HHS Public Access

Author manuscript

J Occup Environ Med. Author manuscript; available in PMC 2024 July 14.

Published in final edited form as:

J Occup Environ Med. 2019 October ; 61(10): 818–828. doi:10.1097/JOM.0000000000001664.

Examining a Comprehensive Model of Work and Family Demands, Work–Family Conflict, and Depressive Symptoms in a Sample of Correctional Supervisors

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Abstract

Objective: This study examined how work and family demands affect depressive symptoms, and the mediating roles of work-to-family conflict and family-to-work conflict in a sample of correctional supervisors.

Methods: Using a cross-sectional design, correctional supervisors working in a Northeastern state ($n = 156$) participated in an online survey. Structural equation modeling was used to examine direct and indirect effects between study variables.

Results: Amount of overtime hours worked significantly predicted work-to-family conflict ($\beta = 0.18$, $P < 0.05$), and work-to-family conflict significantly predicted greater depressive symptoms ($\beta = 0.61$, $P < 0.01$). Overtime work also had an indirect effect on depressive symptoms through work-to-family conflict ($\beta = 0.11$ [95% CI 0.001–0.42]). No other statistically significant effects of relevance were found.

Conclusions: Working overtime had an indirect effect on correctional supervisors' depressive symptoms, mediated by work-to-family conflict.

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The authors have no conflicts of interest.

Supplemental digital contents are available for this article. Direct URL citation appears in the printed text and is provided in the HTML and PDF versions of this article on the journal's Web site (www.joem.org).

Keywords

adult care; child care; correctional supervisors; depressive symptoms; family-to-work conflict; shiftwork; overtime work; work-to-family conflict

Depression is a common mental health disorder in the United States, affecting approximately 10 to 17.5 million working-age adults and is recognized as a growing public health concern nationally.[1–3] Depression is associated with work impairment, reduced productivity, decreased job retention, and loss of family income.[4] It is also linked to comorbid mental and physical disorders. If left untreated, can lead to increased risk of mortality by suicide.[2]

Work–family conflict (WFC), also termed work-to-family conflict (W-FC), can be defined as the inter-role stress that occurs when work demands and pressures interfere with family demands. When family demands and pressures interfere with work demands, the term family-to-work conflict (F-WC) is frequently used.[5,6] Both W-FC and F-WC are identified risk factors for depression,[7–9] and are prevalent among employees working in high demand, low control occupations, such as in the public safety sector.[10,11]

The focus of the current study is on public safety employees who are exposed to high physical and psychological job demands and low organizational support, and are at an increased risk of WFC and mental health disorders.[12–14] In this paper, correctional supervisors are the group of lieutenants, captains, and counselor supervisors that have designated managerial functions. A significant number of correctional supervisors report maladaptive coping behaviors, and suffer from comorbidities that can negatively affect their health-related quality of life and life expectancy.[15] Research in corrections on correctional personnel is limited and what exists has a focused on front-line employees, such as correctional officers (COs), rather than correctional supervisors.[14–16] While studies on COs are partly generalizable to correctional supervisors, stress for correctional employees is known to vary by their position and job responsibilities,[14] and correctional supervisors are an organizationally distinct group, akin to middle managers in non-correctional employment. Additionally, most are tenured employees and have worked as COs before they are promoted to supervisory status.

Correctional supervisors oversee the safety of all staff and inmates under their jurisdiction as well as manage the day-to-day operations of their facilities, thus differentiated of COs, who primarily interact with and monitor inmates. As middle managers, their job duties and responsibilities tend towards administration (eg, paperwork, scheduling, and training staff and inmates), responding to management demands, and translating state budgetary constraints into staffing and coverage.[14] Correctional supervisors also manage stressors and mental health challenges of their subordinates, inmates, and inmate’s family members, in both accommodating and disciplinary roles, while attempting to manage their own stress and mental health challenges both on and off the job.[17] However, no study we are aware of has examined correctional supervisors’ work and family demands on their experience of WFC and depressive symptoms.

To understand the work and family demands of correctional supervisors, the present study seeks to reproduce and build on research conducted by Obidoa et al,[11] who examined the association between various individual/work-related factors with both WFC and depression among COs. The present study extends this line of research to correctional supervisors by examining the association of work schedule demands and family caregiving responsibilities with WFC and depressive symptoms.

Work Schedule Demands

Unlike many middle managers, correctional supervisors have 24/7 mandatory responsibilities that include having to work during weekends and holidays.[15] Moreover, chronically overcrowded and understaffed prison and jail facilities, hiring freezes, and layoffs due to budgetary constraints, and extensive staff utilization of sick leave[18–21] have required correctional supervisors to extend their hours in order to cover vacant job positions. There are additional, somewhat voluntary, extended hours demands for correctional supervisors due to economic pressures, retirement security, and to enhance prospects for advancement within the organization.[22] While there are work rules that limit involuntary total time commitment to no more than 16-hours within a 24-hour period, service up to 20-hours in a single work day can be assigned in the event of a serious incident. Although supervisory staff cannot be mandated to work overtime on consecutive work days, adherence to this policy can be abridged in the event that staffing levels fall below minimum mandatory levels, requiring employees to work overtime on consecutive days. Furthermore, there are no policies that limit the amount of involuntary overtime work that staff could do in a typical workweek.[23]

While studies have linked work demands to correctional employee health and safety,[18,24–29] limited attention has been paid specifically to the impacts of shiftwork and long and irregular work hours on the mental health and family domain of correctional employees.[18] Only one study was found that has examined the negative health effects of shiftwork and overtime work on correctional supervisors' health.[27]

Family Caregiving Responsibilities

Apart from their work demands, correctional supervisors can have role obligations and demands within their family domain that can interfere and compete with their paid work. One such family demand that has not been reported in corrections research pertains to employee family caregiving responsibilities (ie, child care and adult care). While previous research among COs has documented a high prevalence of F-WC,[26,30–32] to our knowledge, no studies have examined the effects that family caregiving responsibilities might have on F-WC for correctional supervisors.

Family caregiving has intensified for many employees in the United States, due to the aging population and labor force, economic burden of care and health care cost, and the growing demand of informal care for individuals with chronic disabilities. Many employees simultaneously provide dependent care to two generations of family members, "sandwiched" between providing care for their children and their aging parents.[33]

Approximately 66 million US adults are caregivers to a child or aging adult[34–36] and about 65% of these caregivers hold full-time or part-time employement.[37]

Family caregiving demands on employed individuals are often associated with absenteeism, paid or unpaid leave of absence, tardiness, conversion from full-time to part-timework, turning down promotion opportunities, burnout[38] and exiting the workforce prematurely or permanently.[39–41] Employed family caregivers report increased F-WC,[33] and adverse physical and psychological health effects,[42–44] with depression being the most commonly observed mental health problem.[45] Compared with other advanced industrial economies, the United States, has very limited public policies and support programs for employees who have family caregiving responsibilities.[46] Many working caregivers rely on less formal assistance from their employers, other relatives and their community to help with caregiving responsibilities.[47]

Theoretical Framework

The present study uses the Conservation of Resources theory (COR theory),[48,49] a theory of stress, to examine two types of work and family demands for correctional supervisors: (1) work demands associated with erratic work schedules (ie, shiftwork and overtime work) and (2) family demands associated with family caregiving responsibilities (ie, child care and adult care). Both forms of work and family demands are examined as potential antecedent variables of W-FC, F-WC, and depressive symptoms. According to the COR theory,[48] individuals are motivated to procure, protect, and conserve resources (eg, time, self-esteem, money, knowledge, marriage, tenure) that they value as important in contributing positively to their well-being. Stressful environmental conditions or demands have the capability to threaten, deplete, or prevent the gain of finite resources, leading to psychological stress.[50,51] In addition, the COR theory posits that resource loss is disproportionally more influential in impacting an individual than resource gain and serves as a barrier to the accumulation of resources that are protective and contribute positively to an individual's well-being.[49,52]

By applying the COR model to the current study model (see Fig. 1), it is hypothesized that W-FC and F-WC are reactions to the loss of resources, such as time and energy, that occurs in the process of juggling conflicting pressures and demands from both work and family.[53] Correctional supervisors' work schedules (ie, shiftwork and overtime work) and their family caregiving responsibilities (ie, child care and adult care) are demands from the work and family domains, respectively, that compete for the same finite time and energy resources. When greater resources (ie, time and energy) are invested in the work domain (eg, working overtime), less resources are available to meet the demands and role obligations of the family domain (eg, partaking in family events and activities).[51] Continued stress and resource depletion can lead to adverse mental health consequences.[53] As such, this study will also examine the mediating roles of W-FC and F-WC in the relationship between correctional supervisors' work schedule demands, family caregiving responsibilities, and depressive symptoms. The following specific study hypotheses emerged from the theoretical review (see Fig. 1):

Hypothesis 1a: Shiftwork (ie, working second or third shift, compared with working first shift) will be positively associated with W-FC among correctional supervisors.

Hypothesis 1b: Amount of overtime work will be positively associated with W-FC among correctional supervisors.

Hypothesis 2a: Child care responsibilities will be positively associated with F-WC among correctional supervisors.

Hypothesis 2b: Adult care responsibilities will be positively associated with F-WC among correctional supervisors.

Hypothesis 3a: Shiftwork (ie, working second or third shift, compared with working first shift) will be positively associated with depressive symptoms among correctional supervisors.

Hypothesis 3b: Amount of overtimework will be positively associated with depressive symptoms among correctional supervisors.

Hypothesis 4a: Child care responsibilities will be positively associated with depressive symptoms among correctional supervisors.

Hypothesis 4b: Adult care responsibilities will be positively associated with depressive symptoms among correctional supervisors.

Hypothesis 5a: W-FC will be positively associated with depressive symptoms among correctional supervisors.

Hypothesis 5b: F-WC will be positively associated with depressive symptoms among correctional supervisors.

Hypothesis 6a: W-FC will mediate the hypothesized positive association between work schedule demands (ie, shiftwork and amount of overtime work) and depressive symptoms.

Hypothesis 6b: F-WC will mediate the hypothesized positive association between family caregiving responsibilities (ie, child care and adult care) and depressive symptoms.

METHODS

Participants

Participants were correctional supervisors (ie, lieutenants, captains, and counselor supervisors) representing 19 correctional facilities in a Northeastern state with staffing levels and confined inmate population of 5210 and 13,400, respectively. A cross-sectional survey was conducted to assess their perceptions of the Department of Correction (DOC) culture, the impact of their work on their health, and their idea of an ideal healthy workplace. The design and administration of the survey were done through a partnership and collaborative effort between the Correctional Supervisors' Council union bargaining unit and research staff at the University conducting the study using a participatory action model.[17] The survey

was administered in 2014 to all members of the correctional supervisors' union bargaining unit through the union listserv. Data collection occurred over a one month period. The anonymous survey was linked to state-issued email addresses connecting them to the union. The survey was voluntary and did not include an incentive. A convenience sample of 157 out of 423 contacted correctional supervisors participated in the online survey. The overall response rate was 37%.

The participants in the survey were predominantly men (78.1%), middle-aged adults (mean age was 42.3 [SD = 6.06] years) that held some college degree or higher (84.7%). The majority were also lieutenants (59.0%), married or living with their partners (72.4%), and more than 50% of the sample earned more than $100,000 per year. In addition, the mean years employed were 15.4 (SD = 4.73).

The representativeness of the participants was imputed from demographic data on all supervisors provided by the states DOC human resource office. For example, 76% of the correctional supervisors are men and 23% are women, which compared favorably with survey responders who were 78% men and 22% women. The median age of correctional supervisors was 44, and the median age of the sample respondents was 42, which indicated that the sample was also representative by age. The study received approval from the Institutional Review Board at the university conducting the study.

Measures

Supplementary Table 1 (http://links.lww.com/JOM/A582) lists all of the variables used in the current study. Cronbach α was calculated in SPSS version 25 (IBM Corporation, Chicago, IL) to determine the internal consistency reliability of the scales for the current sample.

Dependent Variable

Depressive symptoms were operationalized from the depression dimension of the Brief Symptom Inventory (BSI) scale developed by Derogatis and Spencer (1983).[54] The BSI is composed of nine principle psychological symptoms dimensions of which depression is one of the major dimensions. The original depression dimension consists of six items, which includes "thoughts of ending your life," "feeling lonely," "feeling blue," "feeling no interest in things," "feeling hopeless about the future," and "feeling of worthlessness." The current study used three out of the six items (ie, feeling lonely, feeling blue, and feeling no interest in things), and measured the extent to which an individual experienced these three symptoms in a typical week. The choice of these three items was suggested by participants in the survey development phase. Contributing correctional supervisors excluded certain items to minimize response burden. All three items were measured on a five-point Likert type scale ranging from 1 (not at all) to 5 (extremely) and Cronbach α was 0.89. A mean depressive rating was calculated summing the scores divided by three.

Mediators

Work-to-family conflict and family-to-work conflict were operationalized using the four-item scale adapted from the Kessler[55] National Comorbidity Survey (NCS). Two-items from

the scale measure W-FC (eg, “How often do things going on at work make you feel tense and irritable at home?”), and two-items from the scale measure F-WC (eg, “How often do things going on at home make you feel tense and irritable on the job?”). Cronbach α was 0.74 and 0.75, respectively. The items follow a five-point Likert type scale ranging from 1 (never) to 5 (always) and are scaled so that a higher score indicates that an individual perceives higher levels of W-FC and F-WC. To obtain a mean rating for W-FC and F-WC, the scores were summed and divided by 5.

Independent Variables

Shiftwork was measured by asking participants what shift they were assigned to (ie, first, second, or third shift). In the current sample, all correctional supervisors worked a permanent shift and the start and finish time of their duty period typically included the following: 8:00 am to 4:00 pm (ie, first shift or a day shift); 4:00 pm to 12:00 pm (ie, second shift or an evening shift); and 12:00 am to 8:00 am (ie, third shift or a night shift). Consistent with a previous study on shiftwork and WFC,[56] working first shift was coded as (0) and working the second and the third shift was coded as (1). Working first shift was also regarded as a standard shift, while working second and third shift was regarded as nonstandard shiftwork.[53]

Overtime work was measured with a single self-reported item, which asks participants to report how many hours of overtime they typically work per week and was treated as a continuous variable. In the current sample, the availability of overtime work varied by specific job classification. Counselor supervisors and captains worked 8-hour shifts, while lieutenants, depending on their specialized position, worked approximately 8 to 9-hours per shift. Thus, for correctional supervisors, overtime work pertains to the number of hours worked beyond their regular work shift.

Child care was measured by asking participants how much responsibility they personally had for any children under 18 in their household. The scale used to assess child care was developed by investigators from The Center for the Promotion of Health in the New England Workplace (CPH-NEW).[57] Response categories include: 1 (I have no children under 18 at home), 2 (Another adult has primary responsibility), 3 (I share responsibility with another adult), and 4 (I have primary responsibility). A dichotomous variable was created such that 1 was coded as (0) and labeled as “having no child care responsibilities” and responses to 2, 3, and 4 were codes as (1) and was labeled as “having child care responsibilities.”

Adult care was measured by asking participants to what extent any adult depended on them in any way for help due to disability, chronic illness, or aging. The scale used to assess adult care was developed by investigators from CPH-NEW.[57] Response categories include: 1 (No adults depend on me due to disability, chronic illness, or aging), 2 (Another adult has primary responsibility), 3 (I share responsibility equally with another adult), and 4 (I have primary responsibility). The response categories were dichotomized into the following: 1 coded as (0) and was labeled as “having no adult care responsibilities” and 2, 3, and 4 were coded as (1) and was labeled “having adult care responsibilities.”

Control Variables

The following demographic variables were included as covariates in analyses: sex (coded as male = 0 and female = 1), age (measured in years), marital status (coded as non-married = 0 and married or live with partner = 1), 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), family income level (50,000 to 74,999 = 1, 75,000 to 99,999 = 2, 100,000 to 124,999 = 3, 125,000 to 149,000 = 4, and more than 150,000 = 5), job classification (coded as lieutenant = 1, captains and counselor supervisors = 0), and job tenure (measured in years).

Several meta-analytic reviews on WFC have shown that individuals who are married and/or have children are often more likely to report greater W-FC and F-WC compared with individuals who are single and/or without adult or child care responsibilities.[58–60] Similarly, individuals who report greater family income and educational attainment have also been found to report greater WFC compared with F-WC.[59] Marital status has also been identified as an important explanatory variable for psychological disorders such that individuals who are separated, divorced, or widowed report more depressive symptomology compared with married individuals.[61]

Regarding sex and age, female employees have been found to report more F-WC compared with male employees due to adherence to more traditional sex roles. Meta-analysis has shown no difference between sexes with regards to W-FC.[59] Sex is also associated with depressive symptoms with women having an increased risk of developing depression compared with men.[62] Women also generally report greater mental health and physical health problems due to their caregiving duties. This is because the care provided by women tend to be more laborious and time consuming compared with the care provided by men.[63] Similarly, age is an important work–family variable because work–family challenges tend to occur at different life stages of a person's life course.[64]

In terms of job classification, a meta-analytic review on WFC highlights the finding that employees with less flexible job schedules have greater difficulty balancing their work and non-work responsibilities, leading to higher levels of W-FC and F-WC.[60] Low job flexibility is also associated with more depressive symptoms among employees.[65] Lieutenants in the current sample are lower in rank, while captains and counselor supervisors are considered equal in rank. As such, lieutenants have lower job flexibility compared with captains and counselor supervisors. The current study uses job classification (ie, being lieutenant vs captain and/or counselor supervisors) as a proxy measure for job flexibility.

Finally, while a meta-analysis on antecedents of WFC found less WFC among employees with more job tenure,[60] it is also possible that job tenure intensifies W-FC for correctional supervisors because they might work longer hours and more overtime towards the end of their careers to maximize financial benefits in retirement.

Analysis Strategy

Structural equation modeling (SEM)[66,67] with maximum likelihood estimation was used to test the specified causal direct and indirect effects (see Fig. 1) using *Mplus* version 7.4

(Muthén & Muthén, Los Angeles, CA).[68] SEM is an analytical technique combining factor analysis (ie, a measurement model) with multiple simultaneous regressions (ie, a path or structural model). Prior to testing the hypothesized relationships, data screening was done to examine normality and bias using SPSS version 25. Group difference by the outcome variables (ie, W-FC, F-WC, and depressive symptoms) were examined using independent samples *t* test or oneway analysis of variance (ANOVA). One casewas removed from the analysis due to the respondent's response patterns showing response inconsistency; the respondents' responses being identical for sets of adjacent questions.[69] Mediation effects were tested in *Mplus*[68] using bias-correlated bootstrapping also known as resampling with replacement. This technique draws 10,000 random bootstrapped samples to estimate the indirect effect through the construction of bootstrap confidence intervals.[70] All hypotheses were evaluated with two-tailed nondirectional tests, in which significance was determined at $P<0.05$.

The following fit indices were used to assess model fit: the chi-square (χ^2) test, with model fit accepted at $P>0.05$; the root mean square error of approximation (RMSEA), with acceptable model fit indicated by an RMSEA<0.05; the comparative fit index (CFI), and the Tucker-Lewis index (TLI), with acceptable model fit indicated by CFI>0.95 and TLI>0.95, respectively; and the standard root mean square (SRMR), with acceptable model fit indicated by SRMR<0.05.[71]

RESULTS

Descriptive Statistics

Table 1 provides the demographic characteristics of the sample by the major dependent variables (ie, W-FC, F-WC, and depressive symptoms). There was a statistically significant difference in W-FC by marital status ($P<0.001$). Those who reported being married or living with a partner experienced greater W-FC compared with non-married individuals (ie, widowed, divorced, single or never married). Similarly, those between 16 and 20 years on the job also had significantly higher levels of W-FC compared with those with 11 to 15 years on the job ($P<0.05$) and those with more than 21 years on the job ($P<0.05$).

In terms of their work schedule demands, almost two-thirds of the sample worked first shift (64%) and approximately 53% of the sample reported working two or more shifts of overtime per week. Moreover, 45% of those who had between 16 and 20 years on the job also reported working more than one overtime shifts per week. In the current sample, only lieutenants and captains worked all major shifts, while counselor supervisors only worked first shift. In addition, lieutenants did the bulk of overtime reported in this population (more than 50%).

With regards to their family caregiving responsibilities, over a third of the sample respondents (~35%) indicated that they either shared responsibility equally with another adult, another adult had primary responsibility, or that they had primary responsibility for an older adult due to disability, chronic illness, or aging. More than 50% of the sample indicated that they either shared responsibilities, another adult had primary responsibility, or that they had primary responsibility for children under 18 in their household. Those with

child care and adult care responsibilities were primarily between the ages of 41 and 46. A little over a third of those with adult care responsibilities reported being married or living with a partner (~35%) and a little under a quarter of those with child care indicated they were married or living with a partner (~20%). Moreover, approximately 21% of employees between 35 and 45 had concurrent adult care and child care responsibilities. Over two-thirds of those who were married or living with a partner worked second and third shift compared with the non-married group (78% vs 22%, respectively). A little under a third of those who were married or living with a partner also worked more than two shifts of overtime per week compared with the non-married group (29% vs 71%, respectively).

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The zero-order correlation matrix for the study variables, including mean (SD) scores for W-FC, F-WC, and depressive symptoms are presented in Table 2. The means score for W-FC and F-WC were 2.76 (SD = 1.00) and 2.17 (SD = 0.85) out of five points, respectively. Men reported slightly higher levels of W-FC than women, while women reported slightly higher levels of F-WC. The mean depressive symptoms score was 1.57 (SD = 0.76) out of five points. Women in the sample also reported greater levels of depressive symptoms compared with men. There was a statistically significant positive correlation between shiftwork (ie, working second and third shift) and overtime work ($r = 0.20$, $P<0.05$), W-FC and depressive symptoms ($r = 0.37$, $P<0.01$), and between F-WC and depressive symptoms ($r = 0.30$, $P<0.01$). In addition, there was a statistically significant positive correlation between W-FC and F-WC ($r = 0.52$, $P<0.01$).

Hypotheses Tests

Measurement Model—Factor analysis was used to confirm the validity of the multiple-item constructs in our model. Three latent constructs (ie, W-FC, F-WC, and depressive symptoms) and seven indicators were included in the measurement model. All of the fit indices of the measurement model indicate good model fit (see Table 3). All of the factor loadings for the indicators on the latent variables were large and significant ($P<0.001$), which indicates a good representation of the latent constructs by their indicators.

Structural Model—The structural model was tested using maximum likelihood estimation (see Fig. 2). Due to missing data on demographic variables, three cases were dropped from statistical analysis, bringing the final sample size to 153. SEM does not use missing data theory when handling manifest exogenous variables.[72] The chi-square fit statistic was not significant ($\chi^2 = 81.7$, $df = 67$, $P = 0.11$) which indicates a good fit of the proposed model to the data. The remaining fit indices used also indicate a good model fit (see Table 3). No post-hoc modifications were indicated from the analysis; thus, the hypothesized model was retained as the final model to test the hypotheses.

Figure 2 depicts the final structural model with standardized path coefficients. Hypothesis 1a which states that shiftwork (ie, working second or third shift, compared with working first shift) would be positively associated with W-FC, was not supported ($\beta = -0.03$, $P = 0.68$). Hypothesis 1b which postulates that amount of overtime work would be positively associated with W-FC was supported ($\beta = 0.18$, $P<0.05$). This suggests that working more overtime is associated with W-FC among correctional supervisors. Other relationships (not shown in Fig. 2) include a statistically significant relationship between marital status and W-FC ($\beta = 0.42$, $P<0.001$): being married or living with a partner was associated with more W-FC. Additionally, educational attainment was associated with less W-FC and this relationship was statistically significant ($\beta = -0.16$, $P<0.05$). With regards to F-WC, hypotheses 2a and 2b predicted that family caregiving responsibilities, such as child care and adult care, would be positively associated with F-WC. The suppositions were not supported ($\beta = -0.03$, $P = 0.72$ and $\beta = -0.02$, $P = 0.84$, respectively). However, marital status (ie, being married or living with a partner) was associated with more F-WC and this relationship was statistically significant ($\beta = 0.21$, $P<0.05$).

Support was also not found for hypotheses 3a and 3b, which predicted positive associations between shiftwork and depressive symptoms and between overtime work and depressive symptoms ($\beta = -0.06$, $P = 0.44$ and $\beta = -0.08$, $P = 0.40$, respectively). Similarly, no support was found for hypotheses 4a and 4b, in that there was no statistically significant positive association of child care or adult care with depressive symptoms ($\beta = 0.05$, $P = 0.50$ and $\beta = 0.02$, $P = 0.80$, respectively). However, marital status (ie, being married or living with a partner) was related to having less depressive symptomology and this relationship was statistically significant ($\beta = -0.33$, $P<0.01$).

Hypothesis 5a, which predicted that W-FC would be positively associated with depressive symptoms was supported ($\beta = 0.61$, $P<0.01$). On the contrary, Hypotheses 5b, which predicted that F-WC would be positively associated with depressive symptoms ($\beta = -0.03$, $P = 0.84$) was not supported. A summary of all direct standardize paths coefficients, standard errors, and t statistics for mainvariables predicting W-FC, F-WC, and depressive symptoms can be seen in Table 4.

Mediating Effect Testing—Finally, Hypothesis 6a, which states that the relationship between correctional supervisors' work schedule (ie, shiftwork and overtime work) and depressive symptoms is mediated by WFC was supported for overtime work. This indicates that overtime work has a significant indirect effect on depressive symptoms through its effects on W-FC. Hypothesis 6b which tests whether F-WC mediates the relationship

between family caregiving responsibilities (ie, child care and adult care) and depressive symptoms was not supported. The 95% bias-correlated bootstrap confidence intervals of the indirect effects are shown in Table 5.

DISCUSSION

The purpose of this study was to determine the effect of work schedule demands (ie, overtime work and shiftwork) and family demands (ie, child care and adult care) on W-FC, F-WC and depressive symptoms among correctional supervisors. This study also examined whether W-FC mediates the relationship between work schedule demands and depressive symptoms, and whether F-WC mediates the relationship between family demands and depressive symptoms.

Work Schedule Demands

We found that work schedule demands, such as the amount of overtime work, had a statistically significant positive association with W-FC. This finding supports previous research that has found a link between long work hours with W-FC.[59,60,73,74] Our finding also suggests that for correctional supervisors, the irregular and often unpredictable nature of overtime work, as well as the informal and formal pressures associated with having to work long work hours, can lead to conflict and stress in their family domain. Budget cuts coupled with hiring freezes, can also lead to long and irregular work hours, contributing to conflict in their family domain. Moreover, our study found that the relationship between the amount of overtime work and depressive symptoms was mediated by W-FC. In this model, the impact of the amount of overtime work on depressive symptoms was largely influenced by their experience of W-FC in their family domain. This finding is also supported by previous studies that examine the mediating role of W-FC in the relationship between work demands and employee psychological health.[11,75]

The mediating effect of the amount of overtime work -> W-FC -> depressive symptoms is consistent with the COR theory. Extended hours are presumed to increase work domain physical and psychological resources, such as time and energy. Consequently, the diversion of resources to work and away from role obligations and responsibilities in the family domain can lead to inter-role conflict and if persistent can lead to negative physical and psychological health-related effects.[51]

Contrary to our predictions however, correctional supervisor's engagement in shiftwork (ie, working second or third shift, compared with working first shift) was not positively associated with W-FC and depressive symptoms. Additionally, W-FC did not mediate the relationship between shiftwork and depressive symptoms. These findings are inconsistent with research that link nonstandard work hours with increased W-FC[64,76] and poorer mental health.[5,56,60,76–78]

It is important to note that a majority of our study participants worked a permanent shift assignment and slot (ie, stable work schedule). This form of work time arrangement is not reported commonly in studies with correctional employees[18] and among other public safety employees who are often subject to rotating shift schedules.[79,80] Some research has shown

that working a permanent night shift is potentially more beneficial to employee wellbeing as it helps with adaptation to night work and can minimize circadian rhythm disruption and consequent health and family-related issues.[81,82] However, it is also noteworthy that within the current study population, seniority predicts shift assignment, with more senior correctional staff working morning shifts.[22] Similarly, newly promoted correctional supervisors (ie, lieutenants) are usually required to work a fixed evening and night shift. Their ability to request to be moved to a fixed morning shift depends on availability. As such, the non-significant association between shiftwork, W-FC, and depressive symptoms could be due to the fact that the majority of our study participants were tenured employees who reported working first shift (64%).

Family Caregiving Responsibilities

Finally, in examining other hypotheses posed in this study, we did not find statistically significant relationships among correctional supervisors' family caregiving responsibilities (ie, child care and adult care), F-WC, and depressive symptoms. F-WC was also not found to be a mediating variable in the aforementioned relationships. These findings also contradict previous studies that link caregiving demands with increased F-WC[35] and poorer mental health.[42–44] While more than 50% of our participants indicated that they either shared caregiving or were primary caregivers to a child under 18 years of age, fewer indicated that they shared caregiving or were primary caregivers to an adult due to aging or chronic disability (~35%). The family caregiving variables (ie, child care and adult care) that we included in our model only explained about 5% of the variance in F-WC and approximately a third of the variance in depressive symptoms. This means that factors other than these variables from their family domain may be more strongly related to their experience of F-WC and depressive symptoms.

As noted earlier, working a permanent shift assignment can help employees balance their work and non-work demands and can reduce negative health-related effects. There is anecdotal evidence that correctional supervisors often arrange their work schedules around their family demands, and secondary employment. They also work non-overlapping shifts with their spouse or partners. While we did not capture this in our study, a significant percentage of our participants with adult care and child care obligations did indicate that they were married and/or lived with a partner (35% versus 20%, respectively). As such, it is highly possible that those with family caregiving demands may be working non-overlapping shifts with their partner or spouses for reasons related to their family and caregiving demands. This might also account for the lack of significance we observed between our family caregiving variables, F-WC and depressive symptoms. Additionally, income exceeded norms, which could mean that correctional supervisors had the financial means and resources to pay for child care and adult care services.

Study Limitations and Strengths

In interpreting the findings of our study, several limitations must be considered. First, our sample population reported relatively low levels of depressive symptoms scores. The lack of variability in our main outcome variable could also explain the absence of significant relationships in our hypothesized model between our main predictor and outcome variables.

This finding is consistent with research done by investigators at CPH-NEW that have found non-normal sampling distributions when using standardized questionnaires in surveys administered to correctional staff.[11] Specifically, investigators at CPH-NEW have found that certain standardized questionnaires are unable to properly assess the unique characteristics of corrections work or the harsh working conditions of prisons and jails.[11,83] CPH-NEW investigators also found that many correctional supervisors may be unaware of their mental health problems or unwilling to acknowledge its importance.[17] Similar to findings from employees in other law enforcement sectors, admitting and seeking help for emotional problems is often perceived as a sign of weakness.[84] As such, this lack of awareness and unwillingness to admit to mental health problem could also explain the limit variability we saw in our main outcome variable. This analysis and its predecessors on corrections personnel suggests that psychosocial measures may be insufficiently sensitive to the very real conflicts and demands experienced by correctional employees.[11]

The measures that we used to assess correctional supervisor work schedule demands may not have adequately captured the extent to which exposure to long and nonstandard work hours negatively affect W-FC and mental health. While our study included a measure of overtime hours that was continuous, it did not distinguish how the overtime worked by our study population was positioned on the spectrum from voluntary to mandatory, or how assigned hours were congruent with requested overtime hours. A study on overtime work and health behaviors among COs showed that inclusion of a continuous measure of overtime is more beneficial in assessing the impact of overtime work on employee health.[25] Additionally, we did not question whether the overtime hours were an extended work day (ie, whether they worked two consecutive work shifts) or occurred on a day off. We did not identify the specific shift in which the overtime hours were assigned. Inclusion of these additional questions in future research can give a more accurate assessment of the impact of overtime work on correctional supervisor's family domain and mental health.

Regarding constructs used to measure family caregiving variables, we dichotomized questions that assessed participants' level of responsibility for a child and/or adult. We did not ask questions that fully encompassed all aspects of caregiving. According to Denton, adding measures that include the amount of time individuals spend providing care for a child and/or adult, the nature of the relationship between the caregiver and care recipient, the age of the recipient, and the type of the caregiving activities, will provide a more accurate depiction of the nature of the care provided.[85] Questions pertaining to whether additional assistance was provided by volunteers or professionals and family members might also be important. In addition, including a question that asks about correctional supervisors' partner or spouse work schedule would also help provide a more comprehensive assessment when studying the impact of family caregiving demands on F-WC and depression in this population of workers.

The current sample size did not permit an investigation of sex differences in the effect of WFC on depressive symptoms. Our sample consisted primarily of male participants (78.1%). Due to power limitations, we combined both male and female participants in our analysis. While research on sex differences in WFC have produced mixed results,[59] models of WFC and their antecedents and outcomes that are tested separately by sex are

preferred. This is because men and women have different roles and responsibilities within the household, as well as different access to power and status.[86] As such, future studies should examine our proposed model separately by sex.

As previously noted, correctional supervisors worked a permanent shift assignment and slot. In addition, they were unionized state employees with access to paid sick days and vacation leave, had opportunities for training and job growth within the organization, and were less likely to report intentions to turn over.[17] Research on COs working in southern prisons in the United States, highlight high rates of turnover, low job satisfaction, inadequate pay and benefits packages, harsh work environments, as well as demanding work schedules.[87] As such, generalizability of our study findings to employees working in other DOC throughout the nation can be difficult. We also had limited demographic details on the supervisors who declined to be surveyed, but the data provided on sex and age did indicate representativeness. We had participation in the survey from all facilities in the state, which further strengthens the representativeness of the sample.[15]

It is also important to note that our study design was cross-sectional, limiting our ability to make causal conclusions. We obtained a convenience sample of correctional supervisors who volunteered to participate in our online survey. Our use of a convenience sample introduces the possibility of self-selection bias into our study. Future studies should examine the relationships tested using a probabilistic sampling method, a larger sample size, and a longitudinal study design.[88]

A notable finding in our study was the statistically significant difference in W-FC by tenure, such that more tenured correctional employees (ie, those between 16 and 20 years on the job) experienced greater levels of W-FC compared with those with 11 to 15 years on the job and those with more than 21 years on the job. In addition, we found a statistically significant correlation between tenure and age. The extent to which long work hours and working nonstandard shiftwork influences W-FC and mental health, particularly among older and more tenured correctional supervisors close to retirement, should be examined in future research. This is because assuming overtime work towards the end of employment for economic and retirement security could have serious implication on the health and well-being of older and more tenured correctional staff.

CONCLUSION

Our study showed that the amount of overtime hours worked was associated with depressive symptoms, mediated by W-FC. To reduce the deleterious impact of overtime on W-FC and depressive symptoms, emphasis should be placed on interventions that change policies around work schedule practices. For example, correctional management can develop overtime policies that minimize mandatory overtime (particularly for those who are required towork on a day off) and provides opportunities for shared overtime. Management can also provide employees with opportunities for training about the potential negative impact of overtime work on their family lives and health.[18] Finally, our study findings are also relevant and should be replicated with line-level staff, such as COs, who have comparable work schedule demands with lieutenants in our sample.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

ACKNOWLEDGMENTS

This study was supported by the Center for Promotion of Health in the New-England Workplace (CPH-NEW). The authors would like to acknowledge the union members of correctional supervisors working in a Northeastern state for their investment and support of this project.

Funding Source:

Grant sponsor: This publication was supported by The National Institute for Occupational Safety and Health (NIOSH). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of NIOSH. Grant Number: 5U19OH008857-09.

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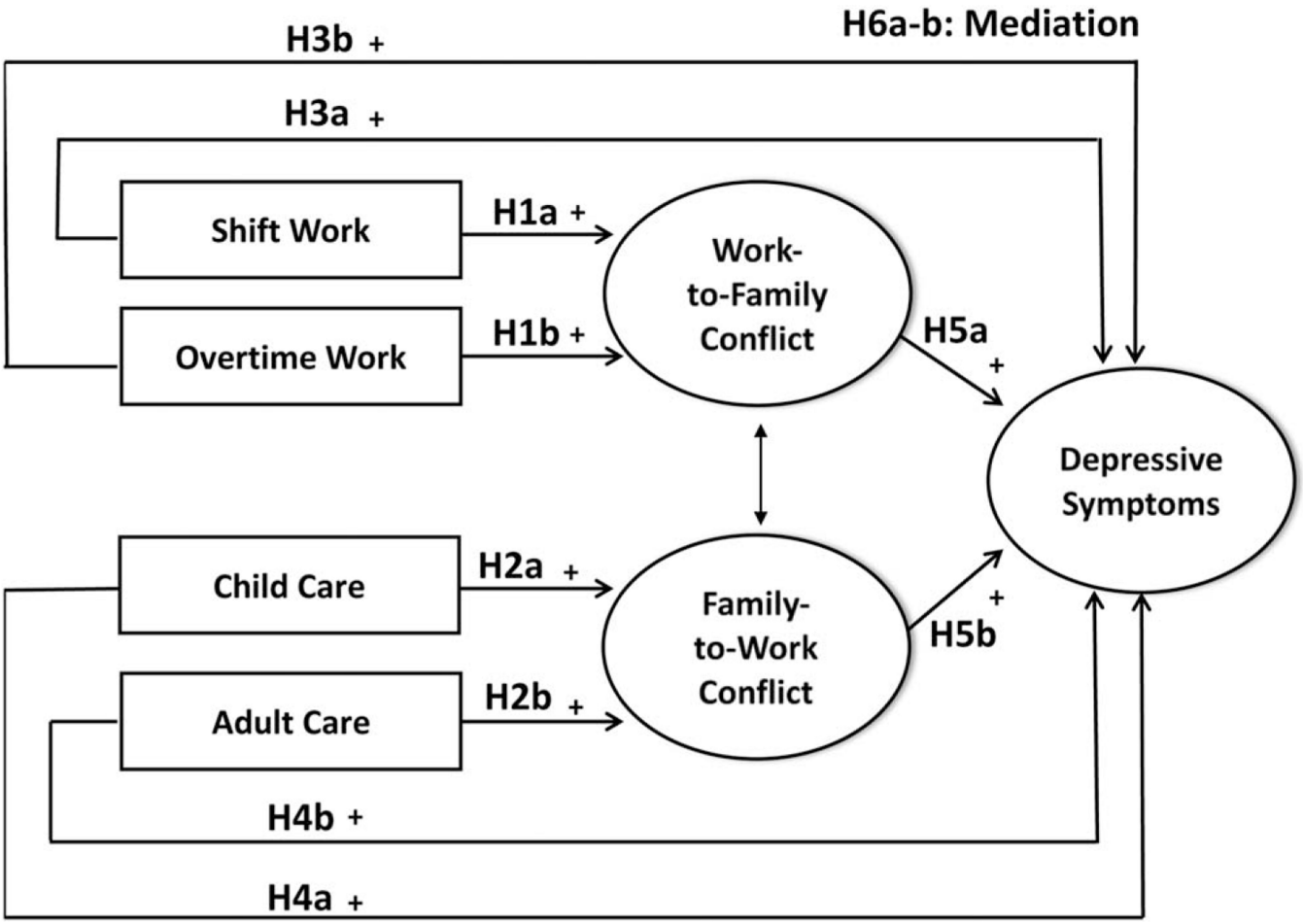

FIGURE 1.

Hypothesized structural model of the direct and indirect effects—solid rectangles represented observed variables and circles represent latent variables; pathways contain hypothesized statements and direction of the relationship between variables. The relationship between overtime work, shiftwork and W-FC was tested by controlling for family income, marital status, job tenure, education, age, and job classification. The relationship between adult care, child care, and F-WC was tested by controlling for marital status, sex, age, and job classification. The relationship between W-FC, F-WC, shiftwork, overtime work, adult care, child care and depressive symptoms was tested by controlling for marital status, sex, and job classification.

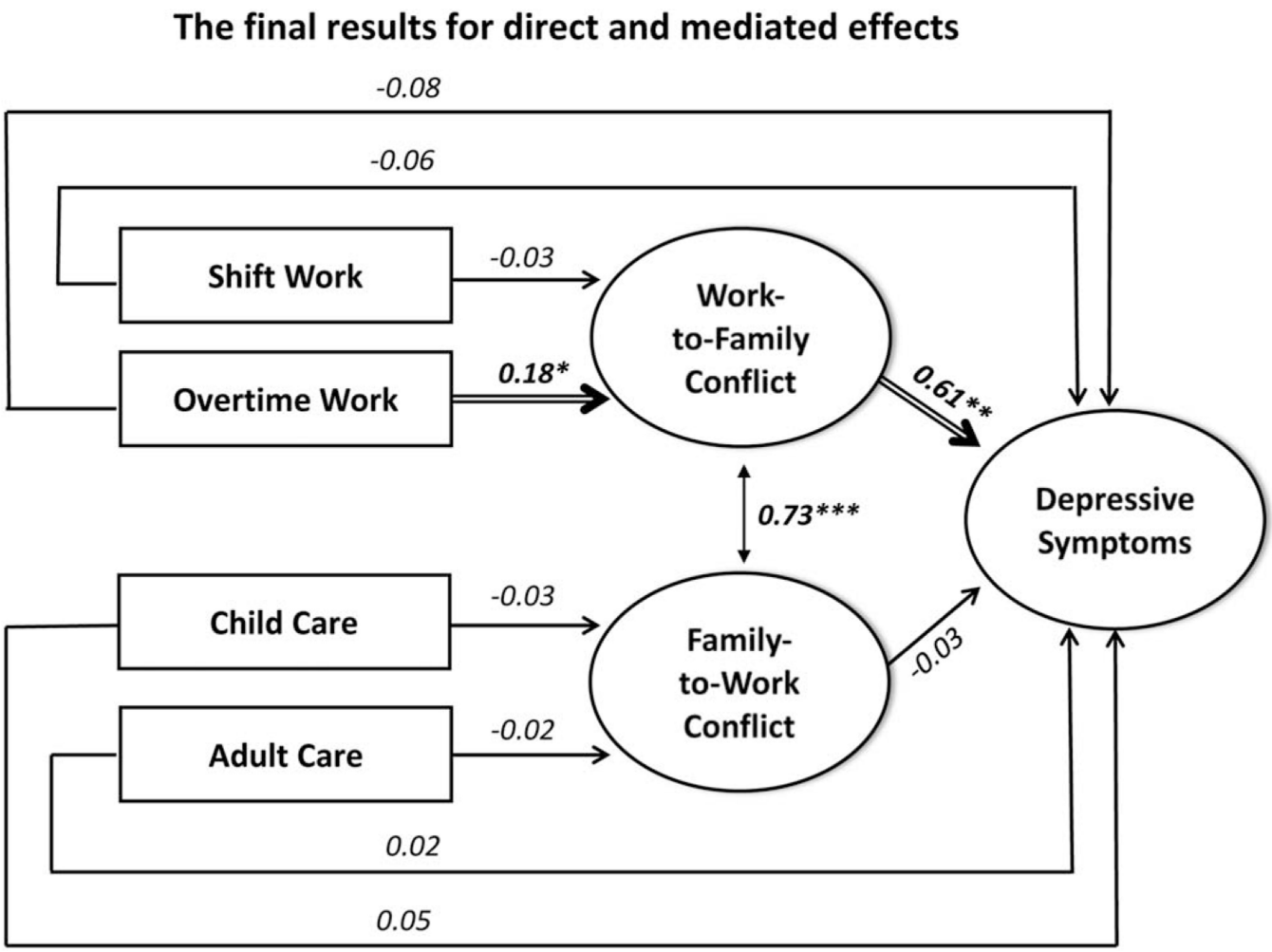

FIGURE 2.

Latent regression model for predicting W-FC, F-WC, and depressive symptoms. Note: Path coefficients are standardized (*$P < 0.05$; **$P < 0.01$; ***$P < 0.001$; bold when significant). The relationship between overtime work, shiftwork, and W-FC were tested by controlling for family income, marital status, job tenure, education, age, and job classification. The relationship between adult care, child care, and F-WC were tested by controlling for marital status, sex, age, and job classification. The relationship between W-FC, F-WC, shiftwork, overtime work, adult care, child care, and depressive symptoms were tested by controlling for marital status, sex, and job classification.

TABLE 1.

Descriptive Statistics by Main Outcome Variables

Demographic	*N* (%)	W-FC Mean (SD)	F-WC Mean (SD)	Depressive Symptoms Mean (SD)
Sex				
Male	*n* = 121 (78.1%)	2.81 (1.03)	2.15 (0.89)	1.53 (0.72)
Female	*n* = 34 (21.9%)	2.65 (0.87)	2.25 (0.71)	1.70 (0.90)
Age (year)				
All (mean ± SD)	42.3 (6.06)	–	–	–
Under 35 years old	*n* = 22 (14.2%)	2.77 (1.03)	2.07 (0.76)	1.56 (0.74)
36 to 40 years old	*n* = 40 (25.8%)	2.94 (1.03)	2.20 (0.81)	1.63 (0.83)
41 to 45 years old	*n* = 52 (33.5%)	2.80 (0.96)	2.13 (0.87)	1.60 (0.79)
46 and older	*n* = 41 (26.5%)	2.57 (0.98)	2.26 (0.94)	1.48 (0.67)
Education				
High school graduate or GED	*n* = 24 (15.4%)	2.96 (1.19)	2.13 (0.94)	1.33 (0.64)
Some college	*n* = 61 (39.1%)	2.83 (0.99)	2.25 (0.88)	1.71 (0.79)
College degree (2 or 4-year college)	*n* = 55 (35.3%)	2.69 (0.96)	2.10 (0.83)	1.56 (0.82)
Graduate degree	*n* = 16 (10.3%)	2.47 (0.85)	2.16 (0.75)	1.40 (0.49)
Job classification				
Lieutenants	*n* = 92 (59.0%)	2.79 (0.98)	2.23 (0.90)	1.56 (0.79)
Other (Captains and Counselor Supervisors)	*n* = 64 (41.0%)	2.73 (1.03)	2.09 (0.78)	1.57 (0.72)
Marital status				
Married or live with partner	*n* = 113 (72.4%)	**2.96*****(1.01)	2.25 (0.88)	1.50 (0.63)
Widowed, divorced, single, or never married	*n* = 43 (27.6%)	2.26 (0.77)	1.95 (0.75)	1.74 (1.01)
Family income				
$50,000–99,999	*n* = 40 (26.0%)	2.69 (1.03)	2.23 (0.88)	1.78 (1.07)
$100,000–124,999	*n* = 46 (29.9%)	2.87 (0.96)	2.11 (0.86)	1.54 (0.56)
$125,000–149,999	*n* = 23 (14.9%)	2.65 (1.07)	2.07 (0.84)	1.48 (0.71)
More than $150,000	*n* = 45 (29.2%)	2.79 (0.99)	2.23 (0.85)	1.44 (0.61)
Job tenure				
All (mean±SD)	15.4 (4.73)	–	–	–
5–10	*n* = 29 (18.7%)	2.69 (0.92)	2.10 (0.82)	1.66 (0.77)

Demographic	*N* (%)	W-FC Mean (SD)	F-WC Mean (SD)	Depressive Symptoms Mean (SD)
11–15	*n* = 45 (29.0%)	2.57 (0.91)	2.04 (0.82)	1.44 (0.62)
16–20	*n* = 61 (39.4%)	**3.08** * (1.00)	2.41 (0.87)	1.69 (0.87)
21+	*n* = 20 (12.9%)	2.40 (1.06)	1.85 (0.78)	1.35 (0.58)
Shift				
1st shift (standard shift)	*n* = 99 (64.3%)	2.75 (0.97)	2.17 (0.86)	1.61 (0.80)
2nd and 3rd shift (non-standard shift)	*n* = 55 (35.7%)	2.81 (1.05)	2.19 (0.85)	1.50 (0.69)
Overtime				
None	*n* = 38 (24.5%)	2.57 (0.92)	2.33 (0.77)	1.69 (0.86)
1–8hours	*n* = 35 (22.6%)	3.14 (0.95)	2.17 (0.72)	1.56 (0.53)
9–16hours	*n* = 38 (24.5%)	2.72 (0.96)	1.99 (0.89)	1.40 (0.59)
17–24hours	*n* = 29 (18.7%)	2.48 (1.00)	2.31 (0.92)	1.54 (0.80)
25 or more hours	*n* = 15 (9.7%)	3.10 (1.14)	2.00 (1.09)	1.76 (1.16)
Adult care				
No adults depend on me due to disability, chronic illness, or aging	*n* = 101 (64.7%)	2.66 (0.94)	2.12 (0.78)	1.52 (0.72)
Another adult has primary responsibility	n = 9 (5.8%)	3.28 (1.03)	2.28 (1.18)	1.85 (0.94)
I share responsibility equally with another adult	*n* = 26 (16.7%)	2.92 (0.90)	2.37 (0.83)	1.53 (0.81)
I have primary responsibility	*n* = 20 (12.8%)	2.83 (1.31)	2.13 (1.06)	1.70 (0.80)
Child care				
I have no children under 18 at home	*n* = 40 (25.6%)	2.75 (0.97)	2.28 (0.94)	1.61 (0.90)
Another adult has primary responsibility	*n* = 2 (1.3%)	2.25 (0.35)	2.00 (0.00)	1.50 (0.71)
I share responsibility with another adult	*n* = 96 (61.5%)	2.87 (1.03)	2.17 (0.84)	1.50 (0.64)
I have primary responsibility	*n* = 18 (11.5%)	2.28 (0.77)	1.94 (0.78)	1.81 (0.99)

The mean difference was detected using independent samples *t* test and one-way analysis of variance; statistical significance was set at

* *P*<0.05

** *P*<0.01

*** *P*<0.001; numbers do not add to 156 due to missing cases (pairwise deletion).

TABLE 2.

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	14
1. Depression	1.57	0.76	—													
2. W-FC	2.76	1.00	**0.37****	—												
3. F-WC	2.17	0.85	**0.30****	**0.52****	—											
4. Overtime (h)	12.6	11.4	0.02	0.07	−0.06	—										
5. Shiftwork (2nd and 3rd shift)	—	—	−0.07	0.03	0.01	**0.20***	—									
6. Child care	—	—	−0.03	0.01	−0.07	0.02	0.07	—								
7. Adult care	—	—	0.07	0.14	0.08	−0.08	−0.14	−0.03	—							
8. Age	42.3	6.06	−0.06	−0.10	0.04	−0.00	**−0.19***	**−0.29****	**0.18***	—						
9. Sex (female)	—	—	0.09	−0.07	0.05	−0.08	−0.03	**−0.22****	0.07	−0.02	—					
10. Education	—	—	−0.00	−0.13	−0.03	**−0.21****	**−0.21****	0.09	0.07	−0.13	0.13	—				
11. Family income	—	—	−0.15	0.03	0.02	0.02	−0.05	**0.18***	0.09	0.14	**−0.21****	−0.08	—			
12. Marital status (married)	—	—	−0.14	**0.32****	0.16	−0.07	0.09	**0.26****	0.01	−0.07	**−0.24****	0.02	**0.42****	—		
13. Job class (Lieutenant)	—	—	−0.01	0.03	0.08	**0.50****	**0.31****	−0.10	−0.09	−0.05	−0.16	**−0.30****	−0.02	−0.05	—	
14. Job tenure	15.4	4.73	−0.01	0.01	0.01	**−0.17***	**−0.39****	−0.10	**0.21****	**0.60****	−0.02	−0.02	**0.26****	0.09	**−0.35****	—

Bold statistical significance was set at

* $P<0.05$

** $P<0.01$

*** $P<0.001$.

TABLE 3.

Fit Indices for Measurement and Structural Models

	Measurement Model	Structural Model
X^2 (df)	18.9 (11)	81.7 (67)
p (X^2)	0.06	0.11
X^2/df	1.7	1.2
RMSEA (90% confidence interval)	0.07 (0.00, 0.12)	0.04 (0.00, 0.064)
CFI/TLI	0.98/0.97	0.97/0.96
SRMR	0.024	0.04

CFI, Comparative Fit Index; RMSEA, Root Mean Square Error of Approximation; SRMR, Standardized Root Mean Square Residual; TLI, Tucker-Lewis Index.

TABLE 4.

Standardized Path Coefficients, Standard Errors, and *t* Statistics for the Effects on Work-to-Family Conflict, Family-to-Work Conflict, and Depressive Symptoms

Direct Paths	Standardized Effect Size	SE	*t*
(H1a) Shiftwork –> W-FC	−0.03	0.15	−0.41
(H1b) Overtime work –> W-FC	0.18	0.01	**2.13***
(H2a) Child care –> F-WC	−0.03	0.17	−0.36
(H2b) Adult care –> F-WC	−0.02	0.15	−0.21
(H3a) Shiftwork –> depressive symptoms	−0.06	0.12	−0.78
(H3b) Overtime work –> depressive symptoms	−0.08	0.01	−0.83
(H4a) Child care –> depressive symptoms	0.05	0.13	0.67
(H4b) Adult care –> depressive symptoms	0.02	0.12	0.26
(H5a) W-FC –> depressive symptoms	0.61	0.15	**3.42****
(H5b) F-WC –> depressive symptoms	−0.03	0.13	−0.20

Work-to-family conflict, R^2 = 0.20; Family-to-work conflict, R^2 = 0.05; depressive symptoms, R^2 = 0.32. *t* and *P* values are those from the test of the unstandardized coefficient. Bold statistical significance was set at

*$P<0.05$

**$P<0.01$

***$P<0.001$.

TABLE 5.

Mediation Analysis: Indirect Effects on Depressive Symptoms

Indirect Paths	Standardized Effect Size	Bias-Correlated Bootstrap 95% CI	
		Lower Bounds	Upper Bounds
(H6a) Shiftwork –> W-FC –> depressive symptoms	−0.02	−0.16	0.08
(H6a) Overtime work –> W-FC –> depressive symptoms	**0.11**	**0.001**	**0.42**
(H6b) Child care –> F-WC –> depressive symptoms	0.001	−0.03	0.11
(H6b) Adult care –> F-WC –> depressive symptoms	0.001	−0.04	0.05

The bold values indicate significant mediation effect.

Bootstrap confidence intervals were constructed using 10,000 samples.