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Original article

# Work–Family Conflict, Depression, and Burnout Among Jail Correctional Officers: A 1-Year Prospective Study

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ABSTRACT

*Background:* Correctional officers (COs) experience elevated rates of mental and physical ill-health as compared with other general industry and public safety occupations. The purpose of this study was to investigate demographic, mental health, job tenure, and work–family characteristics and their prospective association to burnout within and between jail officers during one year of new employment.
*Methods:* In 2016, newly hired jail officers (N = 144) completed self-reported surveys across four time points in a one-year prospective study at a Midwestern United States urban jail. Linear mixed-effects and growth modeling examined how work–family conflict (W-FC) and depressive symptoms relate to perceptions of burnout over time.
*Results:* Jail officer burnout increased and was related to rises in W-FC and depression symptoms. Within-person variance for W-FC ($B_{pooled}$ = .52, $p$ < .001) and depression symptoms ($B_{pooled}$ = .06, $p$ < .01) were significant predictors of burnout. Less time on the job remained a significant predictor of burnout across all analyses ($B_{pooled}$ = .03, p < .001).
*Conclusions:* Results from this study indicate that burnout increased during the first year of new employment; and increased W-FC, higher depression, and brief tenure were associated with burnout among jail COs. Future study of correctional workplace health is needed to identify tailored, multilevel interventions that address burnout and W-FC prevention and early intervention among COs.


## 1. Introduction

Nearly 500,000 jail correctional officers (COs) are employed in facilities housing over 2.2 million people in local- and county-level jails and prisons across the United States, and carceral workplace health promotion is understudied [1–3]. COs are an underserved and at-risk workforce with elevated rates of mental and physical ill-health as compared with other vocations [4,5]. Burnout syndrome presents in the form of emotional exhaustion, cynicism, dehumanization, emotional hardening, and reduced coping skills and productivity, as a response to chronic job stressors [6]. Stressors that occur within correctional work include lack of job control or autonomy, trauma, critical incidents, understaffing, and working mandatory overtime [7]. Sources of CO stress have been categorized as occurring from working with inmates/people experiencing incarceration and stressors from occupational, organizational/administrative, and psychosocial sources, including work–family conflict (W-FC) [7]. Studies indicate consistent associations among violence in the workplace and mental health problems [8].

Understanding the intersection of employee work and family life is a prominent concern across society and within workplace health research [9]. Role conflict theory suggests that W-FC is the result of extensive job and family demands that lead to strain [10] and is defined as "a form of interrole conflict in which the role pressures from the work and family domains are mutually incompatible [11]." Research on W-FC among prison officers found it to be

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significantly and positively associated with depression [12]. Depression among prison officers is extremely prevalent at 31% [11] as compared with an estimated 9% for the general population of other workers [13]. Furthermore, when compared with their working age counterparts in other occupations, prison officers have a 39% higher risk of suicide [14]. The working age population suicide rate has increased by 40% to 12.9 per 100,000 population (2000–2017), and the rate of CO suicide is 36 per 100,000 (males), higher than that of all other protective service occupations (26.4 per 100,000) and the working age population [15].

While research on employee health has been described in studies of prison officers [12,14,16], there are limited data on jail-based officers, especially during the critical initial year of being hired. Prison officers work in 1,821 state and federal prisons [17] that serve about 1.5 million residents [3]. In contrast, jail officers serve in justice facilities where an estimated 11 million people cycle through the correction system each year [18]. Moreover, few studies have explored the etiology of jail officer health, with even fewer studies focusing on the intersection of ill-health and W-FC.

In 2018, the National Institute for Occupational Safety and Health established research goals to ameliorate mental health disorders including depression [19] among public safety workers such as COs. This study addresses the National Institute for Occupational Safety and Health research goals in addition to the consideration of the Total Worker Health® (TWH) strategy that targets the improvement of workplace programs, policies, and practices [20]. The definition of TWH acknowledges that work is a social determinant of health and considers how workplaces can have an impact on the well-being of workers and their families, among others [21,22].

Guided by the conservation of resources theory that posits stress occurs when key resources are threatened [23], we implemented a prospective study of jail CO health. In this study, our overarching aims were to answer the following research questions: (1) How does burnout develop among new jail officers during their critical first year of employment? And (2) To what extent does context of resources (e.g. demographic and mental health characteristics) and resource desperation (e.g. W-FC) serve to influence burnout among jail COs?

## 2. Materials and Methods

### 2.1. Design and procedures

In partnership with the Saint Louis University (SLU) Health Criminology Research Consortium, the Transformative Justice Initiative seeks to develop evidence-informed solutions to improve health promotion and health protection in justice systems. This workplace health project is the second in a series of TWH studies in jails. Methods were informed by participatory research in jail facilities [51]. This study was conducted in the Midwest United States. Ethical approval was attained from the Institutional Review Board at SLU.

An urban jail facility employing approximately 300 jail officers in 2016 was recruited to participate in this repeated measures survey design study. Participants were at least 18 years old and employed as an officer at one of two participating facilities. Officers were informed about the study and asked to provide their written consent before participating. A total of 144 newly hired jail officers (e.g., offered employment and participating in initial training) returned self-administered, paper-based surveys at baseline. Officers received a $20 gift card for each survey completed across four time points, as remuneration for their participation in the study.

Four waves of data were collected at different intervals based on the rolling hiring of groups of officers during 2016. We used a cohort sequential design in which new participants were recruited, along with already recruited participants, at each time point. The baseline survey was collected before training at the start of new hire orientation and training located outside of the jail facility at their training academy. After 4 weeks of training, participants filled out posttraining time point 2 (T2) surveys and repeated surveys at 6 monthsafter training (T3) and 12 months after training (T4).

### 2.2. Measures

#### 2.2.1. Demographic characteristics

Demographic characteristics were attained directly from participants for age (reported in years), relationship/marriage status (partnered yes/no), and gender (male/female), while race/ethnicity was attained as a categorical variable (Black/African American, Caucasian, Hispanic/Latino, other, multiracial/multiethnic).

#### 2.2.2. Burnout

Measured by the Prison Social Climate Survey [24], six burnout items were assessed (e.g. “How often do you experience: A feeling of worry that this job is hardening you emotionally?”). Response options ranged from 1 (never) to 7 (all the time). An average of all 6 items was computed, with higher scores indicating more burnout. Internal consistency was acceptable across time points (T1 $\alpha = .85$, T2 $\alpha = .90$, T3 $\alpha = .85$, T4 $\alpha = .85$).

#### 2.2.3. Work–family conflict

A four-item measure with two subscales for W-FC and family–work conflict (F-WC) developed for the National Comorbidity Study was used to measure W-FC [25]. Subscale items included “How often do things going on at work make you feel tense and irritable at home?” and “How often do the demands of your job interfere with your family life?” (W-FC subscale) and “How often do things going on at home make you feel tense and irritable on the job? and How often do the demands of your family interfere with your work on the job?” (F-WC). Response options ranged from 1 (never) to 5 (always). Items were aggregated for each subscale such that higher scores represented more W-FC. Internal consistency for the subscales across time points was mediocre to acceptable (W-FC: T1, $\alpha = .62$, T2 $\alpha = .72$, T3 $\alpha = .84$, T4 $\alpha = .77$ and F-WC: T1 $\alpha = .70$, T2 $\alpha = .88$, T3 $\alpha = .91$, T4 $\alpha = .83$). Measurement invariance of the scale was adequate across time points as demonstrated by model fit after constraining factors, loadings, intercepts, and residuals to be equal (Comparative fix index/CFI = .98, root mean square error of approximation/RMSEA = .10).

#### 2.2.4. Depression

The 10-item Center for Epidemiologic Studies Depression Scale [26] measured depressive symptoms experienced in the last week including sadness, loss of interest, appetite, sleep, thinking/concentration, guilt, and fatigue. Response options ranged from 0 “rarely or none of the time” to 3 “all of the time”. Items were summed to calculate a total score where 10 or greater is the clinical cutoff for depression [26]. Internal consistency across time points was mediocre to acceptable (T1 $\alpha = .72$, T2 $\alpha = .75$, T3 $\alpha = .64$, T4 $\alpha = .65$).

### 2.3. Analytic methods

All analyses were conducted in version 3.5.1 of the R Foundation for Statistical Computing environment [27]. After reviewing descriptive statistics, a correlation matrix was populated for all study variables. Considering the use of a repeated measures methodology, linear mixed-effects modeling was used. Specifically, a growth modeling approach was undertaken to understand how

**Table 1**
Baseline characteristics of the study sample (n = 144)

| Characteristics | Total N | | N with missing data | |
|---|---|---|---|---|
| | N | % | N | % |
| Gender (n = 144) | | | | |
| Female | 72 | 50.00 | 57 | 49.14 |
| Male | 72 | 50.00 | 59 | 50.86 |
| Age (n = 137) | | | | |
| 18–30 | 71 | 51.82 | 15 | 36.59 |
| 31–40 | 38 | 27.74 | 14 | 34.15 |
| 41–50 | 17 | 12.41 | 9 | 21.95 |
| 51–60 | 11 | 8.03 | 3 | 7.32 |
| >60 | 0 | 0.00 | 0 | 0.00 |
| Ethnicity (n = 144) | | | | |
| Black/African American | 89 | 61.81 | 69 | 59.48 |
| White/Caucasian | 41 | 28.47 | 36 | 31.03 |
| Latino/Hispanic | 3 | 2.08 | 3 | 2.59 |
| Multiracial | 10 | 6.94 | 7 | 6.03 |
| Other | 1 | 0.69 | 1 | 0.86 |
| Relationship (n = 144) | | | | |
| Partnered | 56 | 38.89 | 15 | 38.89 |
| Not partnered | 88 | 61.11 | 31 | 61.11 |
| Education | | | | |
| High school grad/equivalency | 16 | 11.11 | 1 | 2.94 |
| Some college | 75 | 52.08 | 21 | 61.76 |
| College degree (2 or 4 years) | 50 | 34.72 | 11 | 32.35 |
| Graduate degree | 3 | 2.08 | 1 | 2.94 |

W-FC and depressive symptoms relate to perceptions of burnout over time. An appropriate metric of time was used [28], specifically by month, from start to finish of the study (0–19 months). Burnout was treated as within-person influence (Level 1), whereas W-FC and depressive symptoms underwent appropriate centering procedures [29] to examine both within- and between-person (Level 1 and 2) influences on the burnout outcome. Participant baseline characteristics (i.e., relationship status, age at study outset, gender, and ethnicity) were treated as Level 2 predictors.

The percentage of participants who completed follow-up time points ranged from 75% (n = 108) at T2 to 44% (n = 63) at 12 months. Missing data across focal variables ranged from 0 to 39% of the total sample and outside the cutoff at which missingness could be ignored (≤5%), as suggested by Bennett [30]. We examined missing data through a series of conventional logistic regression models and a series of Bayesian logistic regression equations [31]. Across all of the equations, we found support for treating missing data as missing at random. Multiple imputation was undertaken to address missingness at random (m = 7) and pooled results with Rubin's rules [32] for fixed effects are reported, as well as the range of values for the random effects across the imputed data sets. Therefore, the full sample was included in analyses ($N = 144$).

A step procedure was used in which variables were entered in blocks (i.e., time, demographics, W-FC, depressive symptoms, and interaction terms) allowing for model fit comparison. Overall model significance was reviewed at each step, as well as chi-square tests for pooled nested models and changes in both $\sigma^2$ and $\tau_{00}$. The $ICC_1$ was computed for the burnout outcome demonstrating nonindependence with 33% of variance being attributed within-person. A model building procedure was followed by which a random intercepts-only model was compared with a random intercept–slope model [33]. The random intercept–slope model was retained as the better fitting model ($\chi^2_{pooled} = 4.83$, $p < .05$).

## 3. Results

Descriptive statistics for both the full sample and those participants that did not record complete data are presented in Table 1. Gender was evenly split. A majority of the sample (77%) were between the ages of 18 and 40 (mean age: 34 years, $SD$ =10.1), (were of minority racial/ethnic status 72%), and 39% were partnered in a relationship.

To assess the longitudinal bivariate relationships over time, means, standard deviations, and zero-order correlations were calculated for all continuous measures across all time points (Table 2). All bivariate relationships were in the expected direction. In the final mixed-effects model step, the main effects of within-person and between person depression and W-FC on the burnout outcome were assessed along with the interactive effect of between-person W-FC and within-person depression after controlling for baseline characteristics (Table 3). Time was a significant predictor across all model steps suggesting that burnout increased from start of employment throughout the study period ($B_{pooled} = .03$, $p < .01$). Age, gender, ethnicity, and relationship status were not significant predictors of burnout across any of the model steps.

Within-person change in W-FC was a significant predictor of burnout over time ($B_{pooled} = .52$, $p < .001$), whereas between-person differences in W-FC was not ($B_{pooled} = .28$, $p > .05$), suggesting that within-person fluctuations in W-FC increased burnout but between-person differences in W-FC did not add any predictive power. In addition, within-person change in depressive symptoms was positively related to burnout ($B_{pooled} = .08$, $p < .001$),

**Table 2**
Observed mean, standard deviations, and zero-order correlations

| Construct | M (SD) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Age | 32.5 (9.7) | | | | | | | | | | | | |
| W-FC 1 | 1.8 (0.7) | −0.086 | | | | | | | | | | | |
| W-FC 2 | 2.0 (0.7) | −0.182 | 0.532*** | | | | | | | | | | |
| W-FC 3 | 2.0 (0.8) | −0.158 | 0.373** | 0.777*** | | | | | | | | | |
| W-FC 4 | 2.0 (0.7) | −0.211 | 0.411*** | 0.583*** | 0.578*** | | | | | | | | |
| Burnout 1 | 1.7 (0.9) | −0.09 | 0.448*** | 0.348*** | 0.018 | 0.183 | | | | | | | |
| Burnout 2 | 2.2 (1.4) | −0.227* | 0.449*** | 0.602*** | 0.532*** | 0.339* | 0.377*** | | | | | | |
| Burnout 3 | 2.5 (1.3) | −0.257* | 0.255* | 0.495*** | 0.617*** | 0.585*** | 0.254* | 0.561*** | | | | | |
| Burnout 4 | 2.5 (1.5) | −0.247 | 0.328* | 0.603*** | 0.600*** | 0.680*** | 0.225 | 0.501*** | 0.633*** | | | | |
| Depression 1 | 6.1 (4.4) | −0.288** | 0.640*** | 0.462*** | 0.304* | 0.400** | 0.518*** | 0.353*** | 0.326** | 0.269 | | | |
| Depression 2 | 6.6 (5.0) | −0.230* | 0.436*** | 0.563*** | 0.504*** | 0.258 | 0.304** | 0.620*** | 0.393** | 0.389** | 0.603*** | | |
| Depression 3 | 5.7 (4.0) | −0.216 | 0.523*** | 0.591*** | 0.581*** | 0.526*** | 0.222 | 0.599*** | 0.493*** | 0.569*** | 0.427*** | 0.540*** | |
| Depression 4 | 6.4 (4.1) | −0.322* | 0.306* | 0.570*** | 0.467*** | 0.486*** | 0.296* | 0.222 | 0.442** | 0.564*** | 0.603*** | 0.379* | 0.582*** |

1 = baseline; 2 = 2–6 weeks after training; 3 = 3–6 months after training; 4 = 4–12 months after training. Computed correlation used pearson-method with pairwise-deletion. SD, standard deviation. *$p < .05$. **$p < .01$. ***$p < .001$.

**Table 3**
Mixed-effects model predicting jail officer burnout with multiple imputation (m = 7)

| Fixed parts | Dependent Variable: Burnout | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Step 1† | | | Step 2 | | | Step 3 | | | Step 4 | | | Step 5 | | |
| | B | SE | RIV | B | SE | RIV | B | SE | RIV | B | SE | RIV | B | SE | RIV |
| Fixed parts | | | | | | | | | | | | | | | |
| (Intercept) | 1.77*** | 0.09 | 0.01 | 2.48*** | 0.32 | 0.20 | 2.33*** | 0.25 | 0.16 | 2.17*** | 0.26 | 0.25 | 2.16*** | 0.26 | 0.20 |
| Months | 0.06*** | 0.01 | 0.27 | 0.06*** | 0.01 | 0.29 | 0.03** | 0.01 | 0.12 | 0.03** | 0.01 | 0.26 | 0.03** | 0.01 | 0.30 |
| Partnered2‡ | | | | 0.06 | 0.16 | 0.62 | 0.02 | 0.12 | 0.28 | −0.02 | 0.12 | 0.19 | −0.04 | 0.11 | 0.17 |
| Age | | | | −0.02* | 0.01 | 0.17 | −0.01 | 0.01 | 0.12 | −0.01 | 0.01 | 0.20 | −0.01 | 0.01 | 0.22 |
| Gender 2§ | | | | −0.06 | 0.16 | 0.07 | −0.02 | 0.13 | 0.16 | 0.01 | 0.12 | 0.09 | 0.01 | 0.12 | 0.17 |
| Ethnicity 2‖ | | | | −0.18 | 0.20 | 0.09 | −0.07 | 0.15 | 0.11 | −0.01 | 0.15 | 0.07 | −0.03 | 0.15 | 0.12 |
| 3 | | | | 0.79 | 0.64 | 0.16 | 0.35 | 0.57 | 0.50 | 0.35 | 0.55 | 0.68 | 0.31 | 0.59 | 0.68 |
| 4 | | | | 1.88 | 1.14 | 0.45 | 0.52 | 0.96 | 0.49 | 0.42 | 0.92 | 0.21 | 0.09 | 0.89 | 0.30 |
| 5 | | | | −0.08 | 0.32 | 0.05 | −0.25 | 0.25 | 0.07 | −0.27 | 0.24 | 0.16 | −0.29 | 0.25 | 0.15 |
| $W\text{-}FC_{between}$ | | | | | | | 0.29 | 0.15 | 0.09 | 0.26 | 0.19 | 0.23 | 0.28 | 0.24 | 0.24 |
| $W\text{-}FC_{within}$ | | | | | | | 0.76*** | 0.09 | 0.17 | 0.57*** | 0.11 | 0.60 | 0.52*** | 0.11 | 0.65 |
| $Depression_{between}$ | | | | | | | | | | −0.02 | 0.04 | 0.15 | −0.02 | 0.04 | 0.12 |
| $Depression_{within}$ | | | | | | | | | | 0.08*** | 0.02 | 0.39 | 0.07*** | 0.02 | 0.46 |
| $W\text{-}FC_{betwen}$:$depression_{within}$ | | | | | | | | | | | | | 0.06** | 0.02 | 0.23 |
| Random parts | | | | | | | | | | | | | | | |
| $\sigma^{2}$¶ | 0.93–1.03 | 0.91–1.04 | 0.87–0.97 | 0.79–0.90 | 0.79–0.91 | | | | | | | | | | |
| $\tau_{00,\ Subject}$ | 0.26–0.41 | 0.20–0.35 | 0.05–0.13 | 0.05–0.11 | 0.06–0.11 | | | | | | | | | | |
| Model fit indices | | | | | | | | | | | | | | | |
| $ICC_1$ - Intraclass Correlation Coefficient | 0.33 | | | | | | | | | | | | | | |
| *N* | 144 | | | | | | | | | | | | | | |
| Observations | 429 | | | | | | | | | | | | | | |
| $\chi^{2}_{pooled}$ ‡‡ | 4.83**,§§ | 2.03 | 65.61*** | 10.25*** | 7.59** | | | | | | | | | | |

B, unstandardized coefficients; SE, standard error; RIV, relative increases in variance; W-FC, work–family conflict.
†Random intercept–slope model retained for all model steps. Partnered‡: 1 = yes, 2 = no. Gender§: 1 = male, 2 = female. Ethnicity‖: Caucasian = 1, black/African American = 2, Hispanic/Latino = 3, other = 4, multiracial/multiethnic = 5. ¶Range across imputations. ‡‡Pooled comparison across imputations. §§Compared with intercepts-only model.
*$p < .05$. **$p < .01$. ***$p < .001$.

suggesting that changes in depressive symptoms in the 12-month period were predictive of burnout.

Finally, there was a significant cross-level interaction for within-person depressive symptoms and between-person W-FC on burnout ($B_{pooled} = .06$, $p < .01$). Pooled simple slopes (Table 4) suggest that the relationship between within-person depressive symptoms and burnout is moderated by the level of between-person W-FC (Fig. 1) such that the relationship is stronger for those who have greater W-FC than those with lower W-FC.

## 4. Discussion

With nearly a half a million of COs working under stressful conditions, prospective studies of W-FC, depression, and job burnout among jail workers are badly needed. In this study, we operationalized the COR theory to explore the relationships of context of resources (e.g. demographic and mental health characteristics) and resource desperation (e.g. W-FC) and how they relate to burnout among jail COs. Study results indicate that, over time, from the start of employment and during the 12-month study period, CO burnout significantly increased. Within-person changes in W-FC increased the level of burnout among newly hired corrections officers over a one-year time period. CO depressive symptoms were also significant predictors of burnout during the first 12 months of employment. Between-person differences and demographic characteristics did not predict burnout or add any predictive power. However, the relationship between within-person depressive symptoms and burnout was stronger among COs experiencing higher W-FC as compared with those experiencing lower W-FC. In other words, the level of between-person W-FC had a moderating effect on the relationship between within-person depressive symptoms and burnout.

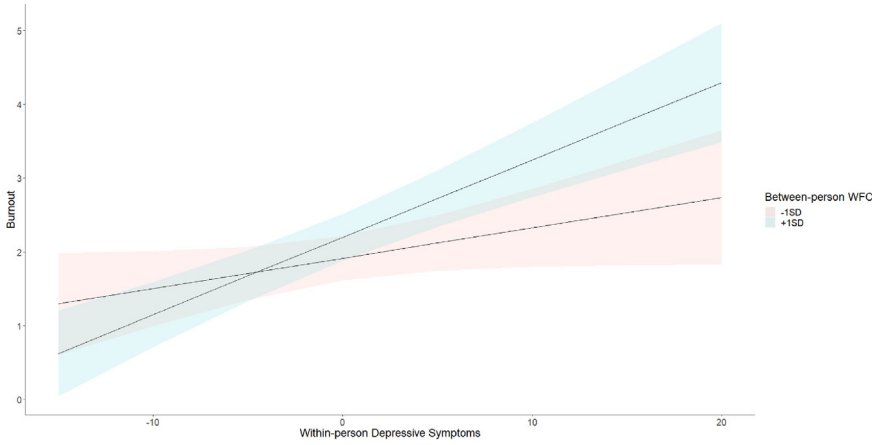
The COR theory supports these findings where officers in this study experienced within-person fluctuations in W-FC (stressful conditions occurring over time [34]) while presenting with increased burnout. Many workplace studies have analyzed a variety of job burnout predictors; however, the literature on relationships between W-FC, depression, and burnout over time among new CO hires is limited. Our results coincide with a cross-sectional study among police officers where a positive relationship between W-FC and other forms of conflict and burnout was identified [35]. Burnout was associated with time-based conflict (work time demands conflict with home life), having the largest effect, followed by W-FC and strain-based conflict (work demands and tensions affect home life) [35].

In a systematic review of prospective studies, worker physical, psychological, and occupational consequences of burnout were summarized [36]. Relationships between depressive conditions and burnout were commonly found and especially stronger for emotional exhaustion and depersonalization subdimensions [36].

**Table 4**
Pooled simple slopes for cross-level interaction of between-person W-FC and within-person depression on burnout

| | | B | SE | t-value |
|---|---|---|---|---|
| Low W-FC | −0.49 (−1 SD) | 0.04 | 0.02 | 1.93 |
| High W-FC | 0.49 (+1 SD) | 0.10 | 0.02 | 5.84 |

Significance test (*p*) not provided due to bias in multilevel context. Simple slope statistics averaged across imputed data sets. W-FC, work–family conflict; B, unstandardized coefficients; SE, standard error; SD, standard deviation.




*Note*: Averaged across imputed datasets.

**Fig. 1.** Cross-level interaction, averaged across imputed data sets.

The results of the present study demonstrate a linear relationship between depressive behavior and job burnout. This finding supports previous work completed looking at similar variables indexed on worker perceptions of job dangerousness, role strain, co-worker relationships, and degree of control as they relate to burnout of jail staff [37,38].

To date, there has been very little research to describe jail workplace health, the front lines to the carceral system for individuals arrested. Jails are the acute response, upstream from long-term prison incarceration. The results of this study support the idea that these factors converge to increase stress and, ultimately, affect the health of COs in the jail setting. Systematic review has established burnout associated with job stress is organizational in nature [39]. Burnout causes severe and negative effects throughout service professions, which could reasonably predict negative prisoner interactions and this study would support this idea [40]. These negative interactions have been studied and found in other law enforcement officers as well [41,42].

### 4.1. Implications

Promoting humane, healthy, and rehabilitative operations through correctional culture improves public safety outcomes [1]. Further study is needed to understand the multilevel moderating factors between W-FC and outcomes such as burnout [43]. One specific approach to disentangling these outcomes would be to use Bayesian networks analyzing frameworks, which can be used to parse interrelations among the complicated array of variables representing behavior and workplace system components [44]. Results from this type of approach may yield increased clarity with respect to mechanisms to target for change. While intervention research is limited on workplace health studies of COs, relationships between self-care, team care, and health promoting leadership have been found as lower burnout indicators in other workers [45]. Additional person-level strengths such as resilience may reduce burnout in COs [46]. Evidence reveals hope, optimism, and social support associated with reduced burnout where resilience is a mediator [46]. Prevention techniques such as policy reforms to improve corrections culture and environments are important to reduce burnout and promote workplace health with carceral system reform [1].

Identifying ways to reduce W-FC is not an easy task due to a variety of cultural, economic, and institutional factors [43]. Individuals' repetitive thoughts may be triggered by W-FC in a variety of forms including time based (e.g. deadlines), strain based (e.g. work exhaustion), and behavior based (e.g. peer disapproval of work role) [10,47]. Meta-analysis on social support and W-FC results suggest that organizational support may be the most important source of health intervention [43], also suggested in corrections research [48]. Employer provision of resources for work and family roles with support for resource utilization may reduce W-FC [34].

Integrated workplace health promotion interventions are also needed to prevent onset of burnout, early identification of burnout signs and symptoms, and resources to address exposure to contributors of burnout such as critical incidents and adjusting to work in a correctional environment [49]. Indicators for integrated TWH program content and process include coordination between safety and health promotion function; assessment of work and nonwork hazards; interventions designed to prioritize mitigation of contributors to poor health, safety, or well-being; and empowering workers through participatory collaboration [50]. Interventions proposed by corrections industry leaders encourage labor management partnership with worker participation, customized resources, addressing mental health, identifying critical incidents and W-FC, providing peer support, innovating employee assistance program approaches, growing practitioner–researcher collaborations for evidence informed approaches, and exploring the intersection between corrections health promotion and restorative justice [49]. Furthermore, setting up new jail hires with tools to perform effective communication (e.g. motivational interviewing), engaging residents in meaningful and healthy activities to prepare them for release, offering information to address social determinants (e.g. housing, employment, transportation, food access), and encouraging peer mentoring offer opportunities for job autonomy and fulfilling work activities [1,51].

### 4.2. Strengths and limitations

This study is novel due to its prospective design and targeting rarely studied jail officers. Use of a theoretical framework to select measured variables strengthened the design. While a debate exists to argue the overlap of burnout and fatigue constructs, a systematic review by Salvagioni et al. [36] showed that by controlling for these symptoms, as performed in this present study, the analyses indicate that burnout and depression are indeed distinct conditions. There

are several limitations that must be considered when interpreting study results. Selection bias may have been an issue for this study, in that only those who may have been motivated to participate returned surveys. Gathering data from officers was a challenging process due to a variety of barriers including inability to offer electronic surveys, needing to meet officers in person for administering the paper-based survey, many different work shifts over a period of 24 hours, and unpredictable changes in schedules especially overtime. The facilitators to the process included jail flexibility to allow officers to fill out the survey on shift or before/after shift and allowing researchers to meet officers in the briefing room before/after shift.

During the informed consent process, jail officers were educated on their risks as a research participant and that their individual data would remain confidential. Demographic characteristics were missing the most often from surveys which is common with self-reported survey data. Measurement bias may have impacted our study as additional contextual aspects of workplace culture, features of the workplace, location of the jails, and internal policies and procedures that may also impact the incidence of burnout were not explored within this study.

In conclusion, the results from this study indicate that burnout increased during the first year of jail employment. Furthermore, increased W-FC, higher depression, and brief tenure were associated with burnout among jail COs. Jail officers are particularly vulnerable to suicide, burnout, depression, chronic physical health issues, and premature mortality [49]. Future study is needed to identify tailored, multilevel interventions that address burnout and W-FC prevention and early intervention among this at-risk group of public safety workers. As mentioned previously, Bayesian network analysis might shed light on how the tailoring of these intervention protocols can be best achieved within the jail officer work setting. Carceral system health policy must include workplace health promotion to improve correctional culture for the prevention of job burnout and improvement of occupational performance in correctional work.

## Conflicts of interest

All authors have no conflicts of interest to declare.

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