health concerns, including probable PTSD (11.42%), burnout (19.38%), and psychological distress (43.94%). Item-level analyses revealed substantial variability within

each risk factors domain, with organizational stress mainly driven by administrative and management-related demands, operational stress by fatigue, health consequences, and work–life balance concerns, and individual factors characterized by a predominance of adaptive coping strategies. Partial Least Squares Structural Equation Modeling (PLS-SEM) showed that organizational factors were the most associated with mental health outcomes, with both direct and indirect effects, while operational factors contributed mainly indirectly. Individual factors played a mediating role, with avoidant coping increasing risk and resilience and adaptive coping showing protective effects. These findings highlight the central role of chronic organizational stressors and support the implementation of organization-level prevention strategies.

Keywords: occupational; psychological; determinants; common mental disorders; law enforcement

1. Introduction

The police workforce is widely recognized as being at high risk for developing mental health problems [1–6]. Mental health issues arise from the interaction of multiple determinants rather than from a single cause. Within the policing context, explanatory models predominantly rely on a tri-factorial framework encompassing organizational, operational, and individual factors [4,7–9]. Nevertheless, the investigation of social factors—whether internal or external to the occupational environment—remains limited compared with the focus placed on individual factors [10]. Identifying risk factors specific to the policing context therefore represents a crucial foundation for understanding the complexity of mental health issues and refining prevention strategies as well as relevant intervention targets for this population [4,6,9–12]. Social and occupational factors appear particularly important due to their greater modifiability. In Belgium, few studies have addressed these issues in depth within the police [13–16].

1.1. Mental Health Issues Among Police Officers

The main mental health issues reported among police officers include post-traumatic stress disorder (PTSD), burnout, anxiety, depression, suicidal ideation, and substance use [4–6]. Most of these conditions are more prevalent among police officers than in the general population [17]. Meta-analytic evidence indicates prevalence rates of approximately 14% for PTSD, 11% for burnout, 10% for anxiety, and 15–26% for depression, while 8.5–12.4% of officers report lifetime suicidal ideation or suicidal intent and 25.7–30% report hazardous alcohol use [4,18–22]. These conditions frequently co-occur, highlighting the importance of considering the cumulative burden of comorbid mental health difficulties rather than examining each disorder independently [6,23,24].

In a previous study [16] involving 299 French-speaking Belgian police officers, we observed comparable PTSD rates (11 to 16.4%) assessed with the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5). In contrast, burnout levels appeared to be elevated (18.7%; Maslach Burnout Inventory-General Survey [MBI-GS]). Similarly, psychological distress (43.8–58.9%; General Health Questionnaire-28 [GHQ-28]) was marked by high levels of subclinical anxiety (47.2%), depression (36.8%) and suicidal ideation (37.5%), based on group mean-derived thresholds. Substance-related risk, assessed using the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST), was generally low, with 80.6% to 100% of participants classified as being at minimal risk depending on the substance considered. Nevertheless, a majority reported lifetime use of alcohol (83.9%), tobacco (51.8%), cannabis (19.1%), and sedatives or sleeping pills (15.7%). The

mental health conditions frequently co-occurred, with 42.47% of participants presenting comorbidity across two or more mental health difficulties. This study also identified several latent profiles, highlighting substantial heterogeneity in mental health patterns among Belgian police officers. These findings highlight the need to better understand the factors associated with mental health difficulties among police officers to improve risk identification and prevention efforts [9].

1.2. Trifactorial Models of Risk Factors Among First Responders

Public safety and frontline professions (e.g., police officers, firefighters, paramedics, correctional officers) are characterized by a heightened and disproportionate exposure to multiple stressors [7,8]. A recent umbrella review [25] identifies nearly 220 potential health risk factors among police officers and military personnel, underscoring the need for a multidimensional approach that integrates both the nature and the temporality of stressors. Within this framework, three interdependent categories are generally distinguished: operational, organizational, and individual factors [26]. The impact of these factors may vary according to their acute or chronic nature, their intensity, and individual appraisal processes. Together, these dimensions contribute to the development and maintenance of mental health difficulties among police officers [27,28].

Operational factors refer to the content of police work and the inherent demands of the profession (missions, tasks, risks) [8,26,29]. They are viewed as the primary sources of stress in police work, characterized by their frequency and cumulative nature, particularly in relation to exposure to critical incidents [30]. They may be both acute (e.g., violent interventions, deaths) and chronic (e.g., workload, atypical schedules), with effects that may evolve from immediate reactions to cumulative processes [28].

Organizational factors, in turn, pertain to the institutional environment and working conditions [31]. They encompass dimensions that cut across all professional settings (e.g., supervisory and peer support, organizational culture, resources) [7,32]. These factors may exert a more decisive influence on the experience of stress than operational factors [31,33,34]. Primarily chronic, they unfold over time (e.g., climate, culture, management), although certain discrete events (e.g., reorganizations, conflicts) may act as acute stressors. Their effects often follow accumulation dynamics, thereby progressively increasing individual vulnerability to the operational demands of the profession [28].

These factors influence how professional stressors are perceived and managed and may directly and indirectly contribute to mental health outcomes through their relationships with operational and organizational stressors [35]. These factors involve both acute dynamics (e.g., fatigue, episodic stress) and chronic processes (e.g., depression, social isolation) and may be embedded in patterns of dynamic accumulation or sleeper effects [28].

1.3. Risk Factors Among Police Officers

Among operational factors, PTSD is the mental health outcome most consistently associated with police work [36,37]. Police officers are exposed to an average of 14 to 35 potentially traumatic events (PTEs) annually [37], and the nature, severity, and recurrence of these events substantially increase PTSD risk (OR = 2.03–2.80) [4,38], particularly when incidents involve life threat, injury, or the use of lethal force [9]. Depression (OR = 1.90) and substance use (OR = 1.67) are also associated with frequent exposure to PTEs [4], while anxiety symptoms may arise in contexts characterized by high decisional pressure and constant public exposure [37,39–42]. Beyond traumatic exposure itself, depression, suicidal ideation, and burnout are further associated with operational demands, including shift work and irregular schedules, through their effects on sleep disruption, chronic fatigue, and emotional dysregulation [25,43–45]. Notably, exposure to crimes involving children also

appears particularly related to burnout [9]. Burnout has additionally been linked to urban policing, whereas PTSD has been associated with insufficient planning and monitoring of interventions [25].

Among organizational factors, burnout emerges as the outcome most consistently associated with adverse working conditions. Burnout, along with depression and anxiety, is among the mental health outcomes most consistently associated with adverse working conditions, including work overload, high job demands, low autonomy, limited organizational support, effort-reward imbalance, role conflict, organizational injustice, work–life conflict, and negative organizational climates [6,9,25,34,44,46–52]. In particular, burnout, particularly its exhaustion (*AR* = 0.36–0.89) and cynicism dimensions (*AR* = 1.40–1.71), is associated with low job autonomy combined with high psychological demands [49]. Organizational culture may also influence mental health outcomes, as norms emphasizing emotional control, resilience, and loyalty can promote substance use, exacerbate depression and burnout, and discourage help-seeking behaviors [34,48,49,53,54]. Suicide risk may likewise be affected by organizational characteristics, with smaller units being associated with higher suicide likelihood [21].

Among individual factors, depression, PTSD, suicidal ideation, and substance use have been associated with a range of sociodemographic and psychological characteristics. Although demographic and occupational variables generally show modest and inconsistent effects [47,48], younger officers and lower-ranking personnel appear particularly vulnerable [53,55]. Depression (*OR* = 2.06–2.09) and PTSD (*OR* = 1.56) are reported more frequently among female officers, whereas substance use is more strongly associated with male officers (*OR* = 1.49) [4,25]. Depression, PTSD, and suicidal ideation are also associated with age (*OR* = 1.03–1.56; *r* = 5.36), tenure (*OR* = 1.25–1.41; *r* = 6.24), being single or experiencing relationship dissolution (*OR* = 1.68–2.22), and low social support (*OR* = 1.54–10.85) [4,5]. Psychological characteristics constitute the strongest individual correlates: neuroticism, low emotional stability, anxiety sensitivity, maladaptive coping strategies such as avoidance (*OR* = 3.91), and low resilience are consistently associated with depression, anxiety, PTSD, burnout, and suicidal risk [4,5,9,25,52,56]. Comorbidity further amplifies vulnerability (*OR* = 1.15–4.40; r = 0.36–0.82), with PTSD increasing suicidal risk sevenfold and depression representing a direct predictor of suicide [4–6,25,37,52,53,55,57]. Substance use may further exacerbate these risks, particularly when combined with PTSD symptoms [58].

Table S1 summarizes the various operational, organizational, and individual factors identified among police officers according to the main mental health outcomes (see Supplementary).

Despite the relatively consistent identification of operational, organizational, and individual risk factors associated with police mental health, several limitations remain in the literature, including substantial methodological heterogeneity, a lack of longitudinal designs, the absence of comparison groups, and potential self-reporting or underreporting biases related to police occupational culture [6,38,53,59]. Furthermore, research has largely focused on identifying risk factors in isolation rather than examining how these domains jointly contribute to mental health outcomes within an integrated explanatory framework. The mechanisms underlying these associations also remain insufficiently understood. A recent scoping review by Cheung and Li [60] showed that, among 30 studies on police occupational stress, only three investigated mediation effects and three examined moderation effects, despite the large number of identified predictors. Consequently, the pathways through which organizational, operational, and individual factors influence mental health outcomes remain poorly documented. The present study addresses these gaps by examining the relative contribution of these three domains to major mental health outcomes among

Belgian police officers and by testing theoretically derived mediation pathways likely to explain the associations between occupational stressors and psychological difficulties.

This study aims to examine organizational, operational, and individual risk factors within a sample of Belgian police officers. It seeks to identify the most prevalent risk factors and to analyze their effects on the principal mental health issues observed in the police population (PTSD, burnout, anxiety, depression, suicidal ideation, and substance abuse). The hypotheses are as follows:

- **H1:** *Within each risk-factor domain, some factors are more salient than others among Belgian police officers. Among organizational factors, workload, effort-reward imbalance, lack of organizational support, and limited autonomy are expected to present the highest scores. Among the operational factors, exposure to potentially traumatic events, perceived danger, and irregular working schedules are expected to present the highest scores. Among individual factors, dysfunctional coping strategies, particularly avoidance, denial, withdrawal, and self-blame, are expected to present the highest scores;*
- **H2:** *Mental health issues among Belgian police officers are explained by a multifactorial model, in which operational, organizational, and individual factors exert both direct and indirect effects, structured as follows (Figure 1, General theoretical model):*
  - **H2a:** *Operational factors have the strongest significant direct effect on mental health issues (Figure 1a);*
  - **H2b**: *Organizational factors have a significant direct effect on mental health issues (Figure 1a);*
  - **H2c:** *Individual factors, particularly psychological characteristics (e.g., coping strategies), have a significant direct effect on mental health issues (Figure 1a);*
  - **H2d**: *Organizational factors have a significant indirect effect on mental health issues through the mediating role of operational factors (Figure 1b);*
  - **H2e:** *Individual factors have a significant indirect effect on mental health issues through the mediating role of operational factors (Figure 1c);*
  - **H2f:** *Individual factors have a significant indirect effect on mental health issues through the mediating role of organizational factors (Figure 1d).*

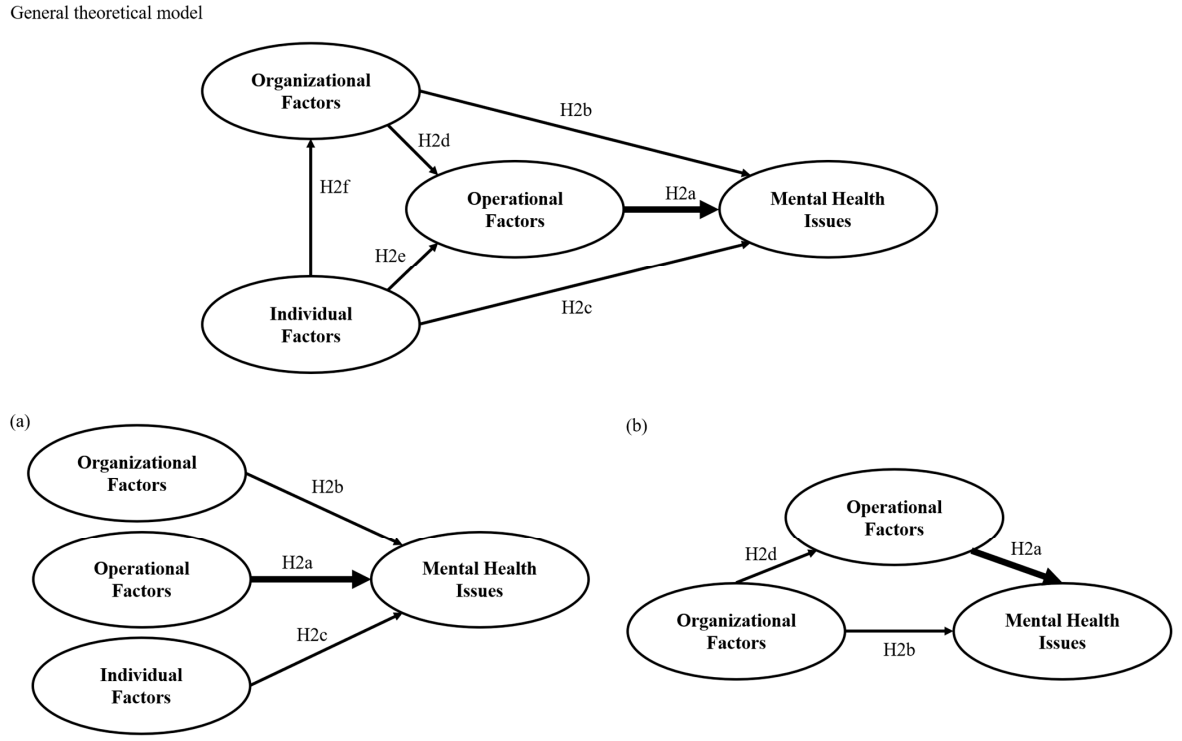
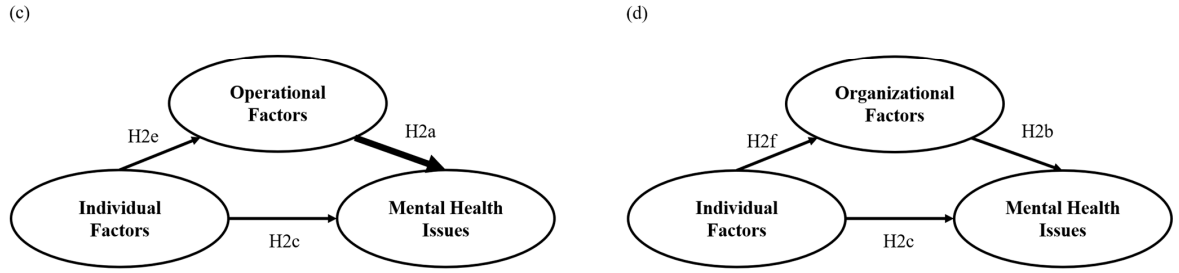


Figure 1. *Cont.*



Notes. Thicker arrows indicate stronger effects. Arrow length is not proportional to effect size.

Figure 1. Conceptual model of the study. (**a**) Model of direct effects of organizational, operational and individual factors on mental health issues. (**b**) Mediation model between organizational factors and mental health issues through operational factors. (**c**) Mediation model between individual factors and mental health issues through operational factors. (**d**) Mediation model between individual factors and mental health issues through organizational factors.

2. Materials and Methods

2.1. Study Design

This cross-sectional study draws on quantitative data collected through an online survey conducted to assess police officers' mental health, including key indicators of mental health (e.g., PTSD, burnout, anxiety, depression, suicidal ideation, and substance consumption) and risk factors.

2.2. Participants

The sample includes 289 French-speaking Belgian police officers from 44 Local Police districts in the Brussels and Walloon regions, of whom 3.81% (n = 11) are employed by the Federal Police (Table 1). Civilian staff and trainees were excluded from the study. The Belgian Police system is organized into two complementary levels [61]: the Local Police (182 districts), responsible for basic judicial and administrative missions (e.g., community policing, public order, traffic control), and the Federal Police, responsible for specialized and cross-territorial operations (e.g., organized crime, special units). This sample represents approximately 1.93% of the French-speaking Belgian sworn police workforce (14,953 officers) [62]. The response rate was 24.1%. Participants had a mean age of 43.57 years (SD = 9.68, $range$ = 21–63) and an average of 19.15 years of professional experience (SD = 10.27, $range$ = 1–39). The sample was predominantly composed of male, Caucasian officers who were in a relationship. Intervention, community policing and criminal investigation are the most frequent local functions. Sworn personnel are structured into four hierarchical levels [63]: (1) agent-level, characterized by limited police powers (e.g., securing areas, traffic control, detainee transport); (2) base-level, involving full administrative and judicial responsibilities (e.g., intervention, investigation); (3) middle-level, including supervision of small teams; and (4) officer-level, responsible for leadership and overall staff management. Most participants were at the base level and worked within medium-sized districts. The gender and rank distributions were consistent with official Belgian Police statistics [64]. To ensure anonymity and prevent potential identification, no cross-tabulations between demographic and professional variables were performed.

Table 1. Demographic and professional characteristics of police officers.

Characteristics	*n*	%	Characteristics	*n*	%
Gender			Territorial level		
Male	208	71.97	Local	278	96.19
Female	80	27.68	Federal	11	3.81
Non-binary	1	0.35	Police force size (local) [a]		
Ethnic group			Small (<100)	78	28.06
Caucasian	285	98.64	Medium (100–250)	120	43.17
North African	2	0.68	Large (250–500)	53	19.06
Afro-descendant	1	0.34	Very large (>500)	27	9.37
Asian	1	0.34	Police forces missions (local) [a]		
Marital status			Intervention	94	33.81
Marriage or civil union	192	66.45	Community policing	69	24.82
Single	67	23.18	Criminal investigation	41	14.75
Divorced or separated	28	9.69	Responsiveness	25	8.99
Others (widowed, undetermined)	2	0.68	Traffic	19	6.84
Hierarchical level (rank) [a]			Victims unit	4	1.44
Agent-level	7	2.43	Maintaining public order	3	1.08
Base-level	176	60.90	Others (management, training…)	23	8.27
Middle-level	77	26.64			
Officer-level	29	10.03			

[a] These variables are derived from secondary administrative data [64].

2.3. Measures

Demographic and professional characteristics. The questionnaire contains a section aimed at gathering general sociodemographic information from all respondents (gender, age, ethnic background, marital status, level of education, and professional experience). It also collects police-specific occupational data, including the specific role performed, the operational level (local or federal), the police district, and the nature of missions undertaken. To preserve confidentiality and enable statistical processing, sensitive variables (e.g., exact job title, district) are transformed into aggregated categories (e.g., hierarchical rank). Although these data are not analysed in their original form, their collection made it possible to incorporate secondary information from the Federal Police [64], such as staff numbers by district, thereby allowing the inclusion of broader contextual indicators like district size.

Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5) [65]. The PCL-5 is a 20-item self-report scale assessing PTSD symptoms in line with DSM-5 criteria (5-point Likert scale). It covers four symptom clusters: intrusion (Criterion B), avoidance (C), cognitive and mood alterations (D), and hyperarousal (E), following exposure to a traumatic event (A). A probable PTSD diagnosis can be based either on a total score (typically $\geq$ 31–33) or on DSM-5 criteria, requiring specific symptom thresholds within each cluster (items rated $\geq$ 2). The instrument shows strong psychometric properties in trauma-exposed populations [66–68]. In this study, internal consistency was high for the total score (α = 0.95) and satisfactory to excellent across subscales (α = 0.85–0.91).

Maslach Burnout Inventory-General Survey (MBI-GS) [69]. The MBI-GS is a 16-item short form assessing three burnout dimensions—Emotional Exhaustion (EE), Depersonalization (DP), and Professional Efficacy (PE)—on a 7-point Likert scale. Subscale scores allow classification of burnout severity (Cut-off scores: low, moderate, high; Burnout levels: absent, at risk, present) [70]. It shows good reliability and validity across occupational groups, including police samples, although Professional Efficacy is sometimes considered less central [71–73]. In this study, internal consistency ranged from acceptable to excellent (α = 0.77–0.93).

General Health Questionnaire-28 (GHQ-28) [74]. The GHQ-28 is a 28-item self-report measure of psychological distress rated on a 4-point scale. Although a total score of 24 or higher is commonly used as a reference threshold, the instrument's authors recommend determining the cut-off value based on the sample mean, thereby ensuring that the classification criterion reflects the distributional characteristics of the study population [75]. It comprises four subscales: Somatic Symptoms (SS), Anxiety/Insomnia (Anx./In.), Social Dysfunction (SDys), and Depression (Dep.), with part of the latter assessing Suicidal Ideation (SI) [76]. The GHQ-28 shows strong psychometric properties across populations, including first responders [77–80]. Internal consistency was good to excellent for both the total score and subscale scores in the current research (α = 0.81–0.94).

Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) [81]. The ASSIST evaluates use and risk levels for various psychoactive substances across 8 items with variable scoring. Lifetime use is identified first, followed by items generating substance-specific risk scores (low, moderate, high) and an overall score. The measure has demonstrated good validity and reliability and was adapted here for online use [82,83]. Here, internal consistency ranged from acceptable to excellent (Each substance: α = 0.76–0.94; Global score: α = 0.84).

Police Stress Questionnaire (PSQ) [84]. The PSQ is a self-report instrument designed to assess occupation-specific stress in policing, comprising two 20-item scales targeting operational (PSQ-Op) and organizational (PSQ-Org) stressors. Items are rated on a 7-point Likert scale, allowing the computation of mean scores for each dimension and for individual stressors, with established cut-offs indicating low, moderate, or high stress levels [85]. Although its structure is generally considered unidimensional, prior research has identified meaningful subdimensions for more refined analyses, including Social- (SR) and Work-related (WR) issues dimensions for the PSQ-Op [22], and six dimensions for the PSQ-Org such as Co-worker relations (CWR), Training and resources (TR), Leadership and supervision (LS), Bureaucracy (B), Internal affairs and accountability (IAA), and Management and organizational capacity (MOC) [86]. Developed through focus groups with police officers, the PSQ captures profession-specific stressors and complements general stress measures [85,87–89]. It has been validated across multiple languages and demonstrates strong psychometric properties [90]. In the current sample, internal consistency was excellent for the total scores ($\alpha_{PSQ\text{-}Op}$ = 0.92; $\alpha_{PSQ\text{-}Org}$ = 0.93) and from adequate to good across subscales (α = 0.70–0.89).

Brief-Coping Orientation to Problems Experienced (Brief-COPE) [91]. The Brief COPE is a 28-item self-report instrument designed to assess commonly used coping strategies, grounded in stress and self-regulation frameworks. Items are rated on a 4-point Likert scale, with no overall score, and cover 14 distinct strategies (two items each). Although initially conceptualized as a multidimensional tool, subsequent research has often supported more parsimonious structures, typically comprising two higher-order factors (adaptive vs. maladaptive coping) or three factors reflecting problem-focused (PF), emotion-focused (EF), and avoidance strategies (Avoid.) [92,93]. In the current study, a dispositional format was used to capture habitual coping tendencies. The French version demonstrates satisfactory psychometric properties, including good reliability and convergent validity with measures of psychological well-being [94,95]. In first responders, internal consistency varies from moderate to excellent across subscales [96–99]. Here, reliability coefficients ranged from low to excellent at the subscale level (α = 0.43–0.91), with borderline to acceptable values observed for broader dimensions ($\alpha_{2\text{-}Factor}$ = 0.61–0.77; $\alpha_{3\text{-}Factor}$ = 0.59–0.78).

Connor-Davidson Resilience Scale-10 (CD-RISC 10) [100,101]. The CD-RISC 10 is a 10-item self-report measure assessing resilience as an individual capacity to cope with adversity. Items are rated on a 5-point scale, yielding a total score from 0 to 40, with higher scores indicating greater resilience traits. It has demonstrated good psychometric properties

across diverse populations, supporting a unidimensional structure and satisfactory reliability, although it primarily captures individual traits rather than contextual factors [102,103]. In this research, internal consistency was good (α = 0.85).

2.4. Procedure

The study obtained ethical approval from the Faculty Ethics Committee of the University of Mons (ref. UMONS-2023.03.09-TE-008). Chiefs of the 77 Belgian police districts eligible for participation in the French-language survey were contacted via a general mailing accompanied by an informational video. Depending on their response, the online questionnaire (hosted on the secure *LimeSurvey v.6.16.5+260127* platform) was either disseminated internally or introduced through direct presentations to district management. In the latter case, data collection took place either individually online or during on-site group sessions. Data collection occurred between April 2023 and August 2024, with an average completion time of 34 min. The study complied with the General Data Protection Regulation (GDPR) requirements and the Declaration of Helsinki. Participants received an information sheet and provided informed consent prior to participation. Participation was anonymous and voluntary, with no individual feedback. Participation was independent and had no professional consequences, and only aggregated results were shared with police authorities. Given the potentially sensitive topics assessed, participants were informed of possible distress and provided with access to internal and external support resources.

2.5. Data Analyses

Data analyses were conducted using *IBM SPSS Statistics v.26* [104] and *jamovi v.2.6.44* [105]. Prior to analysis, extreme values and the distribution of numerical data were examined. Although a small number of outliers were identified (n = 2–10 across measures: PCL-5, GHQ-28, ASSIST, Brief-COPE, and CD-RISC), these were retained, as comparisons between 5% trimmed means and arithmetic means showed no differences. None of the numerical variables met the assumption of normality, even after applying standard transformations (logarithmic, square root, and inverse). Consequently, all inferential analyses were conducted using non-parametric statistical tests. Descriptive analyses (means and frequencies) were performed for all sociodemographic and professional characteristics (e.g., age, tenure, rank), as well as for dependent (mental health outcome scores) and independent variables (e.g., potential risk factor scores). Prevalence (e.g., PTSD rates, PSQ stress levels) was estimated based on the cutoff thresholds recommended for each instrument (*see Measures*).

To test H1, differences within each operational, organizational and individual domain were assessed using paired non-parametric tests, specifically Friedman's tests for overall comparisons and Wilcoxon signed-rank T tests for pairwise comparisons. In the presence of multiple pairwise comparisons, Bonferroni corrections were applied by adjusting the significance threshold ($\frac{\alpha}{m}$). Effect sizes were calculated for each analysis: the r coefficient ($\frac{z}{\sqrt{N}}$) for the Wilcoxon test (small: 0.20–<0.50, medium: 0.50–<0.80, large: $\geq$0.80) and Kendall's W ($\frac{\chi^2}{N(K-1)}$) for the Friedman's test (small: 0.10–<0.30, medium: 0.30–<0.50, large: $\geq$0.50) [106,107]. Inferential analyses were supplemented with their Bayesian counterparts (paired-samples t-tests and repeated-measures ANOVAs), following recommendations for small or heterogeneous samples and for data from the social sciences [108–110]. In contrast to frequentist methods, which rely on an arbitrary significance threshold ($p < 0.05$), the Bayesian framework is based on estimating the relative evidence for competing hypotheses through the Bayes Factor (BF_{10}). This index quantifies the likelihood ratio of the alternative hypothesis (H_1) relative to the null hypothesis (H_0). Its interpretation is typically as follows: strong evidence for H_0: $\frac{1}{30}$–<$\frac{1}{10}$, moderate: $\frac{1}{10}$–<$\frac{1}{3}$, weak: $\frac{1}{3}$–<1; weak evidence for H_1: 1–<3,

moderate: 3–<10, strong: 10–<30. For instance, a BF_{10} of 7 indicates that the data are seven times more likely under H_1 than under H_0, reflecting moderate evidence in favor of the alternative hypothesis. The estimated error associated with the Bayes Factor (*error %*) is also reported.

Additional group-comparison analyses were performed, with full methodological details and results reported in the Supplementary Materials (see Table S2 and Figure S1).

To test H2, an analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM) was conducted with *JASP software v.0.97* [111]. SEM is a multivariate statistical technique that enables the simultaneous examination of complex relationships between observed (manifest variables, MVs) and latent variables (LVs), integrating factor analysis and multiple regression. The PLS-SEM approach was selected due to its robustness to non-normal data distributions, its suitability for relatively small sample sizes, and its capacity to handle models comprising a large number of variables [112,113]. Prior to the PLS-SEM, bivariate correlations were examined among all variables. These analyses revealed numerous positive associations between mental health outcomes and operational, organizational, and individual factors, except for sociodemographic and occupational characteristics (see Supplementary Material, Table S3). Given the large number of initial predictor variables (60 variables: 20 items for operational factors at PSQ-Op, 20 for organizational factors at PSQ-Org, and 20 variables for individual factors including demographic variables, scores at CD-RISC and Brief-COPE) and the sample size (N = 289), the PLS-SEM analysis was conducted using dimension-aggregated scores, resulting in 17 predictors and 8 outcomes to construct the measurement model (see Supplementary Material, Table S4). Specifically, the 20 PSQ-Op items were aggregated into two dimensions, *Social-Related Issues* and *Work-related Issues*, which served as indicators of the latent exogenous construct *Operational Factors*. Similarly, the 20 PSQ-Org items were grouped into six dimensions, namely *Co-worker Relations, Training and Resources, Leadership and Supervision, Bureaucracy, Internal Affairs and Accountability,* and *Management and Organizational Capacity*, which served as indicators of the latent exogenous construct *Organizational Factors*. These dimensions were specified as reflective indicators, as they were assumed to reflect underlying operational and organizational stress domains. In contrast, the latent construct *Individual Factors* was specified as formative and comprised sociodemographic and occupational characteristics (age, gender, tenure, rank, and district size), resilience (CD-RISC total score), and three coping dimensions derived from the Brief-COPE (problem-focused, emotion-focused, and avoidance coping). These indicators were conceptualized as jointly constituting, rather than reflecting, the underlying construct. Likewise, *Mental Health Issues* was modelled as a formative endogenous construct composed of PTSD symptoms (PCL-5 total score), burnout dimensions (MBI-GS's Emotional Exhaustion, Depersonalization, and Professional Efficacy), anxiety/insomnia, depression, and suicidal ideation (GHQ-28), as well as substance use (ASSIST total score). These indicators were considered distinct but complementary manifestations that collectively contribute to overall mental health difficulties.

Although no strict rule exists, SEM analyses generally require samples of at least 200 participants and a ratio of 5 to 10 observations per estimated parameter [114]. Moreover, the adequacy of the sample size for the PLS-SEM analysis was further assessed using the inverse square root method proposed by Kock and Hadaya [115,116]. The sensitivity analysis indicated that, with the available sample size (N = 289), the model was able to detect a minimum effect size of 0.15 with 80% statistical power at a significance level of 0.05. Therefore, the study was adequately powered to detect small-to-moderate structural relationships within the proposed PLS-SEM model. Furthermore, a power analysis indicated that the available sample size achieved satisfactory statistical power ($1 - \beta = 0.92$) for multiple regression models including 17 predictors, in contrast to a model with 60 predic-

tors ($1 - \beta = 0.58$) (G*Power 3.1.9.7) [117]. Multiple linear regressions were conducted to examine the predictive power of specific factors (see Supplementary Materials, Table S5).

The PLS-SEM analysis was carried out in two stages. First, the measurement model (outer model) was evaluated to assess the reliability and validity of the latent constructs. The criteria included indicator loadings ($\geq$0.70), internal consistency (*Cronbach's* $\alpha \geq 0.70$) and discriminant validity, assessed using the heterotrait–monotrait ratio ($HTMT \leq 0.85$) [118,119]. Second, the structural model (inner model) was examined to test the relationships between latent variables and address the hypotheses. Multicollinearity was assessed using the Variance Inflation Factor ($VIF < 5$), and predictive relevance was evaluated using the Stone-Geisser Q^2 index ($Q^2 > 0$). Although model fit indices are secondary in PLS-SEM, the Standardized Root Mean Square Residual ($SRMR < 0.08$) is reported as an approximate indicator [120]. Structural relations were interpreted based on explained variance (*adjusted* R^2: weak = 0.25–< 0.50; moderate = 0.50–< 0.75; substantial $\geq$ 0.75), path direct and total coefficients (β: small = 0.10–< 0.30; moderate = 0.30–< 0.50; large $\geq$ 0.50), and effect sizes (f^2: small = 0.02–< 0.15; medium = 0.15–< 0.35; large $\geq$ 0.35) [121]. Because all structural hypotheses were directional, the significance of path coefficients was evaluated using one-tailed tests. Finally, a bootstrap procedure with 5000 resamples was used to obtain robust estimates of standard errors and t-values.

3. Results

3.1. Description of Mental Health Outcomes

Table 2 presents descriptive statistics related to mental health issues and associated risk factors within the sample. Overall, participants exhibit symptom levels ranging from moderate to high. The prevalence of PTSD reaches 11.42%, based on a provisional diagnosis established using DSM criteria of the PCL-5. Additionally, nearly one in five participants (19.38%) exceeds the indicative burnout threshold measured by the MBI-GS, with high levels of depersonalization and moderate levels of emotional exhaustion and personal accomplishment. Results from the GHQ-28, a general measure of mental health, indicate a high proportion of psychological distress (43.94–58.82% according to the indicative thresholds), particularly pronounced in the anxiety and depression dimensions. Finally, the prevalence of at-risk substance use, as assessed with the ASSIST, remains relatively low (3.46%).

Table 2. Descriptions of mental health outcomes and potential risk factors of police officers (N = 289).

	n **(%)**	**Mean (SD)**	**Level** [c]
Mental health outcomes			
PCL5–Total		16.74 (16.00)	N/A
PCL5–PTSD rate (DSM rules)	33 (11.42)		N/A
MBIGS–Emotional Exhaustion		14.55 (8.27)	Moderate
MBIGS–Depersonalization		14.11 (9.10)	High
MBIGS–Professional Efficacy		26.25 (6.66)	Moderate
MBIGS–Burnout rate	56 (19.38)		N/A
GHQ28–Total		28.46 (13.88)	N/A
GHQ28–Psychological distress rate (threshold [a]: $\geq$24)	170 (58.82)		
GHQ28–Psychological distress rate (threshold [b]: $\geq$28.46)	127 (43.94)		N/A
GHQ28–Anxiety/Insomnia		8.75 (5.18)	N/A
GHQ28–Depression		2.93 (4.12)	N/A
GHQ28–Suicidal Ideation		1.94 (2.88)	N/A
GHQ28–Somatic Symptoms		8.12 (4.81)	N/A
GHQ28–Social Dysfunction		8.66 (2.75)	N/A
ASSIST–Total		17.15 (15.75)	N/A
ASSIST–High risk rate	10 (3.46)		N/A

Table 2. *Cont.*

	n (%)	Mean (SD)	Level [c]
Potential risk factors			
Operational factors			
PSQOp–Total		3.17 (1.25)	Moderate
PSQOp–Social-related issues		3.24 (1.44)	Moderate
PSQOp–Work-related issues		3.11 (1.28)	Moderate
1. Shift work		2.30 (2.15)	Moderate
2. Working alone at night		1.32 (2.14)	Low
3. Overtime demands		2.61 (2.07)	Moderate
4. Risk of being injured on the job		3.03 (1.92)	Moderate
5. Work-related activities on days off (e.g., court, community events)		2.05 (2.15)	Moderate
6. Traumatic events (e.g., motor vehicle accident, domestic violence, death, injury)		3.35 (2.08)	Moderate
7. Managing your social life outside of work		3.61 (1.89)	High
8. Not enough time available to spend with friends and family		4.13 (1.98)	High
9. Paperwork		4.41 (2.00)	High
10. Eating healthy at work		3.00 (1.99)	Moderate
11. Finding time to stay in good physical condition		3.43 (2.02)	High
12. Fatigue (e.g., shift work, overtime)		4.35 (1.93)	High
13. Occupation-related health issues (e.g., back pain)		4.32 (2.03)	High
14. Lack of understanding from family and friends about your work		2.89 (2.03)	Moderate
15. Making friends outside the job		2.27 (1.87)	Moderate
16. Upholding a 'higher image' in public		2.78 (1.98)	Moderate
17. Negative comments from the public		3.77 (1.87)	High
18. Limitations to your social life (e.g., who your friends are, where you socialize)		2.82 (1.88)	Moderate
19. Feeling like you are always on the job		3.74 (2.09)	High
20. Friends/family feel the effects of the stigma associated with your job		3.21 (2.04)	Moderate
Organizational factors			
PSQOrg–Total		3.71 (1.38)	Moderate
PSQOrg–Co-worker relations		2.91 (1.55)	Moderate
PSQOrg–Training/Resources		3.72 (1.72)	High
PSQOrg–Leadership/Supervision		3.87 (1.82)	Moderate
PSQOrg–Bureaucracy		4.44 (1.78)	High
PSQOrg–Internal affairs/Accountability		3.21 (1.78)	Moderate
PSQOrg–Management/Organizational capacity		4.33 (1.59)	High
1. Dealing with coworkers		2.78 (1.89)	Moderate
2. The feeling that different rules apply to different people (e.g., favouritism)		4.31 (2.20)	High
3. Feeling like you always have to prove yourself to the organization		3.88 (2.22)	Moderate
4. Excessive administrative duties		4.75 (1.96)	High
5. Constant changes in policy/legislation		4.26 (1.95)	High
6. Staff shortages		4.84 (1.88)	High
7. Bureaucratic red tape		4.57 (1.88)	High
8. Too much computer work		4.00 (2.21)	High
9. Lack of training on new equipment		3.59 (1.94)	Moderate
10. Perceived pressure to volunteer free time		2.28 (2.15)	Low
11. Dealing with supervisors		3.22 (2.03)	Moderate
12. Inconsistent leadership style		4.42 (2.24)	High
13. Lack of resources		4.02 (2.08)	High
14. Unequal sharing of work responsibilities		3.88 (2.17)	Moderate
15. If you are sick or injured, your coworkers seem to look down on you		2.70 (2.22)	Moderate
16. Leaders overemphasize the negatives (e.g., supervisor evaluations, public complaints)		3.53 (2.17)	Moderate
17. Internal investigations		3.39 (2.28)	Moderate
18. Dealing with the court system		2.55 (2.04)	Low
19. The need to be accountable for doing your job		3.70 (2.19)	Moderate
20. Inadequate equipment		3.55 (2.05)	Moderate

Table 2. *Cont.*

	n (%)	Mean (SD)	Level [c]
Individual factors			
CDRISC–Total		28.26 (5.32)	N/A
BriefCOPE–Problem focused		20.74 (3.78)	N/A
BriefCOPE–Emotion focused		25.73 (3.76)	N/A
BriefCOPE–Avoidance		12.96 (2.69)	N/A
BriefCOPE–Adaptive		37.31 (5.63)	N/A
BriefCOPE–Maladaptive		22.11 (3.66)	N/A
BriefCOPE–Active coping		5.55 (1.25)	N/A
BriefCOPE–Planning		5.51 (1.46)	N/A
BriefCOPE–Instrumental support		4.39 (1.20)	N/A
BriefCOPE–Emotional support		4.01 (1.22)	N/A
BriefCOPE–Venting		4.68 (1.34)	N/A
BriefCOPE–Positive reframing		5.28 (1.39)	N/A
BriefCOPE–Acceptance		5.67 (1.34)	N/A
BriefCOPE–Denial		2.64 (0.95)	N/A
BriefCOPE–Self-blame		4.47 (1.36)	N/A
BriefCOPE–Humour		4.35 (1.34)	N/A
BriefCOPE–Religion		2.54 (1.10)	N/A
BriefCOPE–Self-distraction		4.95 (1.34)	N/A
BriefCOPE–Substance use		2.68 (1.10)	N/A
BriefCOPE–Behavioural disengagement		2.69 (0.97)	N/A

Notes: PCL5 = Posttraumatic Stress Disorder Checklist for DSM-5; MBIGS = Maslach Burnout Inventory–General Survey; GHQ28 = General Health Questionnaire-28; ASSIST = Alcohol, Smoking and Substance Involvement Screening Test; PSQOp = Police Stress Questionnaire-Operational; PSQOrg = Police Stress Questionnaire-Organizational; CDRISC = Connor-Davidson Resilience Scale-10; BriefCOPE = Brief-Coping Orientation to Problems Experienced; N/A = Not applicable. [a] The threshold is set using the authors' instruments. [b] The threshold is set using the police sample means of this study. [c] Interpretive thresholds provided by the reference authors are reported as follows: (1) for the MBIGS, Emotional Exhaustion: Low (≤9), Moderate (10–16), High (≥17); Depersonalization: Low (≤5), Moderate (6–11), High (≥12); Professional Efficacy: Low (≤25), Moderate (26–29), High (≥30); (2) for the PSQOp: Low (≤2), Moderate (2.10–3.40), High (≥3.50); (3) for the PSQOrg: Low (≤2.60), Moderate (2.70–3.90), High (≥4).

3.2. Description of Operational, Organizational and Individual Risk Factors (H1)

From a descriptive standpoint (Table 2), the findings provide limited support for H1.

While no significant differences emerged between the social-related and work-related dimensions of operational stress (T = 17,602.00, p = 0.057, r = 0.11), item-level comparisons revealed substantial heterogeneity (χ^2 = 1189.54, $p < 0.001$, W = 0.22, $BF_{10} = 1.02 \times 10^{260}$, *error %* = 0.20). Given the large number of post hoc pairwise comparisons conducted across the 20 items (190 comparisons), the complete set of results is reported in the Supplementary Materials (Table S6). Following Bonferroni correction ($p \leq 0.0003$), several operational stressors emerged as being rated significantly higher than many other items. In particular, Item 8 (*Lack of time available for family and friends*), Item 9 (*Paperwork*), Item 12 (*Fatigue*), and Item 13 (*Health issues related to the job*) were among the highest-rated sources of operational stress. Conversely, Item 2 (*Working alone at night*), Item 3 (*Overtime demands*), Item 5 (*Work-related activities during days off*), and Item 15 (*Making friends outside the job*) consistently appeared among the lowest-rated stressors. Contrary to expectations that operational stress would be primarily associated with exposure to danger or potentially traumatic events, these findings suggest that stress associated with fatigue, job-related health consequences, and work–life balance concerns constitutes a more prominent source of operational strain than situational operational demands or certain social challenges associated with police work. Effect sizes for statistically significant pairwise comparisons ranged from small to large (r = 0.21–0.76), indicating substantial variability in the magnitude of differences across operational stressors, while Bayesian evidence consistently supported these effects, with all

significant comparisons showing strong to extreme support for the alternative hypothesis ($BF_{10} > 10$).

Item-level analyses also highlighted marked variability across organizational stressors ($\chi^2 = 977.72$, $p < 0.001$, $W = 0.18$, $BF_{10} = 2.63 \times 10^{204}$, *error* % = 0.24; *see* Table S6 *for the complete set of pairwise comparisons*). Comparisons between organizational stress dimensions revealed that *Management and organizational capacity* and *Bureaucracy* were rated as significantly more stressful than all other dimensions, whereas *Coworker relations* emerged as the least stressful domain. Following Bonferroni correction ($p \leq 0.0003$), several organizational stressors emerged as being rated significantly higher than many other items. Item 4 (*Excessive administrative duties*), Item 6 (*Staff shortages*), Item 7 (*Bureaucratic red tape*), and Item 12 (*Inconsistent leadership style*) ranked among the most prominent sources of organizational stress. In contrast, Item 1 (*Dealing with coworkers*), Item 10 (*Perceived pressure to volunteer free time*), Item 15 (*If you are sick or injured, your coworkers seem to look down on you*), and Item 18 (*Dealing with the court system*) were consistently rated as less stressful. This pattern provides partial support for H1, insofar as workload-related demands and aspects of organizational functioning emerged as particularly salient stressors. However, the findings only partially align with the expectation that effort-reward imbalance, lack of organizational support, and restricted autonomy would represent the most critical organizational stressors. Effect sizes for significant pairwise comparisons ranged from small to large ($r = 0.21$–0.74), reflecting considerable differences in the relative importance assigned to organizational stressors. Bayesian analyses further corroborated these findings, with all significant contrasts yielding strong to extreme evidence in favor of the alternative hypothesis ($BF_{10} > 10$).

Regarding the individual domain, analyses revealed substantial heterogeneity across coping strategies ($\chi^2 = 1871.35$, $p < 0.001$, $W = 0.50$, $BF_{10} = +\infty$, *error* % = 0.28; *see* Table S6 *for the complete set of pairwise comparisons*). Comparisons between the broader coping dimensions indicated that emotion-focused coping was endorsed more strongly than problem-focused coping, which in turn was endorsed more strongly than avoidance coping ($\chi^2 = 494.17$, $p < 0.001$, $W = 0.85$, $BF_{10} = 8.58 \times 10^{236}$, *error* % = 1.04). At the subscale level, *Acceptance*, *Positive Reframing*, *Active Coping*, and *Planning* emerged as the most frequently used coping strategies, whereas *Denial*, *Religion*, *Substance Use*, and *Behavioral Disengagement* were among the least endorsed. Contrary to H1, dysfunctional coping strategies were not predominant. Instead, participants reported greater reliance on adaptive coping strategies focused on acceptance, cognitive reframing, and active problem solving. Effect sizes for significant pairwise comparisons ranged from small to very large ($r = 0.23$–0.84), with Bayesian analyses providing strong to extreme evidence in favor of the observed differences ($BF_{10} > 10$).

3.3. Prediction of Operational, Organizational and Individual Factors on Mental Health Outcomes (H2)

A PLS-SEM analysis was conducted to investigate the direct and indirect associations between risk factors and mental health issues within the police sample. The initial theoretical model comprised 25 manifest variables (MVs) and 6 latent variables (LVs), structured around (Table 3): (1) mental health issues; (2) operational factors; (3) organizational factors; and (4) individual factors, further subdivided into (4.1) demographic factors, (4.2) positive psychological factors, and (4.3) negative psychological factors. This decomposition of individual factors was intended to ensure optimal internal consistency of the latent constructs while avoiding the inclusion of conceptually opposing indicators (e.g., adaptive strategies and resilience traits vs. maladaptive strategies). To enhance model stability, manifest variables exhibiting high levels of multicollinearity were excluded (e.g., tenure vs. age: *VIF* = 4.40–4.63). In addition, because the suicidal ideation indicator was derived from GHQ-28 items already included in the depression subscale, the two measures showed sub-

stantial conceptual and empirical overlap (*VIF* = 18.04–20.87). To avoid redundancy within the formative measurement model, only depression was retained. Variables with loadings below 0.70 were also removed, indicating insufficient representativeness within their respective latent constructs. In total, 9 MVs were removed: two related to organizational factors (*Training and Resources*; *Internal Affairs and Accountability*), three to demographic factors (*Age, Rank, District size*), one to positive psychological factors (*Problem-Focused Coping*), one to negative psychological factors (*Emotion-Focused Coping*), and two to mental health issues (*Professional Efficacy*; *Substance Consumption*). The final model thus consists of 14 MVs distributed across 6 LVs, with some constructs now represented by a single MV (individual factors). Resilience, avoidance coping, and gender emerged as the primary indicators retained for the positive psychological, negative psychological, and demographic domains, respectively. Consequently, these latent constructs should be interpreted with caution, as they represent only the strongest retained indicators of their broader theoretical domains rather than exhaustive representations of those constructs. Overall, the quality of the outer model is satisfactory, with strong internal consistency of the LVs (α = 0.83–0.88) and acceptable to good discriminant validity (*HTMT* = 0.15–0.83), although operational and organizational factors remain conceptually close (*HTMT* = 0.83). Furthermore, the overall model fit is adequate (*SRMR* = 0.05). Table 3 summarizes the final model, including the weights of the retained MVs and the exclusion criteria applied.

The structural model (inner model) demonstrates satisfactory overall predictive relevance (Q^2 = 0.080–0.297). Figure 2 presents the final model with direct path coefficients (β) and explained variance (*adjusted* R^2), while Table 4 summarizes the direct, indirect, and total effects (β), their confidence intervals (95% CI), and effect sizes (f^2). Overall, effect sizes are small ($f^2 < 0.15$). The model explains 63% of the variance in mental health issues.

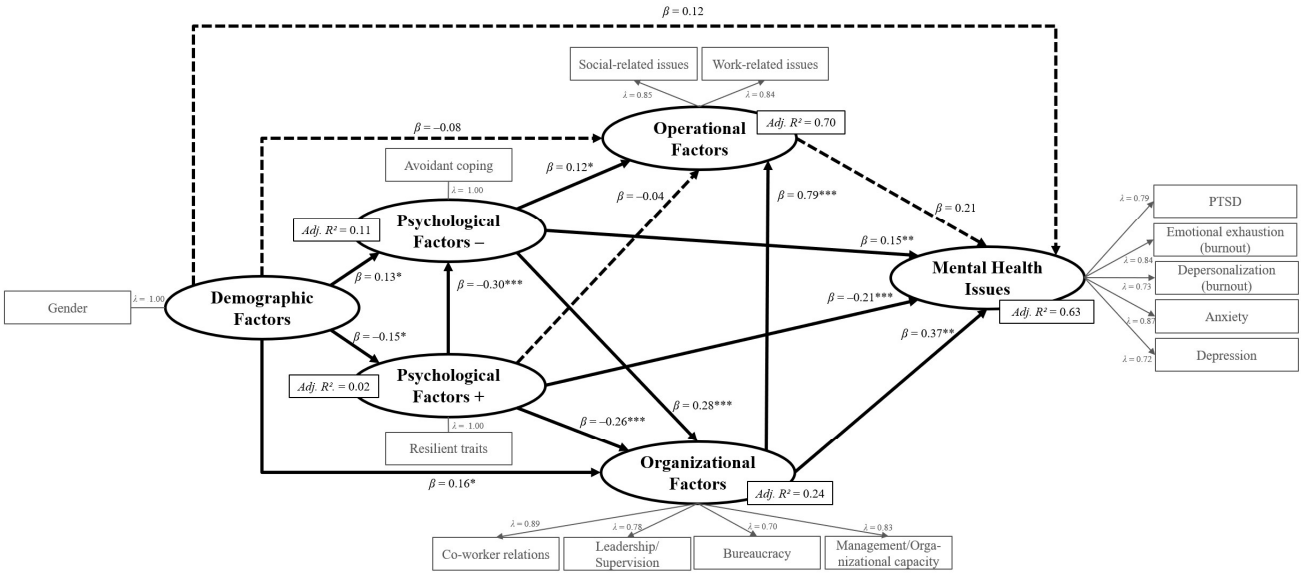
Table 3. Summary and description of latent variables (LVs) and manifest variables (MVs).

Latent Variables (LVs)	Manifest Variables (MVs)	Measures	Weight [a]	Exclusion
Operational factors (exogenous, reflective)	**Social-related issues**	PSQOp	0.542 ***	
	Work-related issues		0.537 ***	
Organizational factors (exogenous, reflective)	**Co-worker relations**	PSQOrg	0.324 ***	
	Training and resources		-	Loading < 0.70
	Leadership and supervision		0.286 ***	
	Bureaucracy		0.255 ***	
	Internal affairs and accountability		-	Loading < 0.70
	Management and organizational capacity		0.302 ***	
Demographic factors (exogenous, formative)	Age		-	Loading < 0.70
	Gender		1.00 ***	
	Tenure		-	VIF ≈ 5
	Rank		-	Loading < 0.70
	District size		-	Loading < 0.70
Positive psychological factors (exogenous, formative)	**Resilient traits**	CDRISC 10	1.00 ***	
	Problem-focused coping	BriefCOPE	-	Loading < 0.70
Negative psychological factors (exogenous, formative)	**Avoidant coping**	BriefCOPE	1.00 ***	
	Emotion-focused coping		-	Loading < 0.70

Table 3. *Cont.*

Latent Variables (LVs)	Manifest Variables (MVs)	Measures	Weight [a]	Exclusion
Mental health issues (endogenous, formative)	**PTSD**	PCL5	0.183 **	
	Emotional exhaustion (Burnout)		0.335 ***	
	Depersonalization (Burnout)	MBIGS	0.156 *	
	Professional efficacy (Burnout)		-	Loading < 0.70
	Anxiety		0.357 ***	
	Depression	GHQ28	0.194 **	
	Suicidal ideations		-	VIF > 5
	Substance consumption	ASSIST	-	Loading < 0.70

Notes: PSQOp = Police Stress Questionnaire-Operational; PSQOrg = Police Stress Questionnaire-Organizational; CDRISC = Connor-Davidson Resilience Scale-10; BriefCOPE = Brief-Coping Orientation to Problems Experienced; PCL5 = Posttraumatic Stress Disorder Checklist for DSM-5; MBIGS = Maslach Burnout Inventory-General Survey; GHQ28 = General Health Questionnaire-28; ASSIST = Alcohol, Smoking and Substance Involvement Screening Test; **Bold** = manifest variable retain in the final model; [a] Weight corresponds to a multiple regression coefficient reflecting the predictive importance of each indicator for LVs. * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$.



Notes. *Circles* = latent constructs; *Rectangles* = manifest variables; *β* = standardized direct path coefficient; *λ* = factor loading; *Adj. R²* = adjusted R²; *Full arrows* = significant paths; *Dotted arrows* = non-significant paths. * p ≤ 0.05; ** p ≤ 0.01; *** p ≤ 0.001.

Figure 2. PLS-SEM model of risk factors (direct effects) on mental health issues of police officers.

Overall, the findings provide mixed support for H2. Contrary to expectation, operational factors did not emerge as the strongest predictor of mental health issues (H2a), nor did organizational factors mediate the relationship between operational factors and mental health issues (H2d). In contrast, organizational factors (H2b) and psychological individual factors (H2c) showed significant direct effects on mental health outcomes. Individual factors also contributed indirectly to mental health through operational and organizational pathways, providing partial support for H2e and H2f.

Contrary to H2a, operational factors did not have the strongest direct predictive effect on mental health issues. In fact, their direct effect was non-significant ($\beta = 0.21$, $t = 1.25$, $p = 0.105$), and no significant indirect effect was observed. These findings indicate that operational stressors were not directly associated with mental health issues within the proposed model. Likewise, H2d was not supported, as no evidence suggested that organizational factors are mediated by operational factors on mental health. Indeed, the indirect effect is zero.

Table 4. Path coefficients and mediation analysis results for the final model (inner model).

	Direct Effect [a]			Total Effect [c]			Indirect Effect [b] β	f^2
Paths	β (SD)	95% CI	t (*p*)	β (SD)	95% CI	t (*p*)		
Operational factors → Mental health issues	0.21 (0.17)	−0.11–0.57	1.25	0.21 (0.17)	−0.11–0.57	1.25	0	0.03
Organizational factors → Mental health issues	0.37 (0.16)	0.05–0.68	2.27 **	0.54 (0.06)	0.42–0.65	9.20 ***	0.17	0.11
Psychological factors + → Mental health issues	−0.21 (0.05)	−0.30–−0.11	−4.12 ***	−0.46 (0.06)	−0.57–−0.34	−7.64 ***	−0.25	0.10
Psychological factors − → Mental health issues	0.15 (0.06)	0.04–0.27	2.62 **	0.33 (0.06)	0.21–0.45	5.46 ***	0.18	0.05
Demographic factors → Mental health issues	0.12 (0.08)	−0.03–0.28	1.51	0.31 (0.09)	0.13–0.47	3.47 ***	0.19	0.03
Organizational factors → Operational factors	0.79 (0.05)	0.68–0.89	14.55 ***	0.79 (0.05)	0.68–0.89	14.55 ***	0	1.56
Psychological factors + → Operational factors	−0.04 (0.05)	−0.14–0.06	−0.82	−0.35 (0.07)	−0.48–−0.22	−5.32 ***	−0.31	0.01
Psychological factors + → Organizational factors	−0.26 (0.06)	−0.37–−0.14	−4.42 ***	−0.35 (0.06)	−0.46–−0.23	−5.87 ***	−0.09	0.08
Psychological factors + → Psychological factors −	−0.30 (0.06)	−0.41–−0.19	−5.35 ***	−0.30 (0.06)	−0.41–−0.19	−5.35 ***	0	0.10
Psychological factors − → Operational factors	0.12 (0.05)	0.01–0.23	2.15 *	0.34 (0.06)	0.21–0.46	5.34 ***	0.22	0.04
Psychological factors − → Organizational factors	0.28 (0.06)	0.16–0.40	4.59 ***	0.28 (0.06)	0.16–0.40	4.59 ***	0	0.09
Demographic factors → Operational factors	−0.08 (0.07)	−0.22–0.06	−1.16	0.15 (0.08)	−0.02–0.31	1.72 *	0.23	0.02
Demographic factors → Organizational factors	0.16 (0.08)	−0.01–0.32	1.94 *	0.25 (0.08)	0.09–0.41	3.05 ***	0.09	0.03
Demographic factors → Psychological factors −	0.13 (0.08)	−0.02–0.28	1.68 *	0.17 (0.08)	0.02–0.32	2.30 **	0.04	0.02
Demographic factors → Psychological factors +	−0.15 (0.08)	−0.31–0.01	−1.89 *	−0.15 (0.08)	−0.31–0.01	−1.89 *	0	0.02

Notes: *CI* = Confidence interval; β = prediction coefficient; p = p-value; f^2 = effect size. [a] Direct effect is the impact of the independent variable on the dependent variable, without passing through other variables. [b] Indirect effect (=*total* β − *direct* β) is the impact of the independent variable on the dependent variable through the mediating variables. [c] Total effect is the overall effect of the independent variable on the dependent variable, including direct et indirect effects. * $p \leq 0.05$; ** $p \leq 0.01$; *** $p \leq 0.001$ (one-tailed). +: positive; −: negative.

Although operational factors are not directly associated with mental health issues, they were strongly explained by other variables (*adjusted* $R^2 = 0.70$). Organizational factors were the most strongly associated with operational factors ($\beta = 0.79$, $t = 14.55$, $p < 0.001$), while negative psychological factors (namely avoidant coping) exerted a smaller but significant effect ($\beta = 0.12$, $t = 2.15$, $p = 0.016$; *indirect* $\beta = 0.22$). Positive psychological factors (resilient traits) and sociodemographic factors (gender) did not exert significant direct effects on operational factors, although their total effects were significant ($\beta = -0.35$ and $\beta = 0.15$, respectively), suggesting indirect relations. These results indicate that operational stressors appeared to be closely related to organizational and psychological processes.

In contrast, H2b was supported. Organizational factors exerted a significant direct effect on mental health issues ($\beta = 0.37$, $t = 2.27$, $p = 0.011$), and their total effect was even stronger ($\beta = 0.54$, $t = 9.20$, $p < 0.001$). The difference between the direct and total effects (*indirect* $\beta = 0.17$) suggests that organizational stressors are related to mental health both directly and indirectly through other factors included in the model. A substantial proportion of the variance in organizational factors (*adjusted* $R^2 = 0.24$) was associated with negative psychological factors (avoidant coping; $\beta = 0.28$, $t = 4.59$, $p < 0.001$), positive psychological factors (resilient traits; $\beta = -0.26$, $t = -4.42$, $p < 0.001$), and, to a lesser extent, sociodemo-

graphic factors (gender; $\beta = 0.16$, $t = 1.94$, $p = 0.026$). The indirect effects associated with positive psychological ($\beta = -0.09$) and demographic factors ($\beta = 0.09$) were relatively weak, whereas the effect of negative psychological factors remained stable. Although the conceptual model did not formally specify a pathway from operational to organizational factors, a complementary reversed PLS-SEM analysis showed that operational factors exerted a substantial total effect on mental health issues through organizational factors (*total* $\beta = 0.50$, $t = 6.94$, $p < 0.001$). Together, these findings underscore the central role of organizational factors in explaining mental health issues.

Strong support was also found for H2c, which indicated a direct effect of individual psychological factors on mental health. Positive psychological factors (resilient traits) exerted a significant negative direct effect on mental health issues ($\beta = -0.21$, $t = -4.12$, $p < 0.001$), and this effect became even stronger when indirect pathways were considered (*total* $\beta = -0.46$, $t = -7.64$, $p < 0.001$; *indirect* $\beta = -0.25$). Conversely, negative psychological factors (avoidant coping) are positively associated with mental health issues both directly ($\beta = 0.15$, $t = 2.62$, $p = 0.004$) and indirectly, resulting in a larger total effect ($\beta = 0.33$, $t = 5.46$, $p < 0.001$; *indirect* $\beta = 0.18$). These findings confirm that psychological resources and vulnerabilities are key correlates of mental health and are associated with both direct and indirect pathways in the proposed model.

The results provided limited support for H2e and partial support for H2f. H2e proposed that individual factors would exert an indirect effect on mental health issues through the mediating role of operational factors. Although several individual factors were significantly associated with operational factors, the hypothesized mediation pathway was not supported because operational factors did not show a significant direct association with mental health issues. Nevertheless, positive psychological factors (resilient traits; $\beta = -0.35$, $p < 0.001$), negative psychological factors (avoidant coping; $\beta = 0.34$, $p < 0.001$), and, to a lesser extent, sociodemographic factors (gender; $\beta = 0.15$, $p = 0.043$) displayed significant total effects on operational factors, suggesting that individual characteristics were related to operational stress. H2f suggested that individual factors would exert an indirect effect on mental health issues through the mediating role of organizational factors. The results provided partial support for this hypothesis. Organizational factors were significantly associated with mental health issues, and both positive psychological factors ($\beta = -0.26$, $t = -4.42$, $p < 0.001$) and negative psychological factors ($\beta = 0.28$, $t = 4.59$, $p < 0.001$) were significantly and directly associated with organizational factors. Sociodemographic factors also showed a smaller association with organizational factors ($\beta = 0.16$, $t = 1.94$, $p = 0.026$).

Additional evidence for indirect pathways was observed for sociodemographic factors (gender). Although their direct effect on mental health issues was not significant ($\beta = 0.12$, $t = 1.51$, $p = 0.065$), their total effect was significant ($\beta = 0.31$, $t = 3.47$, $p < 0.001$), resulting in a small indirect effect ($\beta = 0.19$). Furthermore, sociodemographic factors were associated with both positive psychological factors (resilient traits; $\beta = -0.15$, $t = -1.89$, $p = 0.029$) and negative psychological factors (avoidant coping; $\beta = 0.13$, $t = 1.68$, $p = 0.046$), while positive psychological factors were negatively associated with negative psychological factors ($\beta = -0.30$, $t = -5.35$, $p < 0.001$). Although these indirect effects were relatively modest, they suggest that the association between individual factors and mental health issues may operate partly through organizational pathways.

4. Discussion

The present study examined the direct and indirect associations of operational, organizational, and individual factors with the main mental health issues among Belgian police officers, including PTSD, burnout, anxiety, depression, suicidal ideation, and substance use. Three main findings emerge from the results. First, Belgian police officers report substantial

levels of psychological difficulties and identify chronic occupational constraints, particularly administrative burden, health-related consequences of work, and work–life imbalance, as major sources of stress. Second, organizational factors showed stronger associations with mental health outcomes than operational stressors within the proposed model. Third, resilience and coping strategies were associated with mental health outcomes, although these relationships appeared to be embedded within a broader organizational context.

4.1. Mental Health Issues and Perceived Stressors Among Belgian Police Officers

Belgian police officers reported substantial levels of psychological difficulties, including probable PTSD (11.42%), burnout (19.38%), and psychological distress (43.94–58.82%), whereas at-risk substance use remained relatively low (3.46%). Although these estimates should be interpreted cautiously because they are based on screening instruments (e.g., GHQ-28), they are broadly consistent with previous PTSD findings and suggest comparatively higher levels of burnout and psychological distress [4,14,18,19,22,122]. These results also highlight the importance of subclinical symptoms, which may worsen over time, remain underrecognized, and hinder help-seeking behaviors [123–125].

Beyond mental health outcomes, the descriptive analyses indicate that police officers primarily perceive chronic occupational and organizational constraints as sources of stress. Fatigue, work-related health consequences, administrative burden, work–life imbalance, staff shortages, and leadership issues were rated as more stressful than several operational demands traditionally associated with policing. This pattern suggests that police stress reflects a cumulative burden of everyday organizational and occupational pressures rather than solely exposure to potentially traumatic events and is consistent with psychosocial risk models emphasizing the role of high job demands and organizational justice in employee well-being [126,127]. This observation provides important context for the structural analyses that follow.

4.2. Organizational Factors Emerge as the Strongest Correlates of Mental Health Outcomes

The most notable finding is that organizational factors were directly and indirectly associated with PTSD, burnout, anxiety, and depression, whereas operational factors appeared to be associated with mental health primarily through indirect pathways involving organizational conditions. These results align with a part of the literature indicating that organizational constraints are strongly associated with police stress and mental health outcomes, often exerting a stronger influence than operational stressors encountered in the field [86,128–131]. It also aligns with recommendations emphasizing the importance of post-event organizational responses, including managerial support and workplace climate, in shaping the psychological impact of PTEs [37,132,133].

One possible explanation lies in the chronic and recurring nature of organizational stressors. Unlike isolated operational incidents, organizational constraints such as excessive workload, bureaucratic pressure, insufficient support, and organizational instability tend to persist over time, increasing cumulative exposure to stress. According to allostatic load models, prolonged activation of physiological stress-response systems may progressively contribute to emotional dysregulation, anxiety, depression, burnout, and diminished coping capacities [128,134–137].

4.3. Individual Resources Are Associated with Mental Health Outcomes but Remain Embedded Within Organizational Contexts

The third main finding concerns the individual factors. Overall, police officers reported greater use of adaptive coping strategies, including acceptance, active coping, planning, and positive reinterpretation. These findings are consistent with several previous studies [138–140], although they contrast with more recent research reporting higher levels

of dysfunctional coping among police personnel [4,22,25,141]. Differences in recruitment processes, training experiences, professional socialization, or social desirability bias may partly explain these discrepancies [4,25,142–144].

Within the proposed model, resilience and avoidance coping showed both direct and indirect associations with mental health outcomes. These findings support theoretical perspectives emphasizing the interactive nature of mental health, whereby individual vulnerabilities and resources operate in conjunction with environmental influences [28,145–147]. However, the magnitude of these 'protective' effects remained moderate. Moreover, despite the relatively frequent use of adaptive coping strategies, substantial levels of psychological difficulties were still observed within the sample. This pattern suggests that the benefits of resilience and coping resources may be constrained when police officers are repeatedly exposed to enduring organizational stressors [21,46,141,148].

The indirect pathways identified in the analyses further support this interpretation. Organizational conditions appear to influence mental health not only directly but also indirectly through their associations with coping strategies and resilience. These findings highlight the importance of considering resilience and coping processes within their organizational context rather than viewing them solely as individual attributes. Consistent with Janssens et al. [149], resilience appears to function as a meaningful but comparatively limited protective factor when confronted with persistent occupational stressors.

4.4. Supplementary Findings and Subgroup Differences

Supplementary analyses (see Table S2 and Figure S1) revealed one particularly noteworthy result: female police officers reported higher levels of organizational stress, especially regarding interpersonal relationships and leadership, and greater reliance on avoidance-oriented coping strategies. These findings are consistent with previous studies and may reflect challenges associated with working in a traditionally male-dominated occupational environment [87,150–153]. They also align with our previous findings showing an overrepresentation of women among psychologically distressed profiles [16].

Differences related to rank, professional experience, duty assignment, and organizational size were generally smaller. Although mid-career officers and community policing personnel reported greater bureaucratic burden, the overall pattern suggests that occupational stressors are broadly shared across the institution [154,155]. As these analyses were exploratory and not included in the final PLS-SEM model, they should be interpreted with caution.

4.5. Practical Implications

The findings of this study thus call for a shift toward a more systemic approach to intervention, placing greater emphasis on organizational correlates of police mental health. Without dismissing the value of individual-level interventions—particularly resilience- or coping-based programs and evidence-based therapies for severe disorders (e.g., exposure-based cognitive behavioral therapy, EMDR) [6,156]—it appears essential to integrate these with structural changes aimed at reducing organizational sources of stress. Moreover, multiple linear regressions (see Supplementary Materials, Table S5) identified coworker relations, stigma toward sick or injured officers, inadequate equipment, administrative burden, leadership quality, and organizational instability as the main organizational predictors of mental health outcomes. In this regard, the literature converges on several key recommendations [130]. First, strengthening primary prevention by directly addressing organizational stressors, such as workload, role ambiguity, and lack of support, is crucial [34,128]. This entails rethinking managerial practices in favor of participatory leadership styles grounded in active listening, decision-making transparency, and officer

involvement in organizational processes [131,157]. Second, adapting work organization represents an important lever, including the regulation of working hours, the provision of adequate rest periods, and the reduction in excessive operational demands [158]. Third, transforming organizational culture is essential to reduce mental health stigma and promote the use of support services [159,160]. In this respect, explicit leadership commitment plays a decisive role in normalizing psychological difficulties and encouraging the use of available resources. Finally, recommendations emphasize the need to implement an integrated and accessible range of support mechanisms, including psychological services, peer-support programs, training initiatives, and regular well-being assessments [160,161]. However, such measures can only be effective if embedded within a comprehensive, institutionally supported strategy aligned with sustainable organizational change. Ultimately, improving police mental health depends less on the accumulation of individual interventions than on a coordinated transformation of the work environment.

4.6. Strengths, Limitations, and Future Perspectives

This study makes a significant contribution to the literature by mobilizing a multilevel ecological framework that remains underutilized [4,9,26], while also providing novel empirical evidence from the underrepresented Belgian context. The use of advanced analytical methods (PLS-SEM, Bayesian analyses), combined with the integration of positive factors such as resilience, constitutes a notable methodological strength. However, the consideration of protective factors remains partial, particularly at the individual (e.g., social support), operational (e.g., sense of safety), and organizational levels (e.g., organizational support) [7]. Several limitations should nevertheless be acknowledged. First, the cross-sectional design does not allow for causal inferences or the examination of temporal dynamics, especially given that the literature highlights bidirectional relationships between psychological distress and risk factors [140]. For instance, elevated levels of distress may influence the selection of coping strategies, which in turn may either exacerbate or mitigate symptoms. Then, the reliance on self-reported measures introduces potential biases, including the overestimation of mental health issues [125] and social desirability bias [162], despite the advantage of anonymity associated with such methods [163]. The independence of the study nonetheless represents a strength, as institutional surveys may lead to underreporting of symptoms [123]. An additional limitation concerns the modelling of individual factors in the PLS-SEM. To ensure conceptual coherence, the individual domain was divided into three latent variables (demographic, positive psychological, and negative psychological factors). While this approach improved the measurement model, it may have reduced the statistical weight of individual factors, potentially underestimating their overall contribution to mental health outcomes. Furthermore, the iterative refinement of the PLS-SEM model reduced the representation of the individual factors construct, with resilience, avoidance coping, and gender emerging as the primary retained indicators. Therefore, these constructs should be interpreted as partial representations of the broader theoretical domains initially specified. Finally, the strong association between operational and organizational factors, approaching multicollinearity, along with the limited sample size (approximately 2% of the target population), constrains the generalizability of the findings [148,164]. Future research should prioritize longitudinal designs and incorporate a broader range of organizational and contextual variables (e.g., institutional policies, managerial practices, organizational climate) to better understand the underlying mechanisms and inform more comprehensive prevention strategies. Additionally, typological analyses would enable the identification of distinct risk profiles and support more targeted interventions [46]. Moreover, the present study focused primarily on mediation mechanisms to clarify how risk factors are associated with mental health outcomes. Future studies could

complement these findings by examining moderation effects, which may help identify the conditions under which risk and protective factors are more or less strongly associated with mental health outcomes. As noted by Cheung and Li [60], mediating and moderating processes remain insufficiently examined in the literature on police occupational stress. Existing evidence has identified only a few potential moderators, namely social support, work support, and internal locus of control, highlighting the need for further research in this area.

5. Conclusions

This study supports a multifactorial understanding of police mental health and highlights the prominent role of organizational stressors alongside operational exposures and individual characteristics. While resilience and coping resources remain important, organizational conditions showed the strongest associations with mental health outcomes. These findings suggest that sustainable improvements in police well-being require combining individual support initiatives with broader organizational interventions targeting workload, leadership, and workplace culture.

Supplementary Materials: The following supporting information can be downloaded at https://www.mdpi.com/article/10.3390/ijerph23101260/s1: Table S1: Synthesis of the operational, organizational and individual factors by mental health issues; Table S2: Non-parametric comparisons of risk factors scores (*Mean, SD*) by population groups and sociodemographic/professional characteristics of police officers; Figure S1: Scores distribution of risk factors scores by age category of police officers (N = 289); Table S2 and Figure S1: Further details on methods and analyses; Table S3: Correlations between mental health outcomes and potential risk factors of police officers (N = 289); Table S4: Aggregation of the initial indicators into manifest and latent variables used in the PLS-SEM measurement and structural models; Table S5: Multiple linear regressions between potential risk factors and mental health outcomes of police officers (N = 289); Table S6. Detailed significant pairwise comparisons at the item, subscale, and dimension levels within each operational, organizational and individual domain. References [165,166] are cited in the supplementary material.

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Abbreviations

The following abbreviations are used in this manuscript:

Adj. R^2	Adjusted Coefficient of Determination
Anx./In.	Anxiety/Insomnia
AR	Absolute risk
ASSIST	Alcohol, Smoking and Substance Involvement Screening Test
B	Bureaucracy
BF_{10}	Bayes Factor
Brief-COPE	Brief Coping Orientation to Problems Experienced
CD-RISC-10	Connor–Davidson Resilience Scale–10
CI	Confidence Interval
CWR	Co-worker Relations
Dep.	Depression
DP	Depersonalization
DSM	Diagnostic and Statistical Manual of Mental Disorders
EE	Emotional Exhaustion
EF	Emotion-Focused Coping
ES	Effect Size
f^2	Effect Size (PLS-SEM)
GHQ-28	General Health Questionnaire–28
H	Kruskal–Wallis H Statistic
HTMT	Heterotrait–Monotrait Ratio
IAA	Internal Affairs and Accountability
LV	Latent Variable
LS	Leadership and Supervision
MBI-GS	Maslach Burnout Inventory-General Survey
MOC	Management and Organizational Capacity
MV	Manifest Variable
OR	Odds Ratio
PCL-5	PTSD Checklist for DSM-5
PE	Professional Efficacy
PF	Problem-Focused Coping
PLS-SEM	Partial Least Squares Structural Equation Modeling
PSQ	Police Stress Questionnaire
PSQ-Op	Police Stress Questionnaire-Operational
PSQ-Org	Police Stress Questionnaire-Organizational
PTE	Potentially Traumatic Event
PTSD	Post-Traumatic Stress Disorder
Q^2	Stone–Geisser Predictive Relevance Index
R^2	Coefficient of Determination
SD	Standard Deviation
SDys	Social Dysfunction
SI	Suicidal Ideation
SR	Social-Related Issues
SRMR	Standardized Root Mean Square Residual

SS	Somatic Symptoms
TR	Training and Resources
U	Mann–Whitney U Statistic
VIF	Variance Inflation Factor
WHO	World Health Organization
WR	Work-Related Issues

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