

Defining Stress among Corrections Professionals

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Abstract

Corrections professionals experience high levels of acute and chronic work-related stress. This stress leads to increased mental and physical illness, early disability and mortality, and increased healthcare costs. Reducing stress requires identifying and prioritizing factors that contribute to it. Corrections professionals (n = 296) working at six different Oregon Department of Corrections facilities completed a cross-sectional survey, including demographics, work history and validated stress and occupational constructs. The outcome of perceived stress was measured using the Perceived Stress Scale (PSS-4 Short Form). Using a linear mixed effects regression model, we found that perceived stress increases with increased work-related stress (p = 0.02), work hours (p = 0.03), operational stressors (p = 0.002), and lack of procedural injustice (p = 0.03) and decreases with more time employed at current facility (p = 0.06), improved job satisfaction (p < 0.001), and among married or partnered individuals (p = 0.05). Identifying these predictors of stress can inform the development of policy changes to mitigate the stress of this challenged work force.

Keywords

Perceived Stress, Corrections Professionals, Work-Related Stress, Occupational Stressors, Procedural Justice

1. Introduction

The World Health Organization has declared work-related stress as one of the greatest challenges of the twenty-first century [1]. Previous research has identi-

fied high levels of chronic stress among corrections professionals [2] [3]. These high levels of chronic stress negatively impact mental well-being, physical health and job performance [4] [5]. Compared to other occupations, corrections professionals experience some of the highest rates of depression, suicide, obesity, sleep disorders, metabolic syndrome, and cardiovascular disease [6] [7] [8] [9] [10]. Further, this occupation is associated with high rates of injury, sick leave and healthcare costs [11].

Corrections professionals have a critical role in inmate rehabilitation, operating secure prisons and protecting our communities. Accordingly, maintaining the well-being of this largely unseen workforce is critical for public safety. Designing effective stress reduction interventions requires identifying and prioritizing the factors contributing to corrections professionals' stress.

Previous research from the U.S. Department of Justice has suggested that sources of stress for corrections professionals include hypervigilance, constant threats of violence, media scrutiny, a closed work environment, understaffing, and organizational issues as well as work and family conflicts [12]. On the other hand, some researchers have suggested other work-related factors' contribution to stress, such as dangers related to Adults in Custody (AIC's), long work hours, and lack of administrative support [13] [14]. No previous studies have concurrently indexed the effect of different work factors on corrections professionals' stress levels.

The main objective of this study was to define a comprehensive cross-sectional model for stress among corrections professionals by determining which occupational constructs, demographics, and work history variables contribute most to stress.

2. Materials and Methods

2.1. Participants

This study was a cross-sectional survey assessment of Oregon corrections professionals working directly with AIC's. Participants were recruited from six Oregon Department of Corrections facilities within 50 miles of Oregon Health & Science University in Portland, Oregon. All corrections staff were eligible to participate if they worked directly with AIC's for at least one month. Participants responded to surveys which concurrently addressed various work and stress related questions regarding their overall opinions or experiences within the past month.

2.2. Surveys

Surveys included information on demographics, work history, perceived stress, and occupational constructs. Pen and paper self-report surveys were administered and collected on-site at each participating correctional facility during day, swing, and night shifts over several days. Researchers toured the facility and de-

livered surveys directly at each post for those who were interested in participating. Site liaisons and staff coverage allowed staff to complete surveys during their work shift. Written informed consent was obtained prior to participation. These paper surveys were scanned and cleaned by researchers using Tele Form software system.

2.2.1. Demographics and Work History

Demographics collected included age (years), gender, race (Asian, Black/African American, Native American/Native Alaskan, Native Hawaiian/Other Pacific Islander, Hispanic/Latino, more than one race, and Non-Hispanic white), education (high school/General Educational Development GED/some college, two-year Associates degree, or four-year Bachelor's degree/more), current relationship status (married/partnered or not married/partnered), and military service (ever active duty in U.S. armed services or never served). Work history variables included time employed at current facility (years), security level of AIC's primarily worked with in the past month (minimum, medium, or maximum security), post primarily worked in the past month (non-housing, general population, or special housing/segregation units), shift primarily worked in the past month (day, swing, night), and average hours worked per week in the past month.

2.2.2. Perceived Stress

The Perceived Stress Scale (PSS-4 Short Form) [15] was used to measure perceived stress among participants. For this construct, participants rated on a five-point Likert scale (1 = None of the time, 5 = All of the time) how often they felt in the past month about the following: that they were able to control important things in their life, confident about their ability to handle personal problems, that things were going their way, and that difficulties were piling up so high that you could not overcome them. A total stress score was created by adding the responses from the four questions together after reverse coding for the first three questions.

2.2.3. Occupational Constructs

Based on previous research, the following occupational constructs were examined as potential predictors of stress among corrections professionals: factors related specifically to the job itself, including work-related stress [16] [17] and work overload [18]; factors related to environment, such as environmental safety and dangerousness [16] [17] [18] [19], possibility of AIC conflict [20] [21], and experienced and witnessed violence [14]; organizational-specific conditions such as organizational and operational stressors [13] [22] [23], resource insufficiency [20] [21], procedural justice, and organizational support [16] [17] [24]; relationships at work, such as supervisor [17] [18], and coworker support [16]; other stressors outside of work, such as public image [18]; and contentment including job satisfaction [17] and intentions to quit [25].

Occupational constructs also include Likert scale responses. Resource insufficiency, possibility of AIC conflict, organizational stressors, operational stressors include ratings for how much of the following as contributed to stress experienced in the past month (1 = not at all, 5 = very much) in respect to corrections professionals' resources (management support, guidelines), AIC relations (possibility of violence and incidents), administration (staff shortages, leadership styles), and work life balance (shift work, over-time demands, social life limitations) respectively. Experienced and witnessed violence constructs included how often have threat, assaults without a weapon, and assaults with a weapon have occurred during the last six months (0 = rarely, less than once a month, 4 = more than a week), which was later reclassified to rarely (less than once a month) and once a month or more due to limited distribution of responses.

The remaining constructs included ratings about overall agreement (1 = Strong disagree, 5 = strongly agree). Work-related stress rates negative feelings towards (fatigue, worry, anger), while work overload assesses difficulty and complexity of job demands. For the environmental safety and dangerousness constructs participants rate perceived risk among AICs. Supervisor, co-worker, and organizational support assesses negative feelings towards supervisors, co-workers, and the current institution's ability to assist with job demands. Procedural justice refers to inconsistent and unclear policies and organizational decision-making. Public image refers to participants' attitudes towards negative media coverage in the portrayal of corrections professionals' role. Job satisfaction includes questions related to positive attitudes towards current work (enjoyment, pride) and intentions to quit reflect attitudes towards leaving corrections work or current facility.

2.3. Statistical Analyses

Perceived stress was analyzed using a linear mixed effects regression model, with a random effect for the six different correctional facilities to account for the correlation among corrections professionals within each facility. A purposeful selection approach [26] was used to build the model considering the occupational constructs, demographics, and work history variables as possible predictors of perceived stress. Lastly, model diagnostics confirmed the final model by checking model assumptions. The statistical software R version 3.6.2 was used to conduct all statistical analyses.

3. Results

Participation varied across the six facilities and averaged 34%, with a total of 330 surveys collected. Thirty-four participants were excluded from analysis due to missing information for perceived stress, occupational constructs, demographics, or work history ($n = 296$). However, no more than 1.5% were missing for any one variable.

Demographic, work history characteristics, and perceived stress among the final sample ($n = 296$) are described in **Table 1**. Participants were mostly middle

Table 1. Corrections professionals' demographics and work history (n = 296).

	n (%)
Age , years (Mean ± SD) [Min, Max]	43.6 ± 11.6 [22, 73]
Gender	
Female	108 (36.5%)
Male	188 (63.5%)
Race^a	
White (Non-Hispanic)	278 (84.2%)
Hispanic/Latino	35 (10.6%)
Native American/Native Alaskan	19 (5.8%)
Black/African American	10 (3.0%)
Asian	9 (2.7%)
Native Hawaiian/Other Pacific Islander	6 (1.8%)
Other	5 (1.5%)
Education	
High school/GED or some college	151 (51.0%)
Two-year college degree (Associate's)	59 (19.9%)
Four-year college degree (Bachelor's) or more	86 (29.1%)
Relationship status	
Not married or otherwise partnered	88 (29.7%)
Married or otherwise partnered	208 (70.3%)
Military service (ever active duty in U.S. Armed forces)	
No	224 (75.7%)
Yes	72 (24.3%)
Time employed at current facility , years (Mean ± SD) [Min, Max]	7.78 ± 6.58 [0.08, 29.3]
Security level of Adults in Custody (AIC's) , primarily worked with in the past month	
Minimum	75 (25.3%)
Medium	130 (43.9%)
Maximum	91 (30.7%)
Post , primarily worked in the past month	
Non-housing unit	120 (40.5%)
General population housing unit	127 (42.9%)
Special housing/segregation unit	49 (16.6%)
Shift , primarily worked in the past month	
Day	174 (58.8%)
Swing	80 (27.0%)
Night	42 (14.2%)
Average hours worked per week , in the past month (Mean ± SD) [Min, Max]	44.4 ± 7.78 [10, 80]
Perceived stress (PSS-4 Short Form) [15] (Mean ± SD) [Min, Max]	9.33 ± 2.71 [4, 18]

a. Percentages add up to more than 100% since participants were asked to select all that applied.

aged (43.6 ± 11.6 years) and the distribution of gender (36.5% female) matches that of Oregon corrections as a whole, which employs about 30% females. A large percentage of the final sample is non-Hispanic white, which is consistent

with the demographics of Oregon. For final analyses, race was dichotomized as Non-Hispanic white ($n = 235$, 79.4%) versus other ($n = 61$, 20.6%), including non-white, Hispanic, or more than one race. The highest level of education for most is a high school diploma, General Educational Development (GED), or some college compared to a two-year Associate's degree or more. Further, 70.3% of participants are married or otherwise partnered and 24.3% served active duty in the military. The average time worked at participants current correctional facility was 7.78 ± 6.58 years, ranging from one month (0.08 years) to 29.3 years. The highest percentage of the sample primarily worked with medium security AIC's in the past month (43.9%). In addition, the majority of primality worked in non-housing (40.5%) or general population unit posts (42.9%) and day shift (58.8%) in the past month. Participants worked an average of 44.4 ± 7.78 hours per week, ranging from 10 to 80 hours. The average perceived stress score (PSS-4 Short Form) (15) was 9.33 ± 2.71 , ranging from a minimum score of four to a maximum score of 18, and slightly skewed to the right (**Figure 1**).

Prior to use in the regression model, the consistency of the occupational constructs was determined using Cronbach's alpha (α) to ensure inter-reliability ($\alpha > 0.70$) using IBM SPSS Statistics 25. Each of these occupational constructs maintained inter-reliability among the sample (Cronbach's $\alpha > 0.74$).

Unadjusted regressions with perceived stress as the outcome (**Table 2**) found insignificant associations with gender ($p = 0.84$), AIC's security level ($p = 0.39$), shift ($p = 0.36$), years employed at current facility ($p = 0.31$). Measures significantly associated with perceived stress (using $\alpha = 0.25$) were work-related stress, work overload, environmental safety/dangerousness, possibility of AIC conflict, organizational stressors, operational stressors, resource insufficiency, procedural justice, organizational support, supervisor support, co-worker support, job satisfaction, intentions to quit, public image, age (all $p < 0.001$), experience violence ($p = 0.01$), relationship status ($p = 0.02$), work hours ($p = 0.02$), witnessed

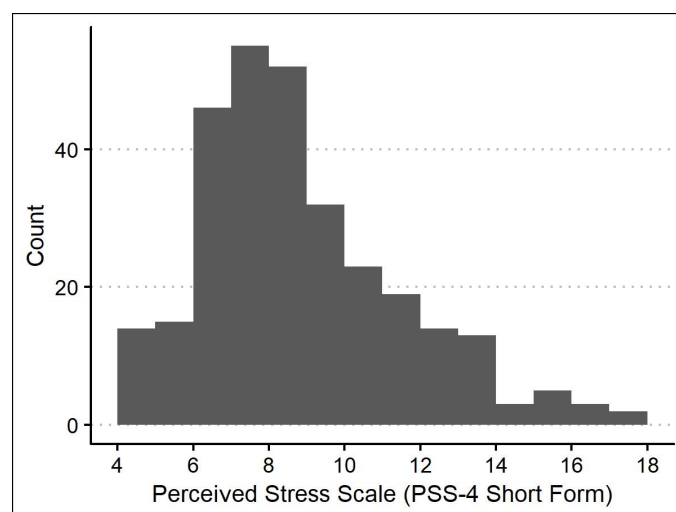


Figure 1. Distribution of perceived stress scale (PSS-4 short form) [15].

Table 2. Unadjusted associations between perceived stress in the past month and occupational related constructs, demographics, and work history.

	Estimate (95% CI)	P-value
Occupational related constructs		
Job specific stress		
Work-related stress	1.34 (1.02, 1.66)	<0.001
Work overload	0.75 (0.41, 1.08)	<0.001
Environmental		
Environmental safety/dangerousness	1.00 (0.57, 1.43)	<0.001
Possibility of conflict ^a	0.83 (0.48, 1.18)	<0.001
Experienced violence, during the past six months		
<i>Less than once a month or more</i>	1.00 (ref)	
<i>Once a month or more</i>	0.97 (0.29, 1.65)	0.01
Witnessed violence, during the past six months		
<i>Less than once a month or more</i>	1.00 (ref)	
<i>Once a month or more</i>	0.62 (-0.02, 1.25)	0.06
Organizational		
Organizational stressors ^a	0.92 (0.62, 1.22)	<0.001
Operational stressors	1.27 (0.98, 1.57)	<0.001
Resource insufficiency	0.83 (0.55, 1.10)	<0.001
Procedural justice	1.28 (0.83, 1.73)	<0.001
Organizational support	1.08 (0.69, 1.47)	<0.001
Work relationships		
Supervisor support ^a	0.84 (0.50, 1.17)	<0.001
Co-worker support	0.98 (0.55, 1.40)	<0.001
Job contentment		
Job satisfaction	-1.31 (-1.67, -0.96)	<0.001
Intentions to quit	0.76 (0.50, 1.03)	<0.001
Outside of work		
Public image	0.93 (0.53, 1.33)	<0.001
Demographics		
Age (years)	-0.05 (-0.07, -0.02)	<0.001
Gender		
Female	1.00 (ref)	
Male	0.07 (-0.57, 0.70)	0.84
Race		
Other (non-white or more than one race)	1.00 (ref)	
Non-Hispanic white	-0.49 (-1.25, 0.26)	0.20
Education^b		
High school/GED or some college	1.00 (ref)	
Two-year college degree (Associate's degree)	0.46 (-0.35, 1.27)	0.26
Four-year college degree (Bachelor's degree)	-0.54 (-1.25, 0.17)	0.14

Continued

Relationship status		
Not married or otherwise partnered	1.00 (ref)	
Married or otherwise partnered	-0.76 (-1.43, -0.10)	0.02
Military service (ever active duty in U.S. Armed forces)		
No	1.00 (ref)	
Yes	0.43 (-0.28, 1.14)	0.24
Work history		
Time at current facility (years)		
	-0.02 (-0.07, 0.02)	0.31
Adults in Custody (AIC's) security level, primarily worked with in the past month		
Minimum	1.00 (ref)	
Medium	0.54 (-0.44, 1.52)	0.28
Maximum	0.71 (-0.33, 1.76)	0.18
Post, primarily worked in the past month		
Non-housing unit	1.00 (ref)	
General population housing unit	0.56 (-0.13, 1.25)	0.11
Special housing/segregation unit	0.70 (-0.21, 1.61)	0.13
Shift, primarily worked in the past month		
Day	1.00 (ref)	
Swing	0.52 (-0.22, 1.27)	0.16
Night	0.34 (-0.58, 1.25)	0.47
Average hours worked per week, in the past month		
	0.05 (0.01, 0.09)	0.02

Note: Estimates are coefficients from linear mixed effects regression models with the Perceived Stress Scale (PSS-4 Short Form) [15] as the dependent variable and random effect for correctional facility (n = 296), including the associated P-value. a. Excluded in the final model building for perceived stress due to strong relationship with other variables in the model.

violence (p = 0.06), education (p = 0.08), post (p = 0.18), race (p = 0.20), and military service (p = 0.24).

All associations between demographic, work history, and occupational constructs were assessed before the model building process to eliminate multi-collinearity. Possibility of conflict, organizational stressors, supervisor support, and education were excluded in the rest of the model building progress due to their strong relationship with other variables in the model. More specifically, organizational stressors is significantly related to resource insufficiency (r = 0.84), work-related stress (r = 0.66), and supervisor support (r = 0.65); possibility of conflict related with environmental safety/dangerousness (r = 0.57); supervisor support related with procedural justice (r = 0.66) and co-worker support (r = 0.51) (all p's < 0.001); and education related to post ($\chi^2 = 13.12$, p = 0.01).

After purposeful selection with the included variables significantly associated with perceived stress, the variables remaining in the perceived stress model were work-related stress, operational stressors, procedural justice, job satisfaction, relationship status, work hours, and time employed at current facility. Model

Table 3. Occupational, demographic and work history associations with perceived stress in the past month among corrections professionals.

	Estimate (95% CI)	Standardized estimate ^a (95% CI)	P-value
Work-related stress	0.50 (0.08, 0.93)	0.43 (0.07, 0.80)	0.02
Average hours worked per week , in the past month	0.04 (0.00, 0.08)	0.31 (0.04, 0.59)	0.03
Operational stressors	0.60 (0.23, 0.98)	0.57 (0.22, 0.92)	0.002
Lack of procedural justice	0.48 (0.05, 0.92)	0.32 (0.03, 0.61)	0.03
Job satisfaction	-0.72 (-1.1, -0.35)	-0.58 (-0.87, -0.28)	<0.001
Relationship status			
Not married/otherwise partnered	1.00 (ref)	1.00 (ref)	
Married/otherwise partnered	-0.58 (-1.15, -0.01)	-0.58 (-1.15, -0.01)	0.05
Time employed at current facility , years	-0.04 (-0.08, 0.00)	-0.25 (-0.52, 0.01)	0.06

a. (Estimate - mean)/standard deviation. *Note.* Estimates are coefficients from a linear mixed effects regression model of the Perceived Stress Scale (PSS-4 Short Form) [15] with a random effect for correctional facility (n = 296).

diagnostics indicated the final model was a good fit (Variance Inflation Factor > 5, residual plots showed no major deviations from model assumptions, and overall model $p < 0.001$), and no additional transformations were necessary.

Results from the final model (Table 3) found that perceived stress increases with increased work-related stress ($p = 0.02$), work hours ($p = 0.03$), operational stressors ($p = 0.002$), and lack of procedural injustice ($p = 0.03$), and decreases with more time employed at current facility ($p = 0.06$), improved job satisfaction ($p < 0.001$), and among married or partnered individuals ($p = 0.05$).

Standardized estimates of the final model were also created for each participant based on the difference of each score from the mean divided by the standard deviation. Based on these standardized estimates, operational stressors accounted for the greatest increase in perceived stress ($\beta = 0.57$), while job satisfaction accounted for the greatest decrease ($\beta = -0.58$). Average hours worked per week ($\beta = 0.31$) and lack of procedural justice ($\beta = 0.32$) accounted for the smallest increase in perceived stress, while time employed at current facility ($\beta = -0.25$) was associated with the smallest decrease in perceived stress.

4. Discussion

This study found significant associations between perceived stress among corrections professionals and age, relationship status, and various occupational conditions, such as job specific stress (work-related stress, work overload), environmental (environmental safety and dangerousness, possibility of conflict, experienced violence), organizational (organizational and operational stressors, resource insufficiency, procedural justice, organizational support), work relationships (supervisor and co-worker support), job contentment (job satisfaction

and intentions to quit), and outside of work (public image). When considering all possible demographic, work history, and occupational constructs included in this study using a purposeful selection approach, results indicate that corrections professionals' perceived stress increases with work-related stress, longer work hours, increased operational stressors, and lack of procedural justice. Factors reducing perceived stress included increased job satisfaction, longer tenure at a facility, and being partnered or married. Results also suggest that corrections work-related stress is most influenced by operational stressors and job satisfaction.

Certain of these factors align with prior findings among occupational groups. Work-related stress [16] [17] refers to negative overall feelings towards work such as tension, fatigue, pressure, frustration, anger and worry. It is known that increases in stress at work contributes to overall perceptions of stress. In fact, a 2019 American Psychological Association report found that 64% of adults in the United States cited work as a significant source of stress [27]. Therefore, further exploring the occupational factors that remained in the stress model are also important to address in terms of mitigating stress among high stress occupations.

Operational stressors were constructs found to be significantly associated with perceived stress among corrections professionals. In this study, operational stressors [13] [22] [23] refer to occupational issues that contributed most to stress in the past month, such as shift work, mandatory overtime, and difficulty with work-life balance, such as managing social life outside of work, limited availability to spend with family and friends, and feeling like always on the job. This means when considering work-specific stressors, negative feelings towards these operational type factors are associated with increases in overall stress.

In addition, increases in work hours also contributed to stress, suggesting more hours spent at work also increases stress. The economic returns on the additional hours did not seem to mitigate the negative impact of long hours. These findings are consistent with previous research suggesting increases in occupational health issues [28] and work-family conflict [29] among those who work longer hours. This is especially apparent in an occupation such as corrections, which can require mandatory overtime to maintain operations.

Procedural justice [16] [17] [24] in this study refers to fairness of work-related procedures, such as inconsistencies with policies, rules and regulations in regard to disciplinary actions and promotions. A systematic review including the occupational constructs considered in this study, found that organizational structure and climate of correctional facilities have the most consistent relationship with work-related stress and burnout among staff [13]. These factors include unclear goals and policies, lack of procedural justice, lack of decision-making ability, and lack of organizational support. These findings are similar to the results of this study that procedural justice was most associated with increases in perceived stress.

Results also found that increases in job satisfaction, which included enjoyment and pride in their job, were a protective factor for stress among corrections professionals. Other research also finds that job satisfaction is negatively associated with work-related stress, whereas positively associated with hope and self-efficacy [30]. In addition, current research suggests increasing social support at work in order to significantly reduce the impact of job demands and improve job satisfaction [20].

There are limitations of this study limiting the generalizability of results, including small sample size, low participation rate (34% across facilities), and reduced geographical sampling distribution. Despite these limitations, our sample represented of the Oregon Department of Corrections' demographics. Further, controlling for the random effect of facility accounted for within facility differences to account for generalizing results to other correctional facilities in Oregon.

5. Conclusion

This study has identified possible predictors of stress among Oregon corrections professionals. These findings can inform the development of policy changes that improve working conditions among this high stress occupation. Further, interventions addressing these factors determined as the greatest predictors of stress can improve corrections professionals' mental well-being, physical health, job performance, and other economic outcomes.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

Notice

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Outline

- Corrections professionals experience some of the highest levels of chronic stress compared to other occupations, leading to poor mental and physical health as well as negative economic and occupational outcomes.
- This self-report survey is first to concurrently index various work factors on

corrections professionals' stress levels.

- Results indicate work related factors such as work-specific stressors, work hours, operational stressors and lack of procedural justice significantly contribute to increase in overall stress levels. These differences can also be attributed to differences in job satisfaction, time currently employed at current correctional facility, and marital status.
- These findings can inform the development of work place health promotion interventions and policy changes to improve working conditions among this high stress occupation.

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