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ORIGINAL RESEARCH ARTICLE

Traumatic Incidents at Work, Work-to-Family Conflict, and Depressive Symptoms Among Correctional Supervisors: The Moderating Role of Social Support

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Abstract

This cross-sectional study was conducted to examine the association between the direct and indirect effect of traumatic incident exposure at work on correctional supervisors' experience of work-to-family conflict and depressive symptoms. The moderating role of coworker and supervisor social support was also examined. 156 correctional supervisors (i.e., lieutenants, captains, counselor supervisors) working in a Northeastern state participated in an online survey designed to assess perceptions of their work environment as well as health and family life. Structural equation modeling was used to conduct mediation and moderation analyses. Inmate assaults on inmates and staff were the most common exposures to work-related trauma among correctional supervisors. Correctional supervisors reported being more affected by traumatic incidents directed to self and/or peers (i.e., inmate assault on self/staff). The effect of traumatic incident exposure directed to inmates was associated with greater depressive symptoms for correctional supervisors [$\beta = .31$, $p < .05$]. The effect of traumatic incident exposure directed to self and/or peers was directly associated with greater work-to-family conflict [$\beta = .26$, $p < .05$]. Work-to-family conflict mediated the association between effect of traumatic incident exposure directed to self and/or peers and depressive symptoms [$\beta = .13$ (95% CI .016–.35)]. Social support moderated the association between the effect of traumatic incident exposure at work and depressive symptoms. Findings support the need for interventions addressing the adverse effect of traumatic incident exposure at work on correctional supervisors' family life and mental health.

Keywords Trauma · Work-to-family conflict · Depressive symptoms · Coworker social support · Supervisor social support

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Corrections work in the U.S. has become increasingly hazardous due to rising incarceration rates (Swenson et al., 2008), with a notable increase in the number of violent and dangerous inmates and inmates with serious psychiatric and substance use disorders (Ferdik & Smith, 2017). Mass incarceration, coupled with prison and jail proliferation in almost every U.S. state, is mostly the result of changes in sentencing laws for low-level drug offenses (Travis et al., 2014). Additionally, these changes in sentencing laws have been racially motivated, targeting marginalized racial groups in the U.S (Rosino & Hughey, 2018). Most U.S. Departments of Correction (DOC) face significant budgetary constraints and operate above their established capacity level due to overcrowding and inadequate staff coverage. Overcrowding and understaffing can jeopardize the health and safety of those working within correctional facilities (Crawley, 2013; Ferdik & Smith, 2017). Despite the inherently dangerous nature of the corrections occupation, little is known about the effect that exposure to danger and traumatic incidents can have on the employees working within the prison and jail walls.

This paper focuses on correctional supervisors (i.e., lieutenants, captains, and counselor supervisors). Correctional supervisors are the middle managers in the prison and jail occupational hierarchy and are an understudied group of employees in corrections (Buden et al., 2016, 2017; Namazi et al., 2019). Similar to line-level correctional staff with custodial duties and responsibilities, correctional supervisors work in an intrinsically dangerous and unpredictable environment that repeatedly exposes them to traumatic incidents on a daily basis. Long term exposure to traumatic incidents can adversely impact their family lives and their mental well-being. However, research on the effect of traumatic incident exposure (TIE) on family life and mental health in corrections is nearly non-existent.

According to Spinaris and colleagues, correctional employees are exposed to both direct and indirect trauma. For correctional supervisors, direct exposure to trauma can include violence among inmates, inmate attempted and/or completed suicides and inmate-related assaults on staff (Denhof et al., 2014; Spinaris et al., 2013). Correctional supervisors also respond to multiple traumatic incidents in a single day and are in charge of arranging medical care for injured inmates and/or staff.

Correctional supervisors are also exposed to indirect trauma due to their administrative duties and responsibilities. Indirect trauma exposure for correctional supervisors includes having to review materials related to the traumatic incidents (e.g., videos, pictures), writing incident reports and debriefing staff (Spinaris et al., 2013). Despite the critical role that correctional supervisors play in handling traumatic incidents that occur within their facilities, the impact of such incidents on their mental health and family life has not been studied.

The purpose of the present study was to examine the direct and indirect association between effect of TIE at work on correctional supervisors' experience of work-to-family conflict (W-FC) and depressive symptoms. This study also examined the moderating role (i.e., the buffering role) of social support in reducing the adverse impact of TIE at work on correctional supervisors' experience of W-FC and depressive symptoms.

Effect of Traumatic Incident Exposure at Work on Mental Health and Family Well-Being

Previous research demonstrates that working in an environment such as corrections leads to long-term chronic mental health problems that continue through work-life and into retirement (Cherniack et al., 2016; Morse et al., 2011). The corrections culture that supports a code of silence around emotional suffering presents a barrier for staff to seek help for their mental health problems. This may contribute to the high rates of alcohol use and suicide observed among active and retired correctional staff (Dawe, 2018; Stack & Tsoudis, 1997).

In addition to the adverse impact of work on their mental health, corrections work can be detrimental to employees outside of work and can lead to work-to-family conflict (W-FC). W-FC occurs when stress from the work domain spills over and leads to stress and conflict in the family domain (Greenhaus & Beutell, 1985; Hobfoll, 1989). If left unaddressed, W-FC can negatively impact employees' psychological well-being (Dewe et al., 2012; Grandey & Cropanzano, 1999). However, research that examines W-FC for correctional employees is limited. As such, the first aim of this study was to examine the association between effect of TIE with correctional supervisors' experience of both W-FC and depressive symptoms. W-FC was also examined as a mediating variable.

The relationships among the constructs in Aim 1 are based on the Conservation of Resources theory (Hobfoll, 1989), which states that individuals are motivated to obtain, protect and conserve resources (e.g., time, energy, self-confidence, social support) that they value as important in contributing positively to their well-being. Stressful environmental conditions or demands, such as a traumatic incident, can threaten, deplete, or prevent the gain of finite resources, which leads to fewer resources available to fulfill the demands of different life domains, such as family. Subsequently, the inability to meet the demands of other life domains can lead to W-FC and psychological stress (Dewe et al., 2012; Grandey & Cropanzano, 1999). The following hypotheses (see Fig. 1) emerged from the theoretical review:

Hypothesis 1 Effect of TIE at work will be positively associated with W-FC for correctional supervisors.

Hypothesis 2 Effect of TIE at work will be positively associated with depressive symptoms for correctional supervisors.

Hypothesis 3 W-FC will be positively associated with depressive symptoms for correctional supervisors.

Hypothesis 4 W-FC will mediate the hypothesized positive association between TIE at work with depressive symptoms for correctional supervisors.

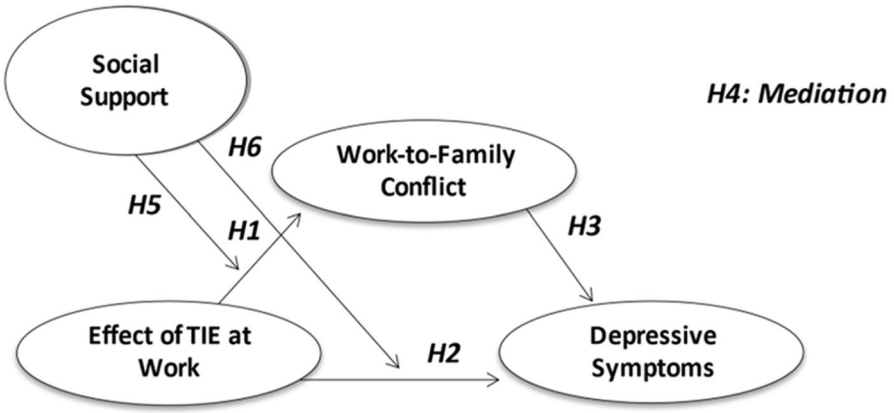

Fig. 1 Hypothesized model

Moderating Role of Social Support

It is well established that correctional employees are exposed to various forms of trauma over the course of their careers. Moreover, working under extreme pressure and stress means that staff strive to develop and maintain strong bonds of solidarity and social support networks as a mechanism of survival and coping on the job (Armstrong & Griffin, 2004; Stephens & Long, 1999, 2000). Social support has been identified as a resource and a healthy and adaptive way of coping to prevent the adverse impact of traumatic incidents on health and well-being (Carver, 1997; Stephens & Long, 1999).

The protective effect of social support against poor psychological and physical well-being has been well established in several studies across various occupations (Gurung et al., 1997; LaRocco et al., 1980; Manning et al., 1996). Specifically, among individuals exposed to traumatic incidents and/or life-threatening situations, higher levels of social support have been linked to resilience and recovery from trauma.

Several studies with correctional officers have linked social support with reduced work-related stress and W-FC (Obidoa et al., 2011); improved physical and psychological functioning (Harvey, 2014); and decreased burnout (Lambert et al., 2015a, 2015b; Useche et al., 2019). Conversely, low social support among correctional officers has been linked to increased levels of stress and burnout (Triplett et al., 1996), and declined psychological and physical well-being (Armstrong & Griffin, 2004). For correctional supervisors, Buden and colleagues found that coworker and supervisor social support predicted positive health behaviors (e.g., nutrition and physical activity), and helped reduce adverse health outcomes, such as depression and anxiety symptoms (Buden et al., 2016).

To test the protective effect of social support, the second aim of this study was to examine whether the social support that correctional supervisors receive from their coworkers (i.e., other correctional supervisors) and their supervisors (i.e.,

administrative staff, such as deputy wardens and wardens) will reduce (i.e., moderate) the effect of TIE at work on W-FC and depressive symptoms. The relationships among constructs in Aim 2 are based on the stress-buffering hypothesis of social support, which denotes that social support can help buffer (i.e., moderate) the negative impact of stress on overall health and family functioning (Cohen & Wills, 1985). The following hypotheses (see Fig. 1) were investigated:

Hypothesis 5 Coworker social support and supervisor social support will moderate the effect of TIE at work on W-FC, such that the effect of TIE at work on W-FC will be weaker when coworker social and supervisor social support are higher.

Hypothesis 6 Coworker social support and supervisor social support will moderate the effect of TIE at work on depressive symptoms, such that the effect of TIE at work on depressive symptoms will be weaker when coworker social support and supervisor social support are higher.

Methods

Participants

Correctional supervisors (i.e., lieutenants, captains, and counselor supervisors) working in prisons and jails throughout a Northeastern state participated in a voluntary cross-sectional survey that assessed their perceptions of social support on the job, and the impact of their work on their health and family life. The survey was designed and administered in partnership between research staff at the University conducting this study and a design team of correctional supervisors who were part of the correctional supervisors' union bargaining unit. This partnership was formed in 2014 to help researchers and the design team of union members better understand the health needs and concerns of correctional supervisors, and to subsequently develop interventions to address needs and concerns. The survey was administered online over a one-month period through union listserv to all members of the correctional supervisors' union bargaining unit. Participants were told that the survey was voluntary, did not include an incentive, and that it would take them approximately 20 min to complete it. A total of 157 correctional supervisors participated in the survey out of 423 contacted (37%). Based on data obtained from the DOC human resource office, participants had approximately the same sex (sample: 76% male and 23% female; overall correctional supervisor population: 78% male and 22% female) and age (sample age: 42; overall correctional supervisor population age: 44) distribution as the overall correctional supervisor population working in the state. The Institutional Review Board at the University in which the study was conducted approved of the study.

Measures

Main Outcome Variable

Depressive symptoms were measured using the Brief Symptom Inventory (BSI) scale developed by Derogatis and Spencer (1992). This study used three items from the depression subscale of the BSI, which measures the extent to which an individual experienced the following symptoms in a typical week: feeling lonely, feeling blue, and feeling no interest in things. The three items were measured on a five-point scale ranging from 1 (*not at all*) to 5 (*extremely*) ($\alpha = .89$) such that a higher score means that an individual is experiencing greater depressive symptoms.

Predictor Variable

Effect of TIE at work was measured using a nine-item questionnaire developed by the researchers and a group of correctional supervisor union members who designed the survey. A two-step process was used to derive this measure.

First, the measure was designed to capture the frequency of exposure to nine traumatic incidents at work, including: inmate attempted suicide, inmate assault on inmate, inmate suicide, inmate death (not suicide), inmate assault on staff, inmate assault on self, coworker suicide, coworker death (not suicide), retired coworker death. Correctional supervisors were asked to recall the number of times they witnessed these specific traumatic incidents in a typical month, and in a typical year ($\alpha = .75$). During the design of this measure, researchers and correctional supervisor union members determined that exposure to specific traumatic incidents occurred more frequently and on a monthly basis (e.g., an inmate-attempted suicide), while others occurred less frequently and on a yearly basis (e.g., an inmate suicide). As such, differing recall periods were utilized for the traumatic incidents to gauge a reasonable recall period and to reduce recall bias.

Second, the measure assessed correctional supervisors' perceived effect of their exposure to the nine traumatic incidents at work. The nine items were scored on a four-point scale ranging from 1 (*not at all affected)* to 4 (*extremely affected*) ($\alpha = .83$), with a higher score representing greater effect of TIE at work. For the purpose of our analysis, we only used the part of the measure that assessed correctional supervisors' perceived level of effect of the nine TIEs at work.

The factor structure of the measure assessing the effect of TIE at work was tested with exploratory factor analysis (EFA). Examination of eigenvalues suggested a two-factor solution with an adequate model fit to the data with Factor 1 measuring effect of TIE directed to inmates and Factor 2 measuring effect of TIE directed to self and/or peers (see Supplementary Table 1).

Mediator

W-FC was assessed using two items from the National Comorbidity Survey (NCS) (Kessler, 1990) (e.g., "How often do things going on at work make you feel tense and irritable at home?") ($\alpha = .74$). The two items follow a five-point

scale ranging from 1 (*never*) to 5 (*always*). A higher score indicates that an individual perceives higher levels of W-FC.

Moderator Variables

Social support was measured using the social support subscale from the Job-Content Questionnaire (Karasek, 1985). Two items were used to assess supervisor social support: "My supervisor is concerned about the welfare of those under him/her" and "My supervisor is helpful in getting the job done." Two items were also used to assess coworker social support: "The people I work with take a personal interest in me" and "The people I work with can be relied on when I need help." All items were scored on a five-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) ($\alpha = .70$ and $\alpha = .86$, respectively). A higher score was interpreted as correctional supervisors experiencing greater supervisor social support and coworker social support.

Control Variables

The following demographic variables were included as control variables: race (coded as white = 1 and non-white = 0), job classification (coded as lieutenant = 1, captains and counselor supervisors = 0), job tenure (measured in years), age (measured in years), educational attainment level (less than high school = 1, high school graduate or GED = 2, some college = 3, college degree (2 or 4 years college) = 4, and graduate degree = 5), marital status (coded as non-married = 0 and married or live with partner = 1), child care (having no child care responsibility = 0 and having primary or shared responsibility = 1), and gender (coded as male = 0, female = 1).

Job classification was included as a control variable in this study because lieutenants in the current sample have a lower rank, differing job demands, and less job flexibility when compared to captains and counselor supervisors (who hold equal rank and have similar administrative duties; Namazi et al., 2019). Specifically, lieutenants often work evening and night shifts, and are frontline supervisors working with correctional employees. In terms of marital status, age and childcare, research reports that W-FC is more pronounced for individuals who are married and have children compared to those who are not married and do not have childcare (Amstad et al., 2011). Additionally, W-FC can increase with age due to working families assuming caregiving responsibility for older adults (Baltes & Young, 2007). Similarly, research highlights gender differences in experiences of W-FC, such that women have been found to experience more W-FC as compared to men due to traditional gender role differences (Byron, 2005). Finally, employees who report higher educational attainment have also been found to report greater W-FC and depressive symptoms (Schieman & Galvin, 2011).

Analysis Strategy

Cronbach's alphas were calculated in SPSS version 25 to determine the internal consistency of the scales. SPSS was also used to conduct descriptive analyses, determine the zero-order correlations between variables, and to conduct data screening to determine whether assumptions of normality were met. One case was removed from the analysis due to response inconsistency, resulting in a final sample size of 156. EFA was conducted in *Mplus* (Muthén & Muthén, 1998) to assess the psychometric properties of the construct: effect of TIE at work.

Structural Equation Modeling (SEM) was used with *Mplus* (Muthén & Muthén, 1998) to test Hypotheses 1, 2, 3, 4 (Aim 1). Bias-correlated bootstrapping was used to conduct mediation analysis, constructing confidence intervals using 10,000 random bootstrap samples (MacKinnon, 2012). Prior to examining the structural model, a measurement model was used to assess the psychometric properties of the constructs being used.

Latent Moderated Structural Equations Method (LMSEM) using the XWITH statement in *Mplus* (Klein & Moosbrugger, 2000; Maslowsky et al., 2015) was used to test Hypotheses 5, 6 (Aim 2). The LMSEM approach tests moderation by first comparing a structural model without the latent interaction term to the structural model with the latent interaction using a log-likelihood ratio test. A significant log-likelihood ratio implies that the model with the latent interaction term is a better-fitted model. All significant latent interaction terms were tested using simple slopes analysis (Johnson & Neyman, 1936).

Additionally, the following fit indices were used to determine model fit: Chi-Square (χ^2) Test ($p > .05$); the Root Mean Square Error of Approximation (RMSEA) ($< .05$); the Comparative Fit Index (CFI) ($> .95$) and the Tucker-Lewis Index (TLI) ($> .95$); and the Standard Root Mean Square (SRMR) ($< .05$) (Geiser, 2012). Missing data were handled using full maximum likelihood (Enders, 2005). Statistical significance of study hypotheses was determined using two-tailed non-directional tests and a p-value of $< .05$.

Results

Descriptive Statistics

Demographic characteristics of the sample are summarized in Table 1. Participants were predominately male (78%) with an average age of 42 years ($SD = 6.06$). Most were lieutenants (59%), Caucasian (69%), had worked for the DOC for an average of 15.4 years ($SD = 4.73$), worked first shift (i.e., a standard daytime shift), and worked in a prison (64%) rather than a jail. Majority were also married or living with a partner (72%) and had some form of childcare responsibility (74%). Table 2 presents the frequency of exposure to the nine traumatic incidents at work, as well as the mean level of effect of TIE at work.

Table 3 presents the zero-order correlation between the study variables, including mean (SD) scores for the main outcome variables, predictor variables, and control

Table 1 Demographic characteristics of study participants ($n = 156$)

Demographic	n (%)
Demographic gender	
Male	121 (78)
Female	34 (22)
Age (years)	
All (mean ± SD)	42 (6.1)
Under 35 years old	22 (14)
36 to 40 years old	40 (26)
41 to 45 years old	52 (34)
46 and older	41 (27)
Education	
High school graduate or GED	24 (15)
Some college	61 (39)
College degree (2 or 4-year college)	55 (35)
Graduate degree	16 (10)
Job classification	
Lieutenants	92 (59)
Other (captains and counselor supervisors)	64 (41)
Ethnicity	
White	108 (69)
Non-white	48 (31)
Job tenure	
All (mean ± SD)	15.4 (4.7)
5–10	29 (19)
11–15	45 (29)
16–20	61 (39)
21 +	20 (13)
Shift	
1st shift (standard shift)	99 (64)
2nd and 3rd shift (non-standard shift)	55 (36)
Facility type	
Prison	100 (64)
Jail	56 (36)
Marital status	
Married or living with partner	113 (72)
Widowed, divorced, single, or never married	43 (28)
Child care	
I have no children under 18 at home	40 (26)
Another adult has primary responsibility	2 (1)
I share responsibility with another adult	96 (62)
I have primary responsibility	18 (12)

$n = 156$. The numbers do not add to 156 due to missing cases

Table 2 Frequency of traumatic incident exposure (TIE) at work and level of effect

Frequency of TIE at work	n	0 events n (%)	1–10 events n (%)	11 or more events n (%)	Mean level of effect (SD)
1.In a typical month, number of times witnessed or experienced inmate assault on an inmate	154	11 (7)	113 (73)	30 (20)	1.35 (0.61)
	n	0 events n (%)	1 event n (%)	2 or more events n (%)	Mean level of effect (SD)
2.In a typical month, number of times witnessed or experienced inmate attempted suicide	153	69 (45)	49 (32)	35 (23)	1.33 (0.58)
3.In a typical year, number of times witnessed or experienced inmate successful suicide	154	61 (40)	69 (45)	24 (16)	1.37 (0.60)
4.In a typical year, number of times witnessed or experienced inmate death (not suicide)	153	54 (35)	63 (41)	36 (24)	1.31 (0.56)
5.In a typical year, number of times witnessed or experienced inmate assault on staff	152	13 (9)	39 (26)	100 (66)	2.15 (0.91)
6.In a typical year, number of times witnessed or experienced inmate assault on you	152	130 (86)	14 (9)	8 (5)	1.37 (0.80)
7.In a typical year, number of times witnessed or experienced coworker suicide	152	84 (55)	43 (28)	25 (17)	2.09 (1.14)
8.In a typical year, number of times witnessed or experienced coworker death (not suicide)	153	34 (22)	59 (39)	60 (39)	2.33 (0.99)
9.In a typical year, number of times witnessed or experienced retired coworker death	153	35 (23)	48 (31)	70 (46)	2.18 (0.96)

Mean level of effect from the various traumatic incident exposures at work

Table 3 Means, standard deviations and intercorrelations of study variables

Observed variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Depressive symptoms	1.57	0.76	–												
2. W-FC	2.76	1.00	**.37****	–											
3. Effect of TIE directed to inmates	1.34	0.46	**.25****	.15	–										
4. Effect of TIE directed to self and/or peers	2.03	0.78	.12	**.26****	**− .37****	–									
5. Coworker social support	3.54	0.75	**− .29****	**− .20***	− .02	.03	–								
6. Supervisor social support	3.65	0.94	**− .20***	− .14	− .12	.01	**.47****	–							
7. Age	42.3	6.06	− .06	− .10	**.17***	.04	− .00	.02	–						
8. Race (white)	–	–	.13	**.18***	− .02	− .04	.02	− .02	.03	–					
9. Sex (female)	–	–	.09	− .07	.03	.10	− .07	− .03	− .02	**− .23****	–				
10. Job tenure	15.4	4.73	− .01	.01	.09	.06	.06	− .04	**.60****	**.18***	− .02	–			
11. Job class (lieutenant)	–	–	− .01	.03	.03	.01	**− .20***	− .03	− .05	− .05	**− .16***	**− .35****	–		
12. Facility type (prison)	–	–	.13	.09	.06	.14	**− .16***	− .09	− .12	**.17***	.10	.01	− .03	–	
13. Marital status (married)	–	–	− .14	**.32****	.06	.09	.09	− .01	− .07	.15	**− .24****	.09	− .05	.02	–
14. Child care	–	–	− .03	.02	− .12	− .00	.00	.03	**− .26****	− .03	**− .20***	− .08	− .12	.12	**.24****

Statistical significance was set at $*p < .05$; $**p < .01$; $***p < .001$

variables. The mean scores for depressive symptoms and W-FC were 1.57 and 2.76, respectively (out of 5 possible points). Further, correctional supervisors' mean scores of coworker and supervisor social support were 3.54 and 3.65, respectively (out of 5 possible points).

Frequency of Traumatic Incident Exposure at Work

Table 2 presents the frequency of correctional supervisors' exposure to the nine traumatic incidents at work. In a typical month, 93% of correctional supervisors reported witnessing or experiencing one or more inmate assault on an inmate, and 55% reported witnessing or experiencing at least one inmate suicide attempt. In a typical year, 61% reported witnessing or experiencing one or more inmate suicide; 65% reported witnessing or experiencing one or more inmate death (not due to suicide); 92% reported witnessing or experiencing one or more inmate assault on staff; 14% reported witnessing or experiencing one or more inmate assault on self (personal assault); 45% reported witnessing or experiencing one or more coworker suicide; 78% reported witnessing or experiencing one or more coworker death (not suicide); and 77% reported witnessing or experiencing one or more retired coworker death.

Effect of Traumatic Incident Exposure at Work and the Mediating Role of W-FC

A measurement model was first tested with the following variables: effect of TIE directed to inmates, effect of TIE directed to self and/or peers, W-FC and depressive symptoms. There was a good model fit: χ^2 (71) = 99.7; RMSEA = .05 (95% CI .024–.073); CFI = .97; TLI = .96; SRMR = .05. The structural model also showed good model fit: χ^2 (167) = 224.4; RMSEA = .05 (95% CI .029–.062); CFI = .94; TLI = .93; SRMR = .06. Key findings included the following (see Fig. 2 and Table 4): effect of TIE directed to self and/or peers was positively associated with W-FC ($\beta = .26$, $p < .05$); effect of TIE directed to inmates was positively associated with depressive symptoms ($\beta = .31$, $p < .01$); and W-FC was positively associated with depressive symptoms ($\beta = .52$, $p < .001$). Moreover, W-FC mediated the relationship effect of TIE directed to self and/or peer and depressive symptoms ($\beta = .13$, 95% CI [.016, .35]).

Moderating Role of Social Support

Coworker Social Support

The interaction between coworker social support with effect of TIE directed to inmates and effect of TIE directed to self and/or peers was tested by first specifying a measurement model, which included the latent variables: coworker social support, effect of TIE directed to inmates, effect of TIE directed to self and/or peers, work-to-family conflict and depressive symptoms. There was good model fit: χ^2 (94) = 131.9;

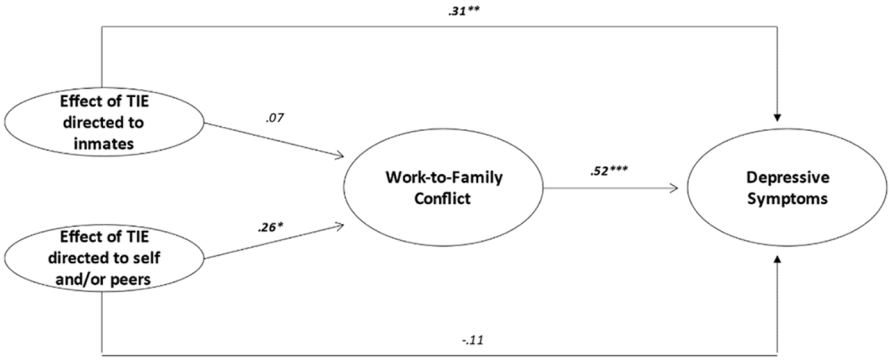

Fig. 2 Mediation model for the relationship between effect of TIE directed to inmates and the effect of TIE directed to self and/or peers and depressive symptoms, mediated by work-to-family conflict. All beta coefficients are standardized. Statistical significance indicated by bolded coefficients at $*p < .05$; $**p < .01$; $***p < .001$; p values are those from the test of the unstandardized coefficient. Note: mediation was run separately for each exposure variable

Table 4 Effect of Traumatic Incident Exposure at Work on W-FC and Depressive Symptoms

Direct Paths	*Standardized Effect Size*	*P*
Effect of TIE directed to inmates --> W-FC	.07	>.05
Effect of TIE directed to self and/or peers --> WFC	**.26**	<.05
W-FC --> Depression	**.52**	<.001
Effect of TIE directed to inmates --> Depression	**.31**	<.01
Effect of TIE directed to self and/or peers --> Depression	-.11	>.05
Race (White) --> W-FC	**.18**	.05
Job Classification (Lieutenant) --> W-FC	-.00	>.05
Job Tenure --> W-FC	.02	>.05
Age --> W-FC	-.17	>.05
Education --> W-FC	-.15	>.05
Marital Status (Married) --> W-FC	**.33**	<.001
Childcare --> W-FC	-.08	>.05
Sex (Female) --> W-FC	.01	>.05
Race (White) --> Depression	.14	>.05
Job Classification (Lieutenant) --> Depression	.01	>.05
Job Tenure --> Depression	.05	>.05
Age --> Depression	-.09	>.05
Education --> Depression	.05	>.05
Marital Status (Married) --> Depression	**-.32**	<.001
Childcare --> Depression	.06	>.05
Sex (Female) --> Depression	.09	>.05

All beta coefficients are standardized. Statistical significance indicated by bolded coefficients at *p<.05; **p<.01; ***p<.001; p values are those from the test of the unstandardized coefficient. Table also includes results from control variables

RMSEA = .05 (95% CI .028–.070); CFI = .96; TLI = .95; SRMR = .05, and all loadings of the items on the latent variables were significant ($p < .001$).

Next, we compared the log-likelihood value of the baseline model (i.e., the model without the interaction terms) with the structural model (i.e., the model with the interaction terms), which yielded a log-likelihood difference value of D = 23.4, which was statistically significant ($p < .001$). Table 5 shows a summary of the standardized path coefficients. Key findings include: coworker social support moderated the relationship between effect of TIE directed to inmates and depressive symptoms (β = − .81, $p < .001$), and coworker social support moderated the relationship between effect of TIE directed to self and/or peers and depressive symptoms (β = .91, $p < .001$).

Assessing the interaction between effect of TIE directed to inmates and coworker social support (see Fig. 3), the test of simple slopes indicated that the slope for low coworker social support was statistically significant (β = 3.36, $p < .001$), and the slope for high coworker social support was also statistically significant (β = − 2.67, $p < .01$). Under conditions of low coworker social support, individuals who reported greater effect of TIE directed to inmates reported more depressive symptoms. Under conditions of high coworker social support, individuals who reported greater effect of TIE directed to inmates reported lower depressive symptoms.

Assessing the interaction between effect of TIE directed to self and/or peers and coworker social support (see Fig. 4), the test of simple slopes indicated that the slope for low coworker social support was statistically significant (β = − 2.58, $p < .001$), and the slope for high coworker social support was also statistically significant (β = 1.73, $p < .01$). Under conditions of low coworker social support, individuals who reported greater effect of TIE directed to self and/or peers reported lower

Table 5 First stage moderation examining the role of coworker social support and supervisor social support

Direct paths	Standardized effect size	p
Coworker social support × effect of TIE directed to inmates → W-FC	.04	> .05
Coworker social support × effect of TIE directed to inmates → depression	**− .81**	< .001
Coworker social support × effect of TIE directed to self and/or peers → WFC	− .17	> .05
Coworker social support × effect of TIE directed to self and/or peers → depression	**.91**	< .001
Supervisor social support × effect of TIE directed to inmates → W-FC	− .06	> .05
Supervisor social support × effect of TIE directed to inmates → depression	**− .29**	< .01
Supervisor social support × effect of TIE directed to self and/or peers → WFC	− .17	> .05
Supervisor social support × effect of TIE directed to self and/or peers → depression	0.18	> .05

All beta coefficients are standardized. Statistical significance indicated by bolded coefficients at *$p < .05$; **$p < .01$; ***$p < .001$; p values are those from the test of the unstandardized coefficient

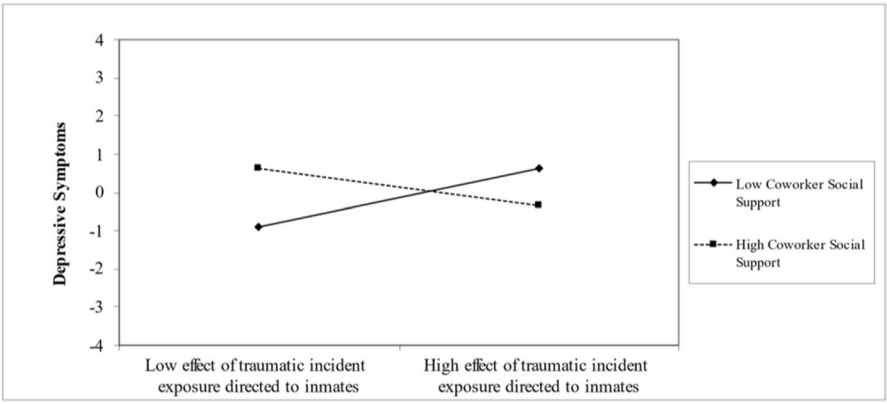

Fig. 3 Moderation effect of coworker social support on the relationship between effect of traumatic incident exposure directed to inmates and depressive symptoms. Standardized beta weights are depicted for depressive symptoms

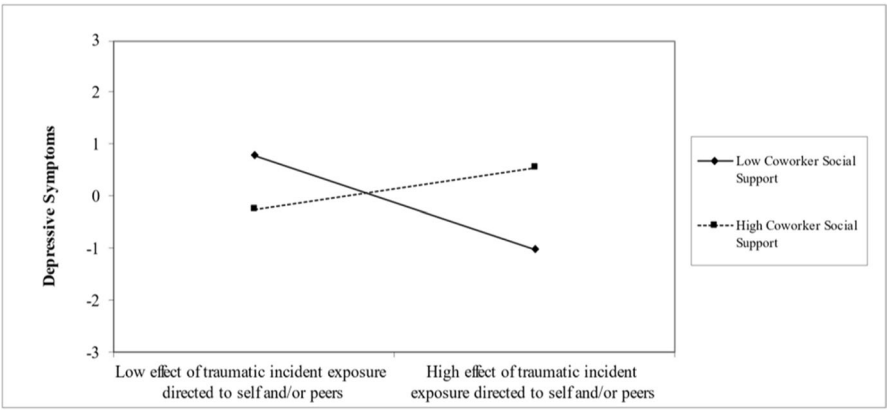

Fig. 4 Moderation effect of coworker social support on the relationship between effect of traumatic incident exposure directed to self and/or peers and depressive symptoms. Standardized beta weights are depicted for depressive symptoms

depressive symptoms. Under conditions of high coworker social support, individuals who reported greater effect of TIE directed to self and/or peers reported higher depressive symptoms.

Supervisor Social Support

Finally, we tested the interaction effect of supervisor social support with both effect of TIE directed to inmates and effect of TIE directed to self and/or peers (see Table 5). First, we tested a measurement model including the latent variables: supervisor social support, effect of TIE directed to inmates, effect of TIE directed to self and/or peers, W-FC and depressive symptoms, which showed good model fit: χ^2

(94) = 140.7; RMSEA = .06 (95% CI .036–.075); CFI = .96; TLI = .95; SRMR = .06, and all factor loadings were significant ($p < .001$). Log-likelihood difference test yielded a value of D = 19.0, which was statistically significant ($p < .001$).

Key findings were as follows: supervisor social support moderated the relationship between effect of TIE directed to inmates and depressive symptoms (β = − .29, $p < .01$). As can be seen in Fig. 5, the test of simple slopes indicated that the slope for low supervisor social support was statistically significant (β = 1.08, $p < .01$), and the slope for high supervisor social support was not statistically significant (β = − .07, $p = 0.83$). Thus, under conditions of low supervisor social support, individuals who reported greater effect of TIE directed to inmates reported more depressive symptoms.

Discussion

The first aim of this study was to examine the association between effect of TIE at work and correctional supervisors' experience of W-FC and depressive symptoms. This study also examined the mediating role of W-FC in the association between effect of TIE at work and depressive symptoms. The second aim of this study was to examine the moderating role of both coworker and supervisor social support in the relationships mentioned above.

Effect of Traumatic Incident Exposure at Work and the Mediating Role of W-FC

We found that effect of TIE directed to self and/or peers was positively associated with W-FC. This finding is consistent with previous research that has examined the adverse effects of trauma exposure on the family lives of public safety employees (Crawley, 2002; Regehr, 2005; Rothrauff et al., 2004). We also found that effect of TIE directed to inmates was positively associated with depressive symptoms.

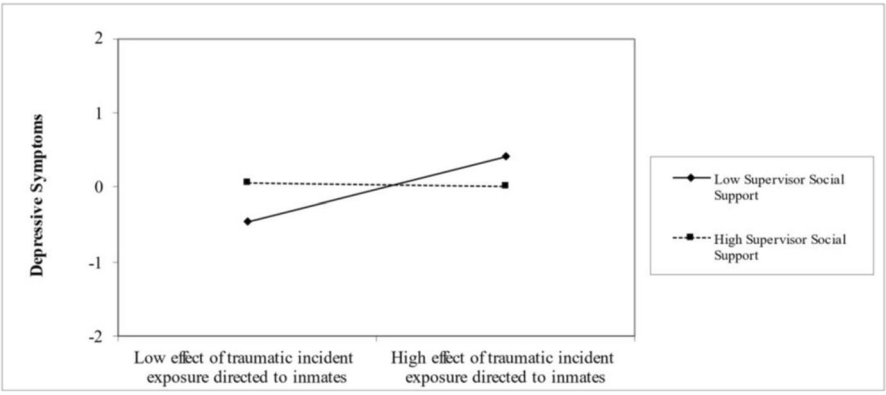

Fig. 5 Moderation effect of coworker social support on the relationship between effect of traumatic incident exposure directed to inmates and depressive symptoms. Standardized beta weights are depicted for depressive symptoms

This finding is also consistent with previous research that links exposure to traumatic incidents among correctional staff (Isenhardt & Hostettler, 2016; Keinan & Malach-Pines, 2007) and other public safety professionals such as police (Hartley et al., 2007; Shakespeare-Finch et al., 2002) to poor psychological health and well-being. Finally, we found that W-FC mediated the relationship between effect of TIE directed to self and/or peers and depressive symptoms. However, we did not find support for our hypothesis that W-FC mediates the relationship between effect of TIE directed to inmates and depressive symptoms.

The mediating effect of W-FC in the relationship between effect of TIE directed to self and/or peers and depressive symptoms is in line with the principles outlined in the COR theory (Hobfoll, 1989). Specifically, the COR theory implies that work-related trauma can place unique demands on one's personal resources and can threaten or lead to rapid loss of resources, known as resource loss spirals (Hobfoll et al., 2018). Further, exposure to work-related trauma can challenge an individual's ability to cope with trauma exposure. Thus, the threatened or rapid loss of resources, and the inability to cope with work-related trauma can lead to stress in the form of W-FC (Grandey & Cropanzano, 1999). This can, in turn, impair one's ability to maintain good psychological health and functioning (Hobfoll, 1989).

Correctional employees have indicated that their family members lack understanding about their profession and are unable to provide them with the support they need following a work-related traumatic event. This can serve as a barrier to their ability to seek support from their families for their work-related stressors and may lead to correctional supervisors' experience of conflict in their family domain (Crawley, 2002). Correctional supervisors often turn to their work peers for support, who they consider to be better able to understand the stressors they face from work (Delprino, 2002). While we did not examine the role that correctional supervisors' family members play after a traumatic incident exposure, we recommend that future research examine both the role that family members play for correctional employees after a traumatic incident and the strain it places on the families of correctional employees.

We recommend that future studies examine our hypothesized model using a larger sample size of correctional supervisors. However, our finding that effect of TIE directed to inmates was directly associated with depressive symptoms suggests that correctional supervisors, despite organizational norms associated with depersonalization of inmates and emotional avoidance (Boudoukha et al., 2013; Spinaris et al., 2013) are nonetheless affected by work-related traumatic incidents involving inmates only.

Moderating Role of Social Support

The second aim of this study was to examine the moderating role of both coworker social support (i.e., support that correctional supervisors receive from coworkers) and supervisor social support (i.e., support that correctional supervisors receive from wardens/deputy wardens) in the relationship of effect of TIE at work with both W-FC and depressive symptoms.

Coworker Social Support

First, we found that coworker social support (i.e., support correctional supervisors receive from coworkers) moderated the relationship between effect of TIE directed to inmates and depressive symptoms. Specifically, we found that under conditions of low coworker social support, individuals who reported greater effect of TIE directed to inmates also reported more depressive symptoms.

These findings suggest that, for correctional supervisors who are greatly affected by exposure to TIE directed to inmates, the lower their perceptions of social support from their coworkers, the more susceptible they are to the negative impact of work-related trauma exposure on their mental health. This is supported by previous research that has found low coworker social support among correctional officers to be associated with increased levels of job stress (Schaufeli & Peeters, 2000) and psychosomatic complaints (Armstrong et al., 2015; Bezerra et al., 2016).

Further, we found that under conditions of high coworker social support, individuals who reported a greater effect of TIE directed to inmates reported lower depressive symptoms. This finding supports our hypothesis, such that for correctional supervisors who are greatly affected by exposure to TIE directed to inmates, the more social support they receive from their coworkers, the less susceptible they are to the negative impact of TIE at work on their mental health.

Our finding that greater coworker social support reduced the negative impact of exposure to TIE at work on correctional supervisors' depressive symptoms is consistent with the buffering hypotheses of social support, which posits that social support can help ameliorate the negative impact of stress on poor mental health outcomes (Cohen & Wills, 1985).

We also found that coworker social support moderated the relationship between effect of TIE directed to self and/or peers and depressive symptoms, such that under conditions of low coworker social support, individuals who reported greater effect of TIE directed to self and/or peers also reported lower depressive symptoms. Similarly, we found that under conditions of high coworker social support, individuals who reported a greater effect of TIE directed to self and/or peers reported higher depressive symptoms.

These findings may suggest that for correctional supervisors, the weaker their social ties at work, the less willing they are to admit to being negatively impacted by TIE at work. On the other hand, for correctional supervisors with stronger social ties, the greater they feel the impact of TIE directed to self and/or peers, the more willing they are to admit to feeling depressive symptoms. This is supported by several studies that suggest that the quality of the relationships formed at work with peers and supervisors significantly impacts the overall health and well-being of correctional staff (Moon & Maxwell, 2004; Rousseau et al., 2008).

Supervisor Social Support

Finally, we examined the moderating role of supervisor social support (i.e., support correctional supervisors receive from wardens/deputy wardens). Our findings showed that under conditions of low supervisor social support, individuals who reported greater effect of TIE directed to inmates reported more depressive symptoms. These findings highlight the importance that supervisor social support can play in reducing the deleterious effect of TIE on correctional supervisors' mental health and supports previous research that highlights the critical role that supervisors can play in helping correctional staff cope with potential workplace strains (Armstrong et al., 2015; Cherniss & Cherniss, 1980; Cullen et al., 1985; Lambert & Hogan, 2009; Lambert et al., 2015a, 2015b; Maslach et al., 2001).

Study Strengths and Limitations

Our study is novel in that we examined TIE from the perspective of correctional supervisors. Most studies on TIE have focused primarily on line-level staff, such as correctional officers (Boudoukha et al., 2013; Denhof et al., 2014; Isenhardt & Hostettler, 2016; Spinaris et al., 2012, 2013). To our knowledge, no study has examined TIE from the perspective of correctional supervisors.

Furthermore, the measure we used to assess the effect of TIE at work was specifically tailored for correctional employee occupational and non-work exposures and covered a comprehensive list of work-related traumatic incidents experienced by correctional employees. We used participatory action research methods by engaging a group of correctional supervisors in the development of the measure. This method allowed supervisors to identify specific work-related traumatic incidents that are relevant to their occupation (Dugan et al., 2016, 2021). We included both indirect and direct trauma exposure in our assessment of TIE at work among correctional supervisors.

In terms of our study limitations, it is essential to note that the measure we used to assess correctional supervisors' perceptions of social support did not include other sources of social support that can be beneficial in helping correctional employees cope with the effects of TIE at work. For example, research among public safety professions indicates that social support from friends, family members (Delprino, 2002), employee assistance programs (EAPs), and union representatives may play a role in helping reduce stress for these employees. Moreover, unlike non-union members, unionized correctional employees often enjoy instrumental support in the form of benefits such as paid time off and annual wellness days. These sources of support for employees may help improve recovery from exposure to work-related stressors. As such, we recommend that future studies examine other sources of social support for correctional supervisors that may be protective against the deleterious impact of TIE at work. Another notable limitation is that we did not control for prior history of trauma exposure among our study participants (many of whom are military veterans). Therefore, we recommend that future studies control for previous trauma exposure, perhaps by using veteran status as a proxy measure. We also recommend

that objective measures be used in future studies, such as physiological responses to trauma among correctional supervisors.

Future studies may also examine the main causes of trauma experience by correctional employees. Our study only captures the frequency and types of TIE experienced by correctional supervisors at work. While jobs in the corrections sector are traditionally held by male/caucasian people, experiences of TIE at work may vary significantly based on sex/gender and race/ethnicity. As such, we recommend that future studies examine the impact of TIE of correctional employees based on sex/gender identity and racial/ethnic background (e.g., comparing people of color with caucasians).

Our reliance upon self-reported data can increase the risk for common method bias and misreporting, especially of the measure assessing depressive symptoms among correctional supervisors. Previous research conducted with correctional staff has highlighted under-reporting on questionnaires assessing mental health (Obidoa et al., 2011) and substance use disorders (Shepherd et al., 2018). It is therefore possible that correctional supervisors in our sample underreported their level of depressive symptoms.

Our study design was also cross-sectional, so we are unable to make causal inferences. Additionally, we conducted mediation analysis using a cross-sectional study design. A longitudinal study would be needed to examine the true temporal order of TIE and its association with depressive symptoms and potential mediators in this relationship. Our study may also include self-selection bias because we obtained a convenience sample of correctional supervisors who volunteered to participate in our online survey.

Our study sample size may have contributed to the lack of statistically significant relationships observed. In SEM, the sample size plays a vital role in the ability to observe true relationships in the data. A sample size below 200 may produce unreliable standard errors of estimates. We accounted for the small sample size in our study by using robust estimators and bootstrapping confidence intervals for mediation and moderation analysis (Wolf et al., 2013).

Practical Implications

Our study found that correctional supervisors' effect of TIE adversely impacted their family domain and their mental well-being. Despite working in an organization where exposure to traumatic incidents occurs regularly, interventions aimed at preventing and/or reducing the negative effects of such exposures among correctional employees are limited (Spinaris et al., 2013).

In the event of a work-related traumatic incident, most DOC have an established Critical Incident Stress Response Team (CISRT) whose specific role is to provide staff with emotional support following a traumatic stress. Some of the services CISRT provide include: pre-incident traumatic stress education, defusing, debriefing, and support for family members of affected staff (Connecticut Department of Correction, 2015). However, the culture within DOC is such that seeking help and admitting to emotional stress after a TIE, is perceived as a sign

of weakness (Crawley, 2013; Tracy, 2005). Therefore, most correctional employees are often reluctant to use CISRT services.

Most DOCs also contract with EAPs to provide a variety of services to help employees cope with both personal and work-related stressors. Nevertheless, correctional staff utilization of EAPs is highly stigmatized because such services are more commonly offered or mandated in the context of disciplinary actions or substance use problems. Further, contracted EAP services may not be equipped to handle the types of traumatic incidents that correctional employees are regularly exposed to (Spinaris et al., 2013). Thus, correctional agencies may benefit from providing in-house counseling and training to help affected correctional staff. This can help normalize reactions to TIE, particularly TIE involving inmates (Shakespeare-Finch et al., 2002).

In addition, our study findings suggest that coworker social support and supervisor social support can help buffer against the harmful effects of TIE at work on correctional supervisors' mental health. As such, having a strong social network at work can be protective against the loss of resources following a TIE. Management should focus on implementing interventions that strengthen the social climate at DOC (Thompson et al., 2005), which may include the implementation of peer-led mentoring programs (Cherniack et al., 2016).

It is also worth noting that improving social support on the job for correctional employees could have an indirect effect on the health and well-being of the incarcerated. Social support can foster safer working conditions, which in turn, could create safer living environments for those who are incarcerated. We recommend that this be examined in future corrections research.

Finally, family members play a critical role in helping correctional employees cope with the traumatic incidents to which they are exposed on the job. The DOC can help increase family members' social support by educating them about the nature of corrections work and by providing organizational programs that help correctional employees and their family members cope with the stress that comes with working in corrections (Delprino, 2002).

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Declarations

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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