



Original article

Effects of a Workplace Intervention on Sleep in Employees' Children


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A B S T R A C T

Purpose: The implications of sleep patterns for adolescent health are well established, but we know less about larger contextual influences on youth sleep. We focused on parents' workplace experiences as extrafamilial forces that may affect youth sleep.

Methods: In a group-randomized trial focused on employee work groups in the information technology division of a Fortune 500 company, we tested whether a workplace intervention improved sleep latency, duration, night-to-night variability in duration, and quality of sleep of employees' offspring, aged 9–17 years. The intervention was aimed at promoting employees' schedule control and supervisor support for personal and family life to decrease employees' work–family conflict and thereby promote the health of employees, their families, and the work organization. Analyses focused on 93 parent–adolescent dyads (57 dyads in the intervention and 46 in the comparison group) that completed baseline and 12-month follow-up home interviews and a series of telephone diary interviews that were conducted on eight consecutive evenings at each wave.

Results: Intent-to-treat analyses of the diary interview data revealed main effects of the intervention on youth's sleep latency, night-to-night variability in sleep duration, and sleep quality, but not sleep duration.

Conclusions: The intervention focused on parents' work conditions, not on their parenting or parent–child relationships, attesting to the role of larger contextual influences on youth sleep and the importance of parents' work experiences in the health of their children.

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**IMPLICATIONS AND
 CONTRIBUTION**

Sleep is linked to youth health, but we know less about social–ecological influences on sleep patterns. A workplace intervention to reduce employees' work–family conflict had positive effects on regularity of adolescents' nighttime sleep duration, sleep quality, and time to fall asleep, but not sleep duration.

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Adolescence is a period of dramatic physical, cognitive, and socioemotional developmental changes, including in youth sleep patterns. Both psychosocial factors such as youth's increasing involvement in the world beyond home and biological factors such as circadian time, for example, underlie changes in adolescents' preferences for going to bed and getting up at later times [1]. Nonetheless, sleep remains critical for adolescents' health and development [1]. Indeed, accumulating evidence documents the significance of sleep patterns for adolescents' well-being in domains ranging from psychological and social adjustment and health risk behaviors to school performance and obesity [2–9]. U.S. adolescents, however, experience greater sleep deprivation than either children or adults [10]—almost 2 hours less than the recommended average of 9 hours per night [11]. And, national data suggest that sleep deprivation increases across adolescence. [12].

Although research has examined the characteristics and health implications of youth sleep, there remain gaps in the literature about the social contextual determinants of healthful sleep [13]. Prior work highlights demographic factors (e.g., ethnicity, socioeconomic status), but a focus on such status variables does not provide insights about malleable processes and conditions to target for intervention. Some work also shows that family processes such as parental warmth are linked to youth sleep [13]. Correlational research designs, however, limit conclusions about the causal links between the social ecology and youth sleep because unmeasured third variables may explain patterns of association.

We grounded our work in an ecological model, which holds that youth are embedded within a system of nested contexts ranging from more proximal (e.g., family) to distal (e.g., societal institutions) influences [14]. Using a randomized controlled field trial design, we tested whether an experimental intervention, aimed at reducing employees' work–family conflict, improved sleep in employee-parents' adolescent-aged offspring. Sleep was assessed in terms of the duration, night-to-night variability in duration, latency, and quality of youth's sleep.

From an ecological perspective, youth health is influenced by the microsystems of everyday life, such as family and school, but in addition, by contexts in which youth do not directly participate. Such exosystem influences include, for example, their teachers' family lives and their parents' workplace conditions [14]. Consistent with ecological tenets, the work–home resources model [15] posits that parents' work experiences can cross over to negatively affect their children's health by depleting parents' personal resources, such as positive mood and time needed for monitoring and promoting children's healthful daily routines. Parents' work experiences can also enhance family role performance and foster children's well-being when those experiences provide parents with personal resources, such as control over their work schedules, that allow time for parental responsibilities.

As noted, research on social contextual correlates of youth sleep focuses on demographic characteristics, such as family socioeconomic status and parents' marital status. Reviewing this literature, Hale et al. [13] concluded that these status characteristics may mark social/psychological stressors such as financial hardship and family conflict, which serve as the mechanisms linking demographic factors and youth sleep patterns. Research on family dynamics is consistent with this conclusion, showing links between both marital and parent–child conflict and youth sleep [16,17]. By contrast, positive parental involvement,

including parent–child shared time, monitoring, and appropriate limit-setting, may promote healthful sleep [13,17,18].

Prior research also documents associations between parents' work experiences and the same kinds of parenting behaviors that have been linked to youth sleep patterns. For example, parents' job demands were related to less parent–child shared time and warmth but more conflict [19–21], and a negative social climate at work was correlated with negative parent–child interactions [22]. In contrast, employees' schedule flexibility was related to more parent–child shared time and, in turn, greater warmth [21], and employees' positive interactions with supervisors were associated with greater parental warmth [23]. In the United States, limited public policy means that employers are left to develop programs and practices that support working families [24,25]. Although past decades have seen new family-friendly workplace policies, there are few systematic data on the effectiveness of those policies for improving employee health, and we know almost nothing about whether and how family-oriented work policies benefit the physical health of employees' children [26].

This study used data from a field test of the STAR (Support, Transform, Achieve Results) workplace intervention program to examine the role of parents' work experiences in their adolescent-aged offspring's sleep patterns. STAR was designed to reduce employees' work–family conflict by promoting job resources in two domains: supervisor support for employees' personal and family lives and employees' perceived control over their work schedules. Importantly, for the purposes of this study, the intervention did not target parenting practices, although prior findings on the links between supervisor support and parental warmth and schedule control and parental involvement suggested that STAR effects might spillover to affect the same parenting behaviors that have been implicated in youth sleep.

STAR was implemented in the information technology (IT) division of a U.S. Fortune 500 company over a 3-month period and included training sessions for managers to learn about the intervention and strategies to support employees' personal and family lives while maintaining high levels of work performance. The supervisor support training also included a self-paced, computer-based training followed by real-time self-monitoring of managers' supportive behaviors via an iPod Touch (Apple Inc., Cupertino, CA) with an alarm reminder to log support behaviors. In addition, STAR involved 8 hours of work group participatory training sessions (four sessions) for managers and employees. Highly scripted sessions focused on targeted areas for change (e.g., attitudes that more hours spent at the office reflected greater commitment or productivity). The sessions were highly interactive and aimed at identifying new work practices that would focus employees' time and attention on key work results rather than face time. The intervention is described in detail, and program materials are available online [27].

The first analyses of the effects of STAR established that, at the 6-month follow-up, the intervention had predicted positive effects: Employees who were randomly assigned to the intervention reported more schedule control and supervisor support for family and personal life and less conflict between work and family responsibilities than did those in the usual practice (UP) condition. Additional analyses indicated that STAR employees almost doubled their hours of work at home and were more likely to describe their schedules as “variable” at follow-up; they also exhibited more time adequacy for activities with family members and time spent with their children [28]. Their greater

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