

Research Article

Are You Sleeping? Dyadic Associations of Support, Stress, and Worries Regarding Adult Children on Sleep

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Received February 19, 2016; Editorial Decision Date July 6, 2016

Decision Editor: Rachel Pruchno, PhD

Abstract

Purpose of the study: Sleep is a key factor in maintaining positive health and well-being throughout life. Although the negative outcomes of sleep problems are becoming better understood, less is known about how intergenerational relationships might affect sleep. Thus, this investigation examines the dyadic associations of support for, stress over, and worrying about adult children on sleep quality for husbands and wives.

Design and Methods: The sample included 186 heterosexual married couples drawn from the Family Exchanges Study. To account for nonindependence in the dyadic data and explore questions of mutual influence, we used actor–partner interdependence models.

Results: Husbands' and wives' reports of supporting their adult child and husbands' worry were associated with husbands' sleep quality. Conversely, wives' stress about supporting their adult child was associated with wives' sleep quality. Findings suggest that relationships with adult children have different associations for sleep quality among middle-aged husbands and wives.

Implications: Our findings have implications for health-related research with couples and families and for providers who work with individuals struggling with sleep problems. Assisting aging parents to be aware of and manage ways that stress, support, and concern for adult children relate to their sleep may benefit them in multifaceted ways.

Keywords: Intergenerational ties, Family relationships, Dyadic analysis

Sleep problems have been associated with a variety of negative physical, mental, and relationship outcomes, including impulsive behaviors (Acheson, Richards, & de Wit, 2007), mood disorders (Aydin et al., 2013), and relationship challenges (Chen, Waite, & Lauderdale, 2015; Hasler & Troxel, 2010). Indeed, the importance of sleep in relation to biopsychosocial aspects of life is illustrated in the growing number of studies in this area. The negative outcomes of sleep problems are becoming better understood, yet less is known about the psychosocial contributors to sleep. Challenges associated with parenting can have deleterious

effects on sleep, including the parenting of infants, young children, and adolescents (Hagen, Mirer, Palta, & Peppard, 2013; Medina, Lederhos, & Lillis, 2009). Although much research has focused on younger children (Dew & Wilcox, 2011; Hagen et al., 2013; Medina et al., 2009), recent work on intergenerational ties suggest that parents are involved in their children's lives throughout adulthood (Fingerman, Cheng, Wesselmann, et al., 2012). Furthermore, throughout adulthood, the importance of getting sufficient sleep remains key to health (Ancoli-Israel, 1997; Williams, Kay, Rowe, & McCrae, 2013). Thus, the current study addresses

a gap in the literature by examining associations between middle-aged parents' perceptions of support given to adult children and worries about adult children in relation to the parents' sleep.

Interdependence Theory and Sleep

Although a vast literature in social and behavioral science (e.g., health, poverty, parenting) recognizes the importance of interactions between family members, few studies examine more than one individual in the family. Instead, much of the literature focuses on within-person perspectives from an individual framework (Rusbult & Van Lange, 2008). This is particularly true of much of the literature regarding sleep quality. Thus, although most married couples share an evening routine and a bed, there is scant research on sleep in a couple context (Rosenblatt, 2012). Some studies have focused on effects other individuals may have on one's sleep (Hasler & Troxel, 2010; Medina et al., 2009); though, few studies have examined own and partners' effects on sleep. Interdependence theory suggests that individuals in a network, such as family, affect one another in a bidirectional manner (Rusbult & Van Lange, 2008). Thus, husbands and wives affect one another as do parents and their adult children. This give and take leads to greater interdependence within families. Family interdependence is apparent as family members influence each other in a detectable manner. For instance, research suggests that the physical or emotional stress of a family member's illness may affect another's well-being (Martire, Lusting, Schulz, Miller, & Helgeson, 2004; Wright, 2005). Likewise, parental support, stress regarding support, or worries about adult children may influence their partners' ability to sleep. Hence, this study focuses on the influence of parents' intergenerational exchanges with their adult children on their own and their partners' sleep.

Intergenerational Relationships: Support, Stress, and Worry

Adult children continue to play a role in their middle-aged parents' life. Recent research suggests that middle-aged adults are providing frequent and sometimes intense support to their adult children (Arnett & Schwab, 2013; Bucx, van Wel, & Knijn, 2012; Fingerman, Cheng, Wesselmann, et al., 2012). In fact, daily reports suggest that middle-aged parents may be even more involved through giving emotional support, advice, and practical assistance to their adult children than previously reported in reports of overall support (Fingerman, Kim, Tennant, Birditt, & Zarit, 2015).

Furthermore, while providing support to adult children, parents may experience an increase in stress. Whereas there is a rich literature on giving support to aging parents and stress appraisals related to this support (Guberman, Lavoie, Blein, & Olazabal, 2012; Savla, Almeida, Davey, & Zarit, 2008), less is known about the implications of support given to grown children by their middle-aged parents. One recent

study suggests that providing support may leave parents in a positive mood (Fingerman et al., 2015), and an older study indicated that support to adult children was linked to better mental health (Davey & Eggebeen, 1998); however, depending on the context of support, help given to adult children may be a potential stressor in the parents' life or their marriage and may affect sleep quality as well. Indeed, stress reported by older adults is often connected to their relationships with adult children (Aldwin, 1990; Birditt, Hartnett, Fingerman, Zarit, & Antonucci, 2015). Moreover, connections between problems adult children experience and their middle-aged parents' physiological functioning (Birditt, Kim, Zarit, Fingerman, & Loving, 2016) suggest that parents' stress regarding their adult children could also be associated with their sleep. Therefore, this study examines mothers' and fathers' provision of support, and stress appraisals of support provided, to an adult child and linkages with each parent's own and the partner's sleep.

Whether or not middle-aged parents are actively involved or have stress from being involved in their adult children's lives, parents may be concerned about the problems their adult children are experiencing (Fingerman, Cheng, Birditt, & Zarit, 2012; Umberson, Pudrovska, & Reczek, 2010). Individuals who struggle with sleeping sometimes report that they are thinking about problems or worries (Åkerstedt, Kecklund, & Axelsson, 2007; Arber, Bote, & Meadows, 2009). Furthermore, research focusing on parents of young children suggests that their sleep is affected by worries about their children (Dew & Wilcox, 2011; Medina et al., 2009). However, it is not known whether worries about adult children continue to affect parents' sleep even when children are no longer living at home. Thus, dyadic linkages between wives' and husbands' worries about their adult children and sleep were also examined.

Dyadic Considerations and Gender

This study examines marriage as a critical context for the linkages between ties with adult children and sleep quality. Building on interdependence theory, these associations should be considered in a couple context rather than an individual context for middle-aged wives and husbands. Moreover, these associations may differ for husbands and wives. Current research demonstrates gender differences regarding sleep within the context of marriage (Troxel, Robles, Hall, & Buysse, 2007). For example, wives report more overall problems sleeping (e.g., sleeping lightly, waking up) than husbands. Furthermore, older mother–adult child relationships may differ from older father–adult child relationships. Historically, mothers have predominated as the caretakers within the family. Even with an increase in working mothers, social norms persist idealizing women as preferred caregivers (Bracke, Christiaens, & Wauterickx, 2008; Patterson, Sutfin, & Fulcher, 2004). Mothers are also more likely than fathers to feel guilt

regarding the upbringing of their children (Raley, Bianchi, & Wang, 2012). Furthermore, mothers may be more likely to experience “spillover” stress from adult children than fathers (Larson & Almeida, 1999), and women generally report more problems sleeping due to worrying than men (Neckelmann, Mykletun, & Dahl, 2007; Roberts, Shema, Kaplan, & Strawbridge, 2000). Thus, providing support, perceived stress from support, and worrying about adult children may be more salient for wives’ sleep than husbands’ sleep.

The Present Study

The goal of this investigation is to examine the dyadic associations of support for, stress over, and worrying about adult children on sleep for husbands and wives. The literature is mixed and does not support a clear hypothesis regarding positive or negative consequences of providing support to grown children for sleep. On the one hand, we hypothesize that support will be linked positively with sleep, as support may be an indicator of parent/child connection. On the other hand, if support actually represents caregiving (which infers burden), then it may be negatively associated with sleep. Furthermore, based on research regarding stress, we expect that parents who report higher levels of stress related to providing support for their adult child will experience less sleep. Likewise, we expect that parents who have greater worries will experience less sleep. Regarding gender differences, it is anticipated that providing support, stress from providing support, and worrying about the adult child will be more salient for wives’ sleep than husbands’ sleep.

Method

Participants

The sample included 186 heterosexual married couples who were drawn from Wave 2 of the Family Exchanges Study (FES). Couples were recruited in two steps from the Philadelphia Primary Metropolitan Statistical Area (urban, suburban, and rural areas), which includes five counties in Southeastern Pennsylvania and four counties in New Jersey (Pennsylvania State Data Center, 2001). First, a target individual was identified (age 40–60 years old, had a living child aged 18 or older, and had a living parent) at Wave 1. If married, the target individual was asked if their spouse could be contacted (Polenick, Seidel, Birditt, Zarit, & Fingerman, 2015). Of the 633 participants at Wave 1, 335 (51%) were married at the time of the interview, and 287 (86%) agreed for their spouses to be contacted. Of the 287 spouses, 197 (71%) completed interviews. Of the 197 spouses who completed the interview during Wave 1, 163 (83%) participated at Wave 2. However, 15 couples were removed after Wave 1 because they had divorced or separated. In addition, a total of 127 spouses were identified who were either new or previously not interviewed during Wave 1. Of these spouses,

72 (56%) agreed to participate bringing the total sample for the study to 202 married, remarried, or cohabiting couples. Of these couples, 16 were missing data on at least one variable in the present study. Therefore, our analyses focused on 186 married couples (see Table 1 for sample characteristics). For measures regarding adult children, parents responded on up to four focal adult children. For this study, we selected the adult child who was named by target participants as their first focal child in order to use husbands’ and wives’ reports on the same child concerning their support, stress regarding support, and worry.

Measures

Sleep

Sleep was assessed by one item, “How many hours and minutes a night do you typically sleep?” adapted from the Pittsburgh sleep quality index (PSQI) and modified PSQI (Lichstein, Riedel, & Means, 1998). The mean score for wives was 6.66 ($SD = 1.15$; range = 3–12) and husbands was 6.59 ($SD = 1.10$; range = 3.5–10).

Support to Adult Children

The study used six items from the Intergenerational Support Scale (ISS; Fingerman, Miller, Birditt, & Zarit, 2009), which measures how frequently parents report giving different types of support to each of their children: companionship, talking about daily events, emotional support, practical support, giving advice, and financial assistance. Husbands and wives rated how frequently they provided these types of support to one child on an 8-point scale ranging from 1 (daily) to 8 (less than once a year or not at all). Scores were reverse coded so that higher scores represented greater support. The mean score for wives was

Table 1. Sample Characteristics ($N = 186$ Couples)

| Variable | Husbands | Wives |
|--------------------------------------------|--------------------|---------------|
| | Mean (SD) | Mean (SD) |
| Age | 57.71 (5.61) | 55.66 (4.64) |
| Years of education | 14.78 (1.95) | 14.60 (2.22) |
| Ethnicity (% Caucasian) | 79% | 78.5% |
| Number of children aged 18 or older | 2.51 (1.12) | |
| Adult child gender (% male) | 50.5% | |
| Age of adult child | 30.22 (5.57) | |
| Median household income | \$75,000–\$100,000 | |
| Marital satisfaction | 4.21 (0.79) | 3.99 (1.04) |
| Depressive symptoms | 1.40 (0.59) | 1.41 (0.61) |
| Self-rated health | 3.39 (0.92) | 3.44 (0.96) |
| Sleep duration | 6.59 (1.10) | 6.66 (1.15) |
| Support to adult children | 4.19 (1.30) | 4.32 (1.40) |
| Stress regarding support to adult children | 1.87 (1.09) | 2.02 (1.22) |
| Worry regarding adult children | 3.02 (1.19) | 2.99 (1.21) |

4.32 ($SD = 1.40$; range = 1.00–7.67; $\alpha = .87$) and husbands was 4.19 ($SD = 1.30$; range = 1.00–8.00; $\alpha = .84$).

Stress Regarding Support to Adult Children

Husbands and wives rated how stressful they find it to help their adult child by responding to one item, “How stressful do you find it to help your adult child?” on a scale from 1 (not at all) to 5 (a great deal) (Fingerman, VanderDrift, Dotterer, Birditt, & Zarit, 2011). The mean score for wives was 2.02 ($SD = 1.22$; range = 1–5) and husbands was 1.87 ($SD = 1.09$; range = 1–5).

Worry About Adult Children

Husbands and wives reported on their worrying about the adult child with the following item, “How much do you worry about (focal child)?” from 1 (not at all) to 5 (a great deal) (Hay, Fingerman, & Lefkowitz, 2008). The mean score for wives was 2.99 ($SD = 1.21$; range = 1–5) and husbands was 3.02 ($SD = 1.19$; range = 1–5).

Covariates

Because this study focuses on the marital dyad, marital satisfaction may be important to consider. Furthermore, sleep problems and marital functioning have been found to have bidirectional associations (Troxel, Buysse, Hall, & Matthews, 2009), with differences in these links for husbands and wives (Hasler & Troxel, 2010). Thus, marital satisfaction was assessed with one item adapted from an item used in the Americans’ Changing Lives survey (House, 1989). Participants rated the overall satisfaction of the marital relationship on a scale from 1 (poor) to 5 (excellent). The mean score for wives was 3.99 ($SD = 1.04$; range = 1–5) and husbands was 4.21 ($SD = 0.80$; range = 2–5).

Furthermore, studies have shown a reciprocal relationship between sleep duration and overall health evidenced in recent decades by documented decreases in both self-rated health and sleep (Gottlieb et al., 2010; Kohatsu et al., 2006). Participants rated their own physical health with one item, “How would you rate your current physical health” on 5-point scale, 1 (excellent) to 5 (poor) (Fingerman, Chen, Hay, Cichy, & Lefkowitz, 2006; Idler & Kasl, 1991). Scores were reverse coded so that higher scores represented greater health. The mean score for wives was 3.44 ($SD = 0.96$; range = 1–5) and husbands was 3.39 ($SD = 0.92$; range = 1–5).

Although differing in methods and directionality, a clear link connects those experiencing depressive symptoms with those experiencing sleep disturbances (Maglione et al., 2012; Neckelmann et al., 2007; Novati et al., 2008; Paudel et al., 2013). Depressive symptoms were assessed with six items from the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983). On a scale ranging from 1 (not at all) to 5 (extremely), participants reported how distressed or bothered they were over the past 7 days by the symptoms of depression (e.g., feeling lonely, feeling no interest in things). The mean score for wives was 1.41 ($SD = 0.61$;

range = 1–4; $\alpha = .90$) and husbands was 1.40 ($SD = 0.59$; range = 1–4; $\alpha = .83$).

Lastly, as the number of children a couple has may affect their availability and way in which they interact with the adult children, models controlled for the number of children aged 18 years or older reported by target participants. On average, couples had 2.51 adult children ($SD = 1.12$; range = 1–8).

Statistical Analyses

To account for nonindependence in the dyadic data and explore questions of mutual influence, we used actor-partner interdependence models (APIM; Kenny, Kashy, & Cook, 2006) with the mixed model procedure in SPSS Version 22. A core assumption of the APIM is that two members of a dyad are nonindependent, that is, they are more similar to (or more different from) one another than are two people who are not members of the same dyad. This nonindependence means that scores from each dyad member are likely to be highly correlated. Thus, in our study, the APIM statistically adjusts for nonindependence within couples and allows significant correlations between wives’ and husbands’ scores on support, stress, and worries related to their adult child. Examining actor effects (e.g., wives’ worries predicting wives’ sleep) and partner effects (e.g., wives’ worries predicting husbands’ sleep) in the same model facilitates the simultaneous evaluation of each party’s influence on his or her own and his or her partners’ outcomes, which enables us to explore the reciprocal influences between spouses. In this hierarchical APIM, we first evaluate the effects of the covariates, that is, husbands’ and wives’ education, self-rated health, depressive symptoms, and marital satisfaction, on husband’s and wives’ own (actor effect) and their partners’ (partner effect) sleep. Next, we evaluate the intergenerational effects separately for each construct: (a) support to adult children, (b) stress regarding support to adult children, and (c) worries about adult children on husbands’ and wives’ own (actor effect) and their partners’ (partner effect) sleep while controlling for both spouses’ education, self-rated health, depressive symptoms, and marital satisfaction. For each step of the model, separate intercepts were estimated for husbands and wives using gender as a distinguishing variable (–1 = husband, 1 = wife) to enable examination of actor and partner effects for each spouse (Kenny et al., 2006).

Results

Before examining study objectives, bivariate associations among key study variables were examined in preliminary analyses (see Table 2). Significant associations were detected between husband and wife reports of the key outcome variable, sleep ($r = .17$, $p = .02$), as well as between their reports of self-rated health ($r = .16$, $p = .03$), depressive symptoms ($r = .20$, $p = .01$), marital satisfaction ($r = .33$, $p < .001$),

Table 2. Correlations of Key Variables (N = 186 Couples)

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|-----------------------------------------|--------|---------|---------|--------|--------|---------|--------|--------|-------|---------|------|--------|--------|
| 1. W Sleep | — | | | | | | | | | | | | |
| 2. W Self-rated health | .27*** | — | | | | | | | | | | | |
| 3. W Depressive symptoms | -.02 | -.31*** | — | | | | | | | | | | |
| 4. W Marital satisfaction ^a | .01 | .21* | -.48*** | — | | | | | | | | | |
| 5. W Support to adult child | -.02 | .12 | -.10 | .07 | — | | | | | | | | |
| 6. W Stress about adult child | -.23** | -.08 | .18* | -.12 | .05 | — | | | | | | | |
| 7. W Worries for adult child | -.17* | .04 | .04 | .00 | .27*** | .49*** | — | | | | | | |
| 8. H Sleep | .17* | .08 | .01 | .05 | .03 | .05 | -.05 | — | | | | | |
| 9. H Self-rated health | .11 | .16* | .00 | .05 | -.09 | -.09 | -.16* | -.16* | — | | | | |
| 10. H Depressive symptoms | -.12 | -.11 | .20* | -.09 | .03 | .18* | .02 | -.15* | -.20* | — | | | |
| 11. H Marital satisfaction ^a | .01 | .15 | -.16* | .33*** | .06 | -.12 | .05 | .01 | .18* | -.40*** | — | | |
| 12. H Support to adult child | -.06 | .12 | -.06 | .06 | .62*** | -.07 | .14 | -.16* | -.07 | -.04 | .07 | — | |
| 13. H Stress about adult child | -.09 | .03 | .05 | .01 | .10 | .57*** | .31*** | -.05 | -.07 | .15* | -.11 | .04 | — |
| 14. H Worries for adult child | -.17* | -.05 | .11 | -.19* | .13 | -.29*** | .27*** | -.24** | -.09 | .06 | -.01 | .23*** | .44*** |

Note: H = husband; W = wife. Coefficients that represent the associations between husband and wife reports are bolded.

^aSignificant mean difference between husbands' and wives' reports.

p* < .05. *p* < .01. ****p* < .001.

support to adult child ($r = .62, p < .001$), stress regarding supporting the adult child ($r = .57, p < .001$), and worries about the adult child ($r = .27, p < .001$). As shown in Table 2, significant associations between the predictors and own and partner sleep differed for husbands and wives suggesting potential actor and partner effects of predictor variables on sleep.

Dyadic Associations Between Intergenerational Relationships and Sleep

First, we evaluated associations between one's own (actor effect) and one's partner's (partner effect) support to adult children with sleep (see Table 3 for APIM parameter estimates). With a mixed literature regarding support, we explore competing hypotheses regarding positive and

negative consequences of providing support to grown children. Contrary to hypotheses, we found that neither wives' nor husbands' support provided to their adult child was associated with wives' sleep. However, in line with hypotheses, for husbands, both their own ($B = -.27, p = .001$) and their partners' ($B = .20, p = .01$) support provision were associated with their sleep. Specifically, husbands' own support provided to adult children was associated with poorer sleep (actor effect), whereas wives' support to adult children was associated with better sleep for husbands only (partner effect). These findings were somewhat surprising given the bivariate associations between husbands' and wives' support and husbands' sleep shown in Table 2. Follow-up analyses are presented as post hoc analyses.

Second, we evaluated associations between participant's own (actor effect) and his or her partner's (partner effect)

Table 3. Dyadic Associations Between Husbands' and Wives' Support, Stress Appraisals, and Worries for Adult Children Predicting SleepTime ($N = 186$ Couples)

| Wives' sleep | Frequency of support | Stress of support | Worry |
|-----------------------------------------|----------------------|-------------------|-------------------|
| | <i>B</i> | <i>B</i> | <i>B</i> |
| Wives' years of education | -.01 | -.01 | -.02 |
| Husbands' years of education | .06 | .05 | .06 |
| Wives' depressive symptoms | .17 | .22 | .18 |
| Husbands' depressive symptoms | -.21 | -.14 | -.19 |
| Wives' self-rated health | .34*** | .32*** | .35*** |
| Husbands' self-rated health | .06 | .04 | .02 |
| Wives' marital satisfaction | -.01 | -.03 | -.04 |
| Husbands' marital satisfaction | -.10 | -.10 | -.07 |
| Wives' support given to adult child | .04 | | |
| Husbands' support given to adult child | -.10 | | |
| Wives' stress supporting adult child | | -.24* | |
| Husbands' stress supporting adult child | | .05 | |
| Wives' worry about adult child | | | -.13 [†] |
| Husbands' worry about adult child | | | -.12 |

| Husbands' sleep | Frequency of support | Stress of support | Worry |
|-----------------------------------------|----------------------|-------------------|----------|
| | <i>B</i> | <i>B</i> | <i>B</i> |
| Husbands' years of education | .06 | .05 | .06 |
| Wives' years of education | .03 | .02 | .03 |
| Husbands' depressive symptoms | -.32* | -.29 [†] | -.25 |
| Wives' depressive symptoms | .19 | .14 | .15 |
| Husbands' self-rated health | .14 | .14 | .14 |
| Wives' self-rated health | .07 | .07 | .05 |
| Husbands' marital satisfaction | -.14 | -.15 | -.11 |
| Wives' marital satisfaction | .08 | .09 | -.02 |
| Husbands' support given to adult child | -.27** | | |
| Wives' support given to adult child | .20* | | |
| Husbands' stress supporting adult child | | -.12 | |
| Wives' stress supporting adult child | | .13 | |
| Husbands' worry about adult child | | | -.21** |
| Wives' worry about adult child | | | .04 |

Note: Models also controlled for the number of children aged 18 years or older.

[†] $p < .08$. * $p < .05$. ** $p < .01$. *** $p < .001$.

stress about supporting their adult child with sleep (see Table 3 for APIM parameter estimates). It was anticipated that greater stress regarding support would be associated with less sleep. It was also expected that this association would be more salient for wives. In partial support of our hypotheses, wives' own stress about supporting their adult child was associated with their own poorer sleep ($B = -.24$, $p = .01$); however, husbands' stress about supporting their adult child was not associated with wives' sleep. Contrary to our hypotheses, neither wives' nor husbands' stress about supporting their adult child were associated with husbands' sleep.

Finally, we evaluated associations between participant's own (actor effect) and his or her partner's (partner effect) worries about their adult child with sleep (see Table 3 for APIM parameter estimates). It was anticipated that greater worry would be linked with less sleep for husbands and wives. It was also expected that these associations would be more salient for wives. Contrary to our hypotheses, wives' and husbands' worries about their adult child were not associated with wives' sleep ($B = -.13$, $p = .07$; $B = -.12$, $p = .11$, respectively). Furthermore, among husbands, only their own worries ($B = -.21$, $p = .003$) were associated with their sleep.

Post Hoc Analyses

Due to potential multicollinearity issues between intergenerational variables (see Table 2), we did not evaluate all intergenerational variables in a single model. However, in post hoc analyses, we examined all three intergenerational variables adjusting for years of education, overall health, depressive symptoms, and marital quality. The pattern of the findings remained the same as shown in Table 3, which confirmed their stability.

Findings showed that wife support of adult children was not significantly associated with husband sleep in the preliminary correlations, yet the significant association found in the APIM model suggests the presence of a possible suppressor effect (Tabachnick & Fidell, 1996). If the two predictors share the same directionality with each other and the outcome, then findings may suggest mediation rather than suppression (MacKinnon, Krull, & Lockwood, 2000). However, as in this case, if wives' support was positively correlated with husbands' support and wives' support was positively associated with husbands' sleep, whereas husbands' support was negatively associated with husbands' sleep, further evidence of a suppressor variable is present (Cohen & Cohen, 1983; see Table 3). As a further test, we estimated a dyadic structure regression model (Alferes & Kenny, 2009) with all actor and partner variables from the APIM model, and results confirmed the same findings as the APIM model. Within that approach, actor and partner variables can be isolated, and so a model was analyzed with all previous variables except husband' support. When husbands' support was not included in the regression model, wives' support was not associated with husbands' sleep, giving further evidence of suppression.

Furthermore, it is possible that one's partner's reports of support, stress for support, or worries regarding adult children may buffer or exacerbate the links between one's own reports of support, stress for support, or worries regarding adult children and sleep, or vice versa (Kenny & Cook, 1999). Therefore, we added two actor-partner interaction terms to each model (e.g., Own support, stress regarding support, or worry \times partner support, stress regarding support, or worry). To examine the nature of significant interactions, the statistical significance of links between support, stress regarding support, or worry and sleep was evaluated at 1 *SD* above and below the grand mean of the relationship quality measures to represent high and low relationship quality, respectively (Aiken & West, 1991). We found one significant interaction. There was an actor-partner interaction of husbands' and wives' stress regarding support and wives' sleep ($B = .13$, $p = .03$). The association between wives' stress regarding support and their own sleep was exacerbated when husbands' stress was low ($B = -.40$, $p < .001$) but not high ($B = -.10$, $p = .33$), which suggests that wives' stress about helping their adult children may have stronger adverse consequences for their sleep when husbands do not share wives' heightened feelings of stress.

Discussion

Interdependence theory emphasizes the importance of examining the potential influence of marital partners on each other's outcomes in addition to the importance of considering intergenerational relationships between parents and children. Thus, although the primary aim of this study was to explore the unique association of intergenerational factors with husbands' and wives' sleep quality, this study also explored influences within the marital dyad. In support of our hypotheses, intergenerational support, stress, and worry had differing linkages with sleep for husbands and wives; however, findings were not always as expected. Husbands' and wives' reports of supporting their adult child and husbands' worry were associated with husbands' sleep quality. Conversely, wives' stress about supporting their adult child was associated with wives' sleep quality. Findings provide evidence that relationships with adult children have different implications for sleep quality among middle-aged husbands and wives and that these interactions may affect their partners' sleep as well.

Support to Adult Children

Support is defined as the assistance provided by parents to their adult child to promote and maintain their children's lives (e.g., companionship, talking about daily events, emotional support, practical support, giving advice, and financial assistance). Of the 374 individuals (186 couples) in this study, 111 wives and 105 husbands endorsed providing at least some support within the past month and only one person endorsed providing no support within

the past year. With the mixed literature regarding intergenerational support, we provide competing hypotheses regarding positive and negative consequences of providing support to grown children. It is important to note that support is distinguished from frequency of contact with adult children. Although moderately correlated with each other, frequency of husbands' and wives' support to their adult children affected husbands' sleep, whereas husbands' and wives' contact frequency was not associated with husbands or wives sleep (analyses not shown). Specifically, husbands' more frequent support provided to their adult child was associated with less sleep, which validates the findings that support may be an indicator of caregiving (suggesting burden) rather than an indicator of a parent/child connection for fathers. When husbands provide more frequent support to adult children, it is often more need based than mothers, that is, it is in relation to life problems experienced by the adult child (Fingerman, Cheng, Tighe, Birditt, & Zarit, 2012). Thus, support may be more taxing for fathers making it more difficult for husbands to get a sufficient amount of sleep as a result of the time and energy demands related to giving such support.

Although husbands' support provision was detrimental to husbands' sleep, wives providing support was beneficial to husbands' sleep suggesting potential suppressor effects. Suppression can be detected when a mis-specified model (i.e., a crucial variable is excluded from the model) is more correctly specified (Tabachnick & Fidell, 1996). In this case, when wives' support was introduced in the model with husbands' support, its association with husbands' sleep enabled a positive association between wives' support and husbands' sleep to emerge. When their wives are providing support to adult children, it may be expected and causing less interference in the husbands' life allowing them more time to sleep.

Stress Regarding Support to Adult Children

Although providing support to and worrying about adult children was not associated with wives' sleep, the stress they feel from providing support to their adult children was negatively associated with their sleep. Gender norms suggest that, relative to husbands, wives have greater responsibility to support their adult children (Bracke et al., 2008) suggesting less potential effect on husbands' sleep. Research also suggests that wives find caregiving for their parents to be more stressful and restrictive than husbands do (Pinquart & Sörensen, 2007). It may be that this finding extends to other caregiving behaviors such as providing support to adult children as well. Thus, an adverse impact on wives' sleep may stem from heightened amounts of stress related to providing such support. Furthermore, in line with current research suggesting differing health implications from stress for husbands and wives (Kiecolt-Glaser & Newton, 2001), post hoc analyses showed an actor-partner interaction of stress regarding support to adult children and wives'

sleep. The findings suggest that wives' stress about supporting their adult children may have stronger adverse consequences for their sleep when husbands do not share wives' heightened feelings of stress. Discordance in partner expectations have been associated with poorer health outcomes (Seidel, Franks, Stephens, & Rook, 2012). Perhaps when husbands do not share wives' perceptions of stress, wives feel less understood by their husbands (Knudson-Martin, 2013). Furthermore, partners may also experience tension regarding their relationships with the adult child due to discordant appraisals. In either of these scenarios, discordance in stress regarding support between parents could have a negative impact on wives' sleep quality.

Worries Regarding Adult Children

Worries about adult children may include issues such as health, safety, relationship, and/or finance (Hay et al., 2008). In our sample, only 10% of husbands and 6% of wives reported not worrying at all about their children demonstrating the salience of parental worry across families. It was hypothesized that both partners' worries about their adult children would negatively affect sleep. In partial support of the hypotheses, husbands' worrying more frequently about their adult children was associated with less sleep for husbands, but not for wives. Previous research has found that one's partner's perceptions or actions may not be predictive beyond the effect of one's own report (Arránz Becker, 2013). It may be that husbands are able to avoid disturbing their partners' sleep, while they themselves are awake worrying about their adult children. Very little is known about the implications of parent-child ties for men's health throughout the life span (Settersten & Cancel-Tirado, 2010). Future studies should examine how specific health behaviors may be related to these relationships.

Dyadic Considerations

Considering the dyadic nature of the data, marital satisfaction was included as a covariate in all analyses. Although intergenerational dynamics predicted sleep for husbands and wives, marital satisfaction was not significantly associated with sleep for either partner. Previous work suggests sleep problems and marital functioning have bidirectional associations, with differences in these links for husbands and wives (Hasler & Troxel, 2010). Furthermore, much of the recent research focuses on marital conflict rather than satisfaction (Hasler & Troxel, 2010; Rauer & El-Sheikh, 2012; Rauer, Kelly, Buckhalt, & El-Sheikh, 2010). Taken together, these prior findings suggest that relationship functioning at various levels can affect sleep quality. Null findings in the present study may reflect the overall high level of marital satisfaction in the study sample and lack of measures regarding marital discord. Further research focusing on a variety of aspects of marital quality is warranted.

Implications

Based on interdependence theory, this study focuses on both intergenerational relationships and the marital dyad. Regarding intergenerational relationships, the current study suggests that support, stress from support, and worries about adult children are associated with parental sleep patterns as their children traverse adulthood. On the one hand, such support can be viewed as a benefit for adult children. As support sometimes reflects needs of adult children, the concerns the parents have around the child's need might be the source of less sleep. That is, adult children may be able to count on middle-aged and older parents to be available for support during difficult times (Merz, Consedine, Schulze, & Schuengel, 2009). On the other hand, because poor sleep quality is linked with physical and mental distress (Meerlo, Sgoifo, & Suchecki, 2008; Smagula, Stone, Fabio, & Cauley, 2016), such caring by older parents may take a physical and psychological toll. Thus, future research should seek to differentiate the context and type of support.

Furthermore, the potential positive and negative effects of support may differ for husbands and wives, and on how couples negotiate the relationships with their adult children as partners. Our findings suggest that wives' interactions with adult children may affect husband's outcomes. Future research should consider the various types of couples and how they work together to continue "parenting" throughout their children's adulthood.

Moreover, general clinical services may be of benefit to aging couples that struggle to manage the stress they feel from adult child challenges (Abramson, 2015). Clinicians and educators may find ways to help aging parents successfully manage stress related to their adult children, including awareness of and maintaining healthy sleep hygiene (Irish, Kline, Gunn, Buysse, & Hall, 2015). Indeed, some stress-coping behaviors may not enhance sleep quality, such as caffeine, nicotine, and alcohol consumption (Irish et al., 2015). Assisting aging parents to be aware of and manage ways that stress, support, and concern for adult children relate to their sleep may benefit them in multifaceted ways.

Limitations

Although this study extends previous research by including intergenerational factors that may be associated with both partners' sleep quality, some study limitations should be noted. One limitation of this study is its cross-sectional design. The true causal nature of detected associations between relationship factors and sleep cannot be determined in this study. For instance, wives' poorer sleep quality may be affecting the stress they feel from supporting their adult children. Moreover, the analyses focused on one focal child, it is possible that support, stress, or worry about other children, not the focal child, is the issue. Thus, further longitudinal research examining additional family ties is warranted to better understand the direction of causality in marital and intergenerational processes.

Another limitation of this study is its use of secondary analyses from a large study, which limits the availability of measures for analyses. For instance, gender socialization differences suggest that as mothers, the wives may be more concerned with providing emotional support and as fathers, husbands may be more concerned with providing tangible and financial support. The measure of stress examined stress providing help overall and did not specify stress regarding particular types of support. Providing emotional support may not be as stressful to husbands as providing financial support. Further research should consider more detailed measures.

Third, this study also was limited by the lack of variability in the sample of married couples, which consisted largely of long-term married, Caucasian couples. As such, these findings may not generalize to other couples who differ in these characteristics. Future work including larger more representative samples is warranted. Furthermore, self-reported sleep may be limited in detecting exact amount of sleep each participant received. Future research might include objective and subjective sleep measures. Although greater precision in measures of sleep is warranted, a recent study found that self-reported sleep and wrist actigraphy sleep identification are significantly related suggesting that self-rated sleep may be used as a viable proxy for actual sleep with over-reporting not under-reporting being more common (Lauderdale, Knutson, Yan, Liu, & Rathouz, 2008).

Conclusion

Despite limitations, this study has several advantages. Although previous research focused on younger children's influence on parents' sleep, this study extended the current research by examining the association between adult children's intergenerational exchanges on parents' sleep. Furthermore, this study was able to focus on the dyadic influence of husbands' and wives' exchanges with their adult children on their own and their partners' sleep. Our findings suggest that intergenerational relationships with adult children contribute to middle-aged parents' sleep quality. Furthermore, partners' interpersonal factors may be linked to spouses' sleep differently for husbands and wives. Our findings have implications not only for health-related research with couples and families but also for providers who work with individuals struggling with sleep problems.

Funding

This study was supported by grants from the National Institute on Aging (NIA), R01AG027769, Family Exchanges Study II (K. L. Fingerma, principal investigator). The MacArthur Network on an Aging Society (John W. Rowe, network director) provided funds. This research also was supported by grant 5 R24 HD042849 awarded to the Population Research Center (PRC) at the University of Texas at Austin by the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD).

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