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The relationship of maternal work characteristics to childcare type and quality in rural communities

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Abstract

Drawing on data from the Family Life Project collected in North Carolina and Pennsylvania, this paper examines the relationship between maternal work characteristics and childcare type and quality in rural communities. Research is limited on the childcare experiences of rural families. Rural areas have less access to formal childcare and families often commute long distances for work, restricting childcare options. Employed mothers using childcare were selected (n = 441). Logistic and OLS regression was used to examine which characteristics, including workplace support, objective occupational measures, hours, wage, and shift, predicted care type and quality. Results indicated that most families were using informal care. Those with more hazardous work conditions and working night shifts were less likely to use centers. Higher quality care was related to more workplace support, center use, and higher wages. Implications for social policy and practice are discussed.

In 2005 almost 63% of mothers with children under 6 were in the US workforce (US Census Bureau, 2005). Given that the structure of work and the constraints of particular occupations may be critical factors shaping personal lives (Kanter, 1977), it is reasonable that mothers' work also influences the lives of their children, from the time available to spend with children to the decisions made about child-rearing. With economic realities that require

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many mothers to work to support their families and welfare policies mandating employment, childcare has become increasingly in demand in the USA. The choices that parents make about who will provide care for their children during their working hours are important ones as high quality childcare is essential for optimal cognitive and social development (e.g., Caughy, DiPietro, & Strobino, 1994; Hayes, Palmer, & Zaslow, 1991; Loeb, Fuller, Kagan, & Carrol, 2004; Peisner-Feinberg et al., 1999).

As the demand for childcare has grown, a large body of research has examined many facets of childcare from the take-up of childcare subsidy programs to indicators of childcare quality. Rural areas, however, have received less research attention than urban areas, and therefore less is known about childcare issues in these less populated communities. We do know that rural areas have less access to formal center-based childcare and public transportation, and parents in rural areas must often commute long distances to work (Struthers & Bokemeier, 2000; Zimmerman & Hirschl, 2003). This spatial disadvantage is associated with higher poverty in rural communities, on par with levels in central cities (Myers & Gill, 2004; Snyder & McLaughlin, 2004). This is especially true for working families. In 1999, 27% of rural workers in the USA held jobs with poverty wages compared to 20% of urban workers (Gibbs, 2001). These conditions conspire to limit childcare options for rural families. Whether by choice or necessity, rural parents are more likely to use informal childcare providers, particularly friends and relatives (Ghazvini, Mullis, Mullis, & Park, 1999; Keefer, Monroe, Atkinson, & Garrison, 1996; Smith, 2006; Whitener, Duncan, & Weber, 2002).

Existing research on the basis on which parents make decisions about childcare is limited, particularly studies addressing how mothers' work characteristics are related to the type of childcare used, whether it be a parent, grandparent, babysitter, family childcare provider, or a childcare center (Honig, 2002). In addition, a gap exists between what theory and prior research indicate are the essential factors that contribute to high quality childcare, such as low child-to-caregiver ratios, small group sizes, adequate teacher education, and warm and supportive interactions between caregivers and children (Helburn & Howes, 1996; Howes, Phillips, & Whitebook, 1992; National Institute of Child Health and Development [NICHD], 2002), and the quality of care that is actually available to families.

The primary purpose of this paper was to examine the relationship between maternal work characteristics and the type of childcare that parents in rural communities select and the quality of care their children receive. Mothers' work status and schedules have been shown to impact the type of childcare selected. Families tend to rely on paternal care when mothers work non-traditional hours (Han, 2004).

Further, the probability of selecting a more formal arrangement, such as a family childcare home or a childcare center, has been found to be more likely when mothers work a standard day shift (Han, 2004). Scott, London, and Hurst (2005) found a consistent pattern of patchwork childcare among welfare-reliant mothers, many of whom worked multiple jobs with erratic schedules and long hours. These families had little choice but to turn to kin networks for help. Much of this research, however, was conducted in urban contexts so we do not know how this might look in rural communities.

This study examined the effects of maternal work conditions of workplace support, occupational self-direction, hazardous conditions, care work (taking care of others), wage, hours, and shift on the type of childcare selected and childcare quality. We were particularly interested in the relationship between childcare and energy-depleting work characteristics, such as care work, and positive work–life qualities, such as occupational self-direction and workplace support, to determine if the more challenging conditions make for poorer

childcare choices, whereas the more supportive conditions enable parents to make better childcare choices.

Literature review

Over the last 40 years researchers have looked at the intersection of work and family life. Kanter (1977) laid the groundwork for this body of research in her excellent early overview, *Work and Family in the United States: A Critical Review and Agenda for Research and Policy*, in which she laid out five work characteristics that influence family systems: absorptiveness, time and timing, rewards and resources, cultural dimensions of work, and emotional climate. In terms of absorptiveness, occupations differ in how much they absorb and subsume workers' lives. If there is a high level of absorption, work activities tend to spill over into home lives. For time and timing of work, the number of hours worked and the part of the day that work encompasses can impact many family processes through the effects of fatigue or the unavailability of the worker to participate in family events. Rewards and resources garnered from work also influence family life. Lack of resources can restrict choice, provide fewer chances for leisure and self-expression, and limit the possibility of purchasing load-reducing services. Most work on occupational culture and family is related to child-rearing values and standards (Kanter, 1977). Parents 'take their cues for desirable behavior and styles of interaction from what they see as necessary for success in their work milieus and they translate learned-on-the-job modes for relating to their children' (p. 42). For example, Kohn (1977) found that social class, as characterized by job conditions, is related to values and child-rearing practices. Working-class workers, whose jobs are often characterized by closer supervision, lower complexity, and less self-direction, tend to have more conformist values and are more likely to value obedience and conformity in their children. Conversely, middle-class workers, who tend to experience more self-direction and complexity at work, value self-direction in themselves and their children. Finally, emotional climate refers to how emotionally draining the workplace is.

Though there is a vast literature on childcare, including research on the correlates of childcare type and childcare quality, nothing to date has specifically linked maternal work characteristics, such as shift, self-direction, hours, or wages, to these variables, particularly in rural contexts. A few studies have focused on a limited number of work conditions and the type of childcare used by urban families. For example, mothers who work non-traditional shifts and longer hours are more likely to choose less formal arrangements (Han, 2004; Riley & Glass, 2002). Families with higher incomes are more likely to select regulated family childcare homes and centers, whereas families with lower incomes are more likely to select relative and non-regulated care (Pungello & Kurtz-Costes, 1999). There are, however, a number of studies that link work conditions to related child and family outcomes.

Shift

Nationally, 46% of employed adults regularly work variable shifts or at non-standard times, different hours on different days, or evenings, nights, and weekends (Presser, 2003) with working-poor parents overrepresented (Presser & Cox, 1997). Such schedules can have a negative impact on the well-being of both employees and their children, including, for adults, more stress and fatigue, less time spent with children, challenges finding stable childcare during non-traditional hours (Hsueh, 2007), more health complaints, decreased feelings of well-being, and poorer sleep quality (Martens, Nijhuis, Van Boxtel, & Knottnerus, 1999), and, for children, poorer school performance and more acting-out behavior (Yoshikawa et al., 2007).

Hours worked

The impact of the number of hours worked per week has also been examined. Using data from the National Institute of Child Health and Human Development Study of Early Child Care, Brooks-Gunn, Han, and Waldfogel (2002) found that maternal employment by the ninth month of the child's life was associated with lower Bracken School Readiness scores at 36 months, with stronger effects for children whose mothers were working 30 or more hours per week. These negative effects persisted after controlling for childcare quality, quality of the home environment, and maternal sensitivity. Looking at children's verbal facility in a national sample, Parcel and Menaghan (1990) found that the number of hours worked were significant predictors of child verbal facility, and that working over 40 hours per week appeared to be harmful.

Workplace support

A supportive workplace, characterized by flexible work policies, supportive relationships with co-workers, and support from management, is relevant to home and family well-being, including parenting and child behavior (Hill et al., 2008). Parents with jobs characterized by high levels of support report an increased ability to meet family obligations and reduced distress for both working men and women (Roxburgh, 1996). Further, parents who reported less flexible work environments also reported that they were less able to be involved with their children at school (Yoshikawa et al., 2007), had difficulties arranging childcare, and reported having insufficient time to spend with their children (Glass & Estes, 1997).

Moderating effects

Predictors of childcare quality may vary by type of childcare used. In the models predicting childcare quality, type of care was treated as a moderator to determine if the relationship between maternal work characteristics and quality was moderated by the type of care selected.

Research questions guiding this study were: (1) what maternal work conditions predict childcare choice; (2) what maternal work conditions are related to the quality of childcare received; and (3) does childcare type moderate the relationship between work characteristics and childcare quality?

Methods

This study was based on analyses of data from the Family Life Project (FLP), a longitudinal study of children's lives in rural communities in Eastern North Carolina and Central Pennsylvania, two geographic pockets of rural poverty in the USA. The 1292 participating families included 519 in Pennsylvania and 773 in North Carolina. The FLP has collected extensive information on work, income, marriage, parenting, family processes, health, childcare, and child development and well-being. Home and childcare visits were conducted when the babies were 6, 15, 24, and 36 months old.

In both states, families were recruited in person in hospitals following their children's birth. Recruitment occurred seven days per week over the 12-month recruitment period spanning 15 September 2003–14 September 2004 using a standardized script and screening protocol. Families were designated as low income if they reported household income below 200% of the federal poverty line, used social services requiring a similar income requirement (e.g., food stamps, WIC, Medicaid), or mothers had less than a high school education. In total, FLP recruiters identified 5471 women who gave birth to a child during the recruitment period (57% in North Carolina and 43% in Pennsylvania). Of these, 1515 (28%) were ineligible, leaving 3956 eligible families. A total of 2691 (68%) were willing to be

considered for participation, 1571 (58%) were selected into the study based on the study design, and 1292 (82%) were enrolled in the study. For further details about sampling and recruitment see Crouter, Lanza, Pirretti, Goodman, and Neebe (2006).

The 24-month wave of data was used for this analysis. At the 24-month wave there were 1186 participating families (92% of those originally enrolled). However, as the current analysis focused on the childcare arrangements of working mothers, only families with an original primary respondent who was a biological mother and was employed and using some form of childcare were included in the analysis. Based on these criteria, a sample of 441 families was obtained. Further, 315 families had complete childcare observation data, the basis for our assessment of quality. Thus, all 441 mothers' data were used to predict childcare type, whereas the childcare quality analyses were based on the 315 cases with complete observational data.

Study variables

This study examined seven maternal work characteristics: self-direction, hazardous conditions, care work, workplace support, number of hours worked per week, wages, and shift. Control variables included maternal age, maternal education, race/ethnicity, state of residence, geographic isolation, number of children, and marital status. To capture rurality, we created a measure of geographic isolation by using Geographic Information Systems (GIS) to code distances between each participant's residence and the nearest 10 common community services: gas station, physician, library, fire station, elementary school, high school, public park, supermarket, freeway exit ramp, and public transportation. A mean was then calculated for the average distance to these services for each respondent, which was then logged. The moderating variable was childcare type. Childcare type was coded as center or non-center and quality was based on observational quality measures (Cronbach's alpha = 0.67).

Work variables

Supportive workplace was a composite variable composed of the mean scores of three variables: flexible work arrangements, co-worker support, and supervisor support. The Flexible Work Arrangements Questionnaire is a four-item measure adapted from the Workplace Culture Questionnaire in the 1997 National Study of the Changing Workforce (Bond, Galinsky, & Swanberg, 1998). Four items, such as 'At my place of employment, employees who put their family or personal needs ahead of their jobs are not looked on favorably', were answered on a 4-point Likert scale, ranging from *strongly agree* to *strongly disagree*. Reliability was high (Cronbach's alpha = 0.80). For the variables co-worker support and supervisor support, the current study used a modified version of two subscales from the Moos Work Environment Scale (WES) (Moos & Moos, 1983): co-worker support (e.g., 'People go out of their way to help a new employee feel comfortable') and supervisor support (e.g., 'Supervisors really stand up for their people'). Participants rated their responses on a 4-point scale from *strongly agree* to *strongly disagree*. For this sample reliability was satisfactory. Cronbach's alpha was 0.67 for co-worker support and 0.78 for supervisor support. The three mean scores were standardized, summed, and averaged to create a supportive workplace index (Cronbach's alpha = 0.86).

Self-direction, hazardous physical conditions, and care work were created using the Occupational Information Network (O*Net), a comprehensive database of occupational characteristics and attributes of over 950 jobs (see Crouter et al., 2006). Respondents reported their job titles and described their routine activities, which were then matched by trained coders with occupational titles from the O*Net database. The occupations were matched electronically to a set of codes that had been used to create indicators of three

constructs: self-direction (e.g., organizes and prioritizes, makes decisions, develops objectives, or leads others), hazardous physical conditions (e.g., exposure to extreme temperatures, hazardous conditions, or hazardous equipment), and care work (e.g., taking care of others, exposure to disease or infections). Standardized scores ranged from 0 to 100. Cronbach's alphas were 0.96 for self-direction, 0.81 for hazardous physical conditions, and 0.84 for care work (Crouter et al., 2006).

Outcome variables

Childcare type was dichotomized as childcare center or non-center. Non-center-based childcare is care provided by friends or relatives in their home or in the child's home and care provided in family childcare homes. In this study use of family childcare homes was relatively low, with only about 5% of families utilizing this form of care. As a result, we were unable to look at childcare type in more detail. Childcare quality was assessed using the Home Observation for Measurement of the Environment (HOME) (Bradley & Caldwell, 1988; Caldwell & Bradley, 1984). The HOME was designed to measure the quality and quantity of stimulation and support available to a child, focusing on the child in the home environment (Bradley, 1994; Bradley & Caldwell, 1988; Caldwell & Bradley, 1984). Although the HOME is used primarily to assess home environments, it is also suitable for use in childcare settings. The HOME consists of 45 items clustered into six subscales: (1) Responsivity, (2) Acceptance of the child, (3) Organization of the environment, (4) Learning materials, (5) Parental involvement, and (6) Variety of experience. Only the sum of the Responsivity, Acceptance, and Learning materials subscales was used in the FLP. Each of these 28 items (e.g., 'Caregiver's voice conveys positive feelings toward the child') is scored in a binary (yes/no) fashion. Scores can range from 0 to 28. Higher scores on the HOME Inventory indicate higher quality care. For this study, reliability was adequate (Cronbach's alpha = 0.67).

Analysis plan

Descriptive and inferential statistics were generated. Hierarchical regressions were used to test the extent to which maternal work characteristics, including shift, number of hours worked, and self-direction, predicted both childcare type and quality, controlling for family characteristics, such as poverty, race/ethnicity, state of residence, geographic isolation, maternal age, marital status, and child's gender. For childcare type, two models were run. Three models were run for childcare quality to assess possible moderating effects of childcare type. For each outcome the first block included the controls: maternal age, race/ethnicity (white or black), number of children under 18 in the household, marital status (married, single, or cohabiting), maternal education (less than high school, high school/GED, or some college and above), child's gender, state of residence, and geographic isolation. The second block added maternal work conditions: supportive workplace, the three objective O*Net measures (self-direction, hazardous work conditions, and care work), number of hours worked per week, wage, and shift (fixed day shift, fixed night shift, or other). To predict childcare quality, childcare type was added to the second block and the third block added interaction terms to test for moderation. Interactions of each work characteristic and childcare type were examined. Only significant interactions were retained in the final model. All continuous variables were centered prior to entry into the regression models.

Results

Table 1 presents the descriptive statistics for the sample. Mothers averaged 27.9 years (SD = 5.7 years). More mothers were married (54.6%) than were single (33.3%) or cohabiting (12.1%). More resided in North Carolina (62.8%) than in Pennsylvania (37.2%). Over half

were white. Over half of the mothers received some college education or more. Parity averaged about two children. More target children were boys (54.6%) than girls (45.4%). In terms of work characteristics, workplace support on average was moderate. Physical work conditions were generally not hazardous. In their primary jobs, mothers' monthly pay averaged $1954.05 (SD = $1436.35). Mothers worked an average of about 36 hours per week (SD = 9.76 hours), with most working fixed day shifts (65.5%). The majority used non-center-based childcare (57.7%). Childcare quality was fairly high, averaging 24.78 (SD = 2.68), with a range of 15–28.

Next, bivariate relationships between childcare characteristics and family and work characteristics were examined with correlations (see Table 1), analysis of variance (ANOVA), and chi-square. Childcare type and quality were positively correlated such that childcare centers were more likely to be of higher quality. In terms of childcare type, white children were less likely to be in childcare centers and more hazardous work conditions were negatively related to center use. Mothers working the day shift were more likely to use center care. In terms of childcare quality, families with more children in the home were more likely to experience lower quality care. White children and those with older mothers who earned higher wages received better quality care. Jobs high in self-direction and support were positively related to childcare quality.

Childcare type varied significantly as a function of education ($\chi^2(2) = 10.96$, $p < 0.01$) and marital status ($\chi^2(2) = 5.94$, $p < 0.05$). In this sample, 21% of mothers who did not complete high school selected center-based care compared to 42% of high school graduates and 48% of mothers with some college education or more. In terms of marital status, 51% of single mothers selected center care compared to 40% of married mothers and 36% of cohabiting mothers. Analysis of variance revealed significant differences in childcare quality as a function of educational attainment ($F(2, 349) = 6.54$, $p < 0.01$) and marital status ($F(2, 349) = 3.39$, $p < 0.05$). Specifically, follow-up tests revealed that children of mothers with less than a high school education (M = 23.56, SD = 3.22) or with a high school diploma or GED (M = 24.37, SD = 2.90) received significantly lower quality care than those whose mothers had some college education or more (M = 25.18, SD = 2.39). Childcare quality did not differ significantly between high school dropouts and high school graduates. For marital status, follow-up tests indicated that children of married mothers (M = 25.13, SD = 2.39) received significantly higher childcare quality than children of single mothers (M = 24.35, SD = 2.94), whereas the children of cohabiting mothers fell in between (M = 24.53, SD = 2.99), and their quality of care did not differ significantly from the other two groups.

Results for the regression analyses predicting childcare type are displayed in Table 2. The table displays the unstandardized betas, standard error of the betas, and the odds ratios for the hierarchical logistic regression predicting childcare type (center or non-center). Demographic characteristics were entered in the first block, followed by work characteristics in block two. Beginning with the significant control variables, North Carolina residents were more likely to use centers than Pennsylvania residents. Educational attainment was also a significant predictor. Mothers with less than a high school degree were less likely to use centers (OR = 0.17, final model). Older mothers were also less likely to use centers. In the second model, adding work conditions, a number of conditions were significant predictors of childcare type. Mothers with jobs characterized by more hazardous physical conditions were less likely to use centers (OR = 0.97). Further, compared to those working standard day shifts, mothers who worked night shifts were less likely to select center-based childcare (OR = 0.41).

Table 3 displays the results from the hierarchical regression analysis predicting childcare quality. The table displays unstandardized betas, standard error of the betas, and

standardized betas for the hierarchical OLS regression predicting childcare quality. Again, control variables were entered in model 1 and maternal work characteristics were added in the second model. This time interaction terms examining the combination of work characteristics and childcare type were introduced in the third model. Each set of predictors contributed significantly to the total amount of variance accounted for. In model 1, several demographic variables were significant predictors of quality. Being white and using a childcare center were associated with higher childcare quality. Further, those with only a high school degree or GED received lower quality care. When maternal work conditions were added in model 2, childcare type and race remained significant correlates. Of the added work conditions, both maternal pay and workplace support significantly predicted higher quality childcare. Higher maternal pay and more workplace support were related to higher quality childcare.

In the third model, all potential interactions between childcare type and maternal work conditions were tested individually (not shown), and only significant terms were retained. The interaction of workplace support and childcare type, testing whether the type of childcare selected moderated the relationship between support and childcare quality, was significant. To follow-up the interaction, additional regressions were run dividing the sample into center users and non-center users (Aiken & West, 1991; Cohen, Cohen, West, & Aiken, 2003). For non-center-based childcare users, workplace support was significantly and positively related to childcare quality ($B = 0.90$; $\beta = 0.24$, $p < 0.01$; SE = 0.28). For childcare center users, workplace support was not related to childcare quality ($B = 0.20$; $\beta = 0.08$, $p = 0.32$; SE = 0.20). Another way to look at this finding is that the gap in quality between center and non-center care was most pronounced for mothers in non-supportive workplaces. As can be seen in Figure 1, non-center care combined with less supportive workplaces was the most problematic situation.

Discussion

This study aimed to identify employment characteristics related to childcare type and quality for working mothers in rural communities. Findings demonstrated that more families selected less formal childcare arrangements, more advantaged families selected center-based childcare and care of higher quality, and several work conditions, such as shift and workplace support, were related to childcare type and quality. These themes are elaborated below and implications for practice and policy are provided.

In rural communities, families are faced with difficult choices around work and childcare, often having to accept less desirable positions requiring non-standard hours and, thus, having fewer options for childcare. As a result, rural parents often rely on less formal childcare arrangements, selecting friends or relatives to care for their children. That is the case in this study as well over half of the sample utilized non-center-based care. These arrangements often better accommodate long work hours, long commutes, and the non-traditional schedules characteristic of the work life of many rural dwellers. This was borne out here: non-standard shifts were related to less use of center-based care. For young children nationally, family childcare homes (non-relative care in that person's home) are the most common (Early and Burchinal, 2001). As with many rural families (Smith, 2006), FLP families who selected non-center-based care most often chose informal care provided by family and friends. Smith (2006) posited a number of explanations for this reliance on informal childcare: a preference for this type of care, a lack of more formal options, or the lower cost of informal arrangements. While some rural areas may lack more formal alternatives all together, often formal childcare facilities do not provide care during the non-traditional hours that these families typically work.

This study also demonstrated that more advantaged families are more likely to select centers and to receive better quality care for their children. Those with less education and lower incomes were less likely to select centers, similar to findings of previous studies (Ehrle, Adams, & Tout, 2001; NICHD, 2004). Consistent with prior research demonstrating that families with higher educational attainment received higher childcare quality (NICHD, 2006), FLP families with less education received lower quality care. Similarly, higher income was related to higher quality care. A significant amount of research has been conducted to assess the effect of childcare quality on child development (e.g., Loeb et al., 2004; NICHD & Duncan, 2003; Pierrehumbert, Ramstein, Karmaniola, Miljkovitch, & Halfon, 2002). The Cost, Quality, and Outcome Study found that high quality care can increase the likelihood that children enter formal school ready to learn (Peisner-Feinberg et al., 1999). Children in high quality programs perform better on measures of cognitive skill, social competence, and problem behaviors in childcare and during the transition to school, benefits that may persist into the school years. Halle et al. (2005) found that some childcare effects last into the third grade: children at risk for poor academic performance and those whose mothers had lower levels of education were more affected by the quality of care they experienced. These children were more sensitive to the negative impacts of poor quality care and benefited more from high quality care.

In terms of work conditions, workplace support, an index composed of the supportiveness of co-workers and supervisors and the flexibility of the work arrangement, was significantly related to better childcare quality, particularly for mothers who selected non-center-based childcare. Children in center-based childcare programs experienced higher quality care regardless of the level of workplace support their mothers received. The lowest childcare quality was found in non-center-based care when mothers reported low maternal workplace support. This may indicate that workplace support allows families more flexibility to search for the best childcare. A flexible workplace may also allow the selection of less conveniently located care that may be of higher quality than those closer to work or home. Further, workplace support may have positive psychological payoffs, enabling mothers to choose better quality care. This supports Roxburgh's finding (1996) that workplace support helps parents to better meet family obligations. Prior research has shown that there is a payoff for organizations that adopt family-friendly policies (Greenberger, Goldberg, Hamill, O'Neil, & Payne, 1989; Halpern, 2006). In a random sample of workers in the USA, both men and women were less likely to be late for work, leave work early, or miss deadlines, and were more committed to their employers when offered a greater number of family-friendly policies (Halpern, 2006). We controlled for some possible competing explanations: workplace support was a correlate of childcare quality even when maternal education, wages, and other important background characteristics were held constant.

Policy and practice implications

Increasing access to childcare will be particularly challenging as more formalized care in rural areas is clustered around towns (Walker & Reschke, 2004). With limited transportation, families who live outside of these centralized areas will be unable to access such settings. This challenge calls for innovative planning among social service providers, community planners, and policymakers to develop transportation programs that are suitable for spatially disadvantaged rural areas. One innovative model implemented in Illinois is the Illinois Rides program (Langford & Gilbert, 2001). A mass transit district serves nine rural counties with 55 vehicles that operate on established and on-demand routes. Funding is shared between federal and state government and participating counties.

Further, as many FLP families place their children in less formal childcare settings by choice or due to few other options, home-based providers, who have less education and training on

average (Kisker, Hofferth, Phillips, & Farquhar, 1991), need to be targeted for increased education and training. Encouraging specialized early childhood education coursework is particularly important to quality as found by Honig and Hirallal (1998) and Arnett (1989). At the very minimum, Colker and Dewees (2000) recommend that these providers receive training in health and safety issues, curriculum and educational instruction, appropriate discipline, and child abuse prevention, as well as training to promote child growth and development. The authors cite a program, the Early Childhood Professional Development Network, funded through the Head Start Bureau, which has demonstrated that provider training could successfully be provided via satellite to geographically remote areas. Further, Clayton, Blom, Bateman, and Carden (2004) reported the need for flexibility when providing training in rural and remote regions. In focus groups with key stakeholders in five rural communities, Clayton et al. found flexibility, in terms of content, delivery mode, and location, to be essential to successful training enterprises. In these communities successful training programs, around a variety of topics, were provided online, through distance learning programs, with face-to-face presentations, and through a mix of these modes.

In addition to better tailoring training opportunities to the realities of rural communities (i.e., thin markets, geographic isolation, and challenges accessing skilled trainers), childcare providers could be incentivized to provide higher quality childcare. Stipends could be provided to providers who upgrade their skills, such as those provided through the Childcare Retention Incentive (CRI) in California (Johnson, Pai, & Bridges, 2004). In geographically isolated parts of Nevada County, California caregivers have access to career planning services, cash stipends, and childcare, health, or other benefits and vans bring on-site child development training to family childcare homes and interns to childcare centers (Bodenhorn & Reidy Kelch, 2001). As London, Scott, Edin, and Hunter (2004) note:

> If women's increased absence from the home is not compensated for in ways that are beneficial to children (e.g., high quality child care) then we might expect any potential gains for children [accruing from mothers' increased self-esteem and decreased depression related to work] to be short-lived. (p. 156)

A next step may be an intervention study design to increase workplace flexibility and support to see if mothers subsequently choose childcare providers that provide higher childcare quality. Hsueh (2007) makes a number of recommendations to promote flexibility that may be part of an intervention: (1) increase employer-sponsored programs, such as flextime, that allow workers discretion over their start and end times; (2) provide benefits, such as sick and vacation days, which allow parents to care for their sick children; (3) offer split shifts; and (4) promote self-employment.

Although this study has important implications for social policy and practice, the findings should be considered in relation to its limitations. This study was restricted to examining conditions of maternal work as there were too few dual-earner families within the sample. Understanding how the work characteristics of both parents in dual-earner families are related to childcare would also be valuable. The findings are also limited in their generalizability as the sample was drawn from rural communities in two US states and was not a national sample. The relationship between maternal work conditions and childcare may differ in other rural regions of the USA and other countries.

This study provided some much needed information on the relationship between maternal work conditions and childcare type and quality in rural communities with a reasonably large sample. This topic has been so often neglected in the research literature. This is a starting point, and more research is needed, particularly with low-income populations to assess how families choose childcare arrangements to accommodate their challenging work situations. Although our measure of geographic isolation proved not to be related to type or quality

here, it was operationalized simply in terms of distance. It would be useful to have data on commute time, transportation, and reliability of transportation in future studies. Further, future research utilizing longitudinal data, such as the Family Life Project, might assess whether as mothers move into higher quality jobs, potentially characterized by higher wages, more support, and less hazardous conditions, they, in turn, move their children into higher quality childcare arrangements. Moreover, qualitative research into rural parents' childcare searches and the tradeoffs they face when making childcare choices would be a valuable addition to the urban-focused research that already exists in this area. It is only by better understanding the challenges and strengths that exist for working parents in rural communities that we can better craft social policy and tailor programs and services to address the concerns of families in need.

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References

Aiken, LS.; West, SG. Multiple regression: Testing and interpreting interactions. Newberry Park, CA: Sage; 1991.

Arnett J. Caregivers in day-care centers: Does training matter? Journal of Applied Developmental Psychology 1989;10:541–552.

Bodenhorn KA, Reidy Kelch D. Reports from the field: Implementation of California's Children and Families First Act of 1998. The Future of Children 2001 Spring–Summer;11:151–157.

Bond, JT.; Galinsky, E.; Swanberg, JE. The 1997 National Study of the Changing Workforce. New York: Families and Work Institute; 1998.

Bradley, RH. The HOME Inventory: Review and reflections. In: Reese, HW., editor. Advances in child behavior and development. Vol. 25. Orlando, FL: Academic Press; 1994. p. 241-288.

Bradley RH, Caldwell BM. Using the HOME Inventory to assess the family environment. Pediatric Nursing 1988;14:97–102. [PubMed: 3353146]

Brooks-Gunn J, Han W, Waldfogel J. Maternal employment and child cognitive outcomes in the first three years of life: The NICHD Study of Early Child Care. Child Development 2002;73:1052–1072. [PubMed: 12146733]

Caldwell, BM.; Bradley, RH. Home observation for measurement of the environment. Little Rock: University of Arkansas at Little Rock; 1984.

Caughy MO, DiPietro JA, Strobino DM. Day-care participation as a protective factor in the cognitive development of low-income children. Child Development 1994;65:457–471. [PubMed: 8013234]

Clayton, B.; Blom, K.; Bateman, A.; Carden, P. What works where you are? The implementation of training packages in rural Australia. Adelaide: Australia National Training Authority; 2004. Retrieved July 15, 2008, from http://www.ncver.edu.au

Cohen, J.; Cohen, P.; West, SG.; Aiken, LS. Applied multiple regression/correlation analysis for the behavioral sciences. 3. Mahwah, NJ: Lawrence Erlbaum Associates; 2003.

Colker, LJ.; Dewees, S. Child care for welfare participants in rural areas. Calverton, MD: Macro International, Inc; 2000.

Crouter AC, Lanza S, Pirretti A, Goodman B, Neebe E. The O*Net jobs classification system: A primer for family researchers. Family Relations 2006;55(4):461–472.

Early DM, Burchinal M. Early childhood care: Relations with family characteristics and preferred care characteristics. Early Childhood Research Quarterly 2001;16:475–497.

Ehrle, J.; Adams, G.; Tout, K. Who's caring for our youngest children: Child care patterns of infants and toddlers. 2001. Retrieved November 17, 2004, from http://newfederalism@urban.org

Ghazvini, AS.; Mullis, AK.; Mullis, RL.; Park, JJ. Child care issues impacting welfare reform in the rural South. Mississippi State: Southern Rural Development Center; 1999.

Gibbs R. Nonmetro labor markets in the era of welfare reform. Rural America 2001 Fall;16:11–21.

Glass JL, Estes SB. The family responsive workplace. Annual Review of Sociology 1997;23:289–313.

Greenberger E, Goldberg WA, Hamill S, O'Neil R, Payne CK. Contributions of a supportive work environment to parents' well-being and orientation to work. American Journal of Community Psychology 1989;17:755–783. [PubMed: 2636538]

Halle, T.; Hair, E.; Terry-Humen, E.; Zaslow, M.; Pitzer, L.; Lavelle, B., et al. The effect of type and extent of child care on low-income children's outcomes in kindergarten, first, and third grades. Paper presented at the Society for Research on Child Development Conference; Atlanta, GA. 2005 Apr 9.

Halpern DF. How organizations can alleviate the traffic jam at the intersection of work and family. American Behavioral Scientist 2006;49:1147–1151.

Han WJ. Nonstandard work schedules and child care decisions: Evidence from the NICHD Study of Early Child Care. Early Childhood Research Quarterly 2004;19:231–256.

Hayes, C.; Palmer, J.; Zaslow, M. Who cares for America's children?. Washington, DC: National Academy Press; 1991.

Helburn SW, Howes C. Child care cost and quality. The Future of Children 1996;6:62–82. [PubMed: 8972128]

Hill JE, Grzywacz JG, Allen S, Blanchard VL, Matz-Costa C, Shulkin S, et al. Defining and conceptualizing workplace flexibility. Community, Work & Family 2008;11:149–163.

Honig, AS. Choosing child care for young children. In: Bornstein, MH., editor. Handbook of parenting. 2. Vol. 5. Mahwah, NJ: Lawrence Erlbaum Associates; 2002. p. 375-405.

Honig AS, Hirallal A. Which counts more for excellence in childcare staff – Years in service, education level or ECE coursework? Early Child Development and Care 1998;145:31–46.

Howes C, Phillips DA, Whitebook M. Thresholds of quality: Implications for the social development or children in center-based child care. Child Development 1992;63:449–460. [PubMed: 1611946]

Hsueh, J. Mothers at work in a 24/7 economy: Exploring implications for family and child well-being. In: Yoshikawa, H.; Weisner, TS.; Lowe, ED., editors. Making it work: Low-wage employment, family life, and child development. New York: Russell Sage Foundation; 2007. p. 97-123.

Johnson, LR.; Pai, SA.; Bridges, M. Advancing the early childhood workforce: Implementation of training and retention initiatives in the Bay Area. Berkeley, CA: PACE; 2004. (Policy Brief 04-1)

Kanter, RM. Work and family in the United States: A critical review and agenda for research and policy. New York: Russell Sage Foundation; 1977.

Keefer PB, Monroe PA, Atkinson ES, Garrison ME. Child care as an impediment to rural women's labor force participation. Family Perspectives 1996;30:257–274.

Kisker, E.; Hofferth, SL.; Phillips, DA.; Farquhar, E. A profile of child care settings: Early education and care in 1990. Washington, DC: US Department of Education; 1991.

Kohn, ML. Class and conformity: A study in values. Chicago: University of Chicago Press; 1977.

Langford BH, Gilbert M. Financing transportation services to support out-of-school time and community school initiatives. The Finance Project Strategy Brief 2001;2:1–12.

Loeb S, Fuller B, Kagan SL, Carrol B. Child care in poor communities: Early learning effects of type, quality, and stability. Child Development 2004;75:47–65. [PubMed: 15015674]

London AS, Scott EK, Edin K, Hunter V. Welfare reform, work–family tradeoffs, and child well-being. Family Relations 2004;53:148–158.

Martens MFJ, Nijhuis FJN, Van Boxtel MPJ, Knottnerus JA. Flexible work schedules and mental and physical health. A study of a working population with non-traditional working hours. Journal of Organizational Behavior 1999;20:35–46.

Moos RH, Moos BS. Adaptation and the quality of life in work and family settings. Journal of Community Psychology 1983;11:158–170. [PubMed: 10263341]

Myers JE, Gill CS. Poor, rural and female: Understudied, undercounseled, more at-risk. Journal of Mental Health Counseling 2004;26:225–248.

National Institute of Child Health and Development. Child care structure, process, outcome: Direct and indirect effects of child care quality on young children's development. Psychological Science 2002;13:199–206. [PubMed: 12009038]

National Institute of Child Health and Development. Type of child care and children's development at 54 months. Early Childhood Research Quarterly 2004;19:203–230.

National Institute of Child Health and Development. Child-care effect sizes for the NICHD Study of Early Child Care and Youth Development. American Psychologist 2006;61:99–116. [PubMed: 16478355]

Duncan GJ. National Institute of Child Health and Development. Modeling the impact of child care quality on children's preschool cognitive development. Child Development 2003;74:1454–1475. [PubMed: 14552408]

Parcel TL, Menaghan EG. Maternal working conditions and children's verbal facility: Studying the intergenerational transmission of inequality from mothers to young children. Social Psychology Quarterly 1990;53:132–147.

Peisner-Feinberg, ES.; Burchinal, MR.; Clifford, RM.; Yazejian, N.; Culkin, ML.; Zelazo, J., et al. The children of the cost, quality, and outcomes study go to school – Executive summary. Chapel Hill, NC: Frank Porter Graham Child Development Center; 1999.

Pierrehumbert B, Ramstein T, Karmaniola A, Miljkovitch R, Halfon O. Quality of child care in the preschool years: A comparison of the influence of home care and day care characteristics on child outcome. International Journal of Behavioral Development 2002;26:385–396.

Presser, HB. Working in a 24/7 economy: Challenges for American families. New York: Russell Sage Foundation; 2003. p. 267

Presser HB, Cox AG. The work schedules of low-educated American women and welfare reform. Monthly Labor Review 1997;120:25–34.

Pungello EP, Kurtz-Costes B. Why and how working women choose child care: A review with a focus on infancy. Developmental Review 1999;19:31–96.

Riley LA, Glass JL. You can't always get what you want: Infant care preferences and use among employed mothers. Journal of Marriage and Family 2002;64:2–15.

Roxburgh S. Gender differences in work and well-being: Effects of exposure and vulnerability. Journal of Health and Social Behavior 1996;37:265–277. [PubMed: 8898497]

Scarr S, Eisenberg M. Child care research: Issues, perspectives, and results. Annual Review of Psychology 1993;44:613–644.

Scott EK, London AS, Hurst A. Instability in patchworks of child care when moving from welfare to work. Journal of Marriage and Family 2005;67:370–386.

Smith, K. Rural families choose home-based child care for their preschool-aged children. Durham, NH: Carsey Institute; 2006 Spring. (Policy Brief No. 3)

Snyder AR, McLaughlin DK. Female-headed families and poverty in rural America. Rural Sociology 2004;69:127–149.

Struthers CB, Bokemeier JL. Myths and realities of raising children and creating family life in a rural county. Journal of Family Issues 2000;21:17–46.

US Census Bureau. 2005 American Community Survey: United States Employment Status. Washington, DC: US Census Bureau; 2005. Retrieved August 15, 2007, from http://factfinder.census.gov

Walker SK, Reschke KL. Child care use by low-income families in rural areas: A contemporary look at the influence of women's work and partner availability. Journal of Children and Poverty 2004;10:149–167.

Whitener, LA.; Duncan, GJ.; Weber, BA. Reforming welfare: What does it mean for rural areas?. Washington, DC: United States Department of Agriculture; 2002. (Food Assistance and Nutrition Research Report No. 26-4)

Yoshikawa, H.; Lowe, ED.; Bos, JM.; Weisner, TS.; Nikulina, V.; Hsueh, J. Do pathways through low-wage work matter for children's development?. In: Yoshikawa, H.; Weisner, TS.; Lowe, ED., editors. Making it work: Low-wage employment, family life, and child development. New York: Russell Sage Foundation; 2007. p. 54-74.

Zimmerman, JN.; Hirschl, TA. Welfare reform in rural areas: A voyage through uncharted waters. In: Brown, DL.; Swanson, LE.; Barton, AW., editors. Challenges for rural America in the twenty-first century. University Park: The Pennsylvania State University Press; 2003. p. 363-374.

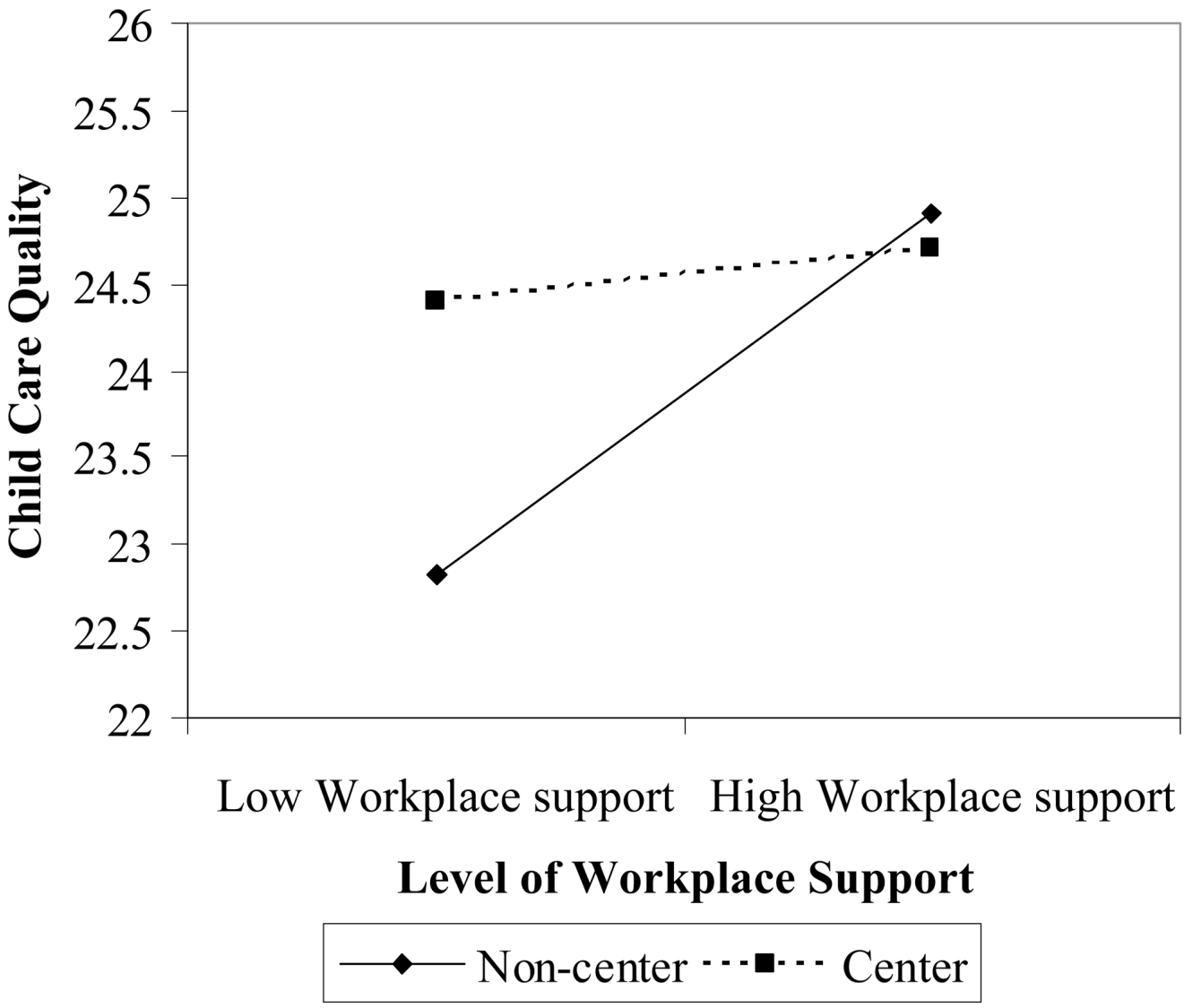

Figure 1.
Quality of childcare as a function of supportive workplace and childcare type.

Table 1

Descriptive statistics and correlations between family and work characteristics and childcare type and quality.

Characteristic	Descriptive statistics M (SD) or % (*N*)	Correlation with childcare type	Correlation with childcare quality
Maternal age	27.9 years (5.7)	−0.08†	0.13*
Marital status	54.6% (272) Married		
	33.3% (166) Single		
	12.1% (60) Cohabiting		
State	62.8% (313) NC	0.25**	−0.11*
	37.2% (185) PA		
Race/ethnicity	52.6% (262) White	−0.17**	0.26**
	47.4% (236) Black		
Education	8.6% (43) HS or below		
	34.5% (172) HS/GED		
	56.8% (283) Some college+		
Number of children	2.11 (1.12)	0.01	−0.12*
Child gender	45.4% (226) Female	0.10*	0.12*
Geographic isolation	8.39 (0.73)	−0.05	0.09
Supportive workplace	0.0001 (0.83)	−0.05	0.23**
Self-direction	46.33 (13.73)	−0.002	0.17**
Hazardous physical conditions	21.07 (11.16)	−0.13**	−0.08
Care work	42.51 (18.45)	0.07	0.07
Maternal pay	$1954.05 ($1436.35)	0.02	0.21***
Total hours worked/week	36.31 (9.76)	0.07	−0.01
Shift	65.5% (326) Day	0.10*	0.06
Childcare type	43.3% (215) Center		0.11*
Childcare quality (HOME)	24.78 (2.68)	0.11*	

* $p < 0.05$,

** $p < 0.01$,

*** $p < 0.001$,

† $p < 0.10$.

Table 2

Summary of hierarchical logistic regression predicting childcare center use (N = 441).

	Model 1			Model 2		
Predictor	***B***	**SE**	**OR**	***B***	**SE**	**OR**
Maternal age	−0.04	0.02	0.96†	−0.07	0.03	0.94*
Marital status						
Cohabiting	0.05	0.35	1.05	0.24	0.36	1.27
Single	0.29	0.27	1.34	0.44	0.29	1.56
State	0.94	0.29	2.56**	0.97	0.30	2.64**
Race/ethnicity	−0.03	0.29	0.97	−0.09	0.31	0.91
Education						
Less than high school	−1.76	0.51	0.17**	−1.76	0.53	0.17**
HS grad/GED	−0.30	0.24	0.74	−0.27	0.26	0.76
Number of children	0.02	0.10	1.02	0.06	0.11	1.06
Geographic isolation	−0.11	0.15	0.89	−0.10	0.15	0.90
Child gender	0.28	0.21	1.33	0.27	0.21	1.31
Self-direction				−0.01	0.01	0.99
Hazardous conditions				−0.03	0.01	0.97**
Care work				0.003	0.01	1.00
Maternal pay				0.0001	0.0001	1.00
Hours worked/week				0.01	0.01	1.01
Shift						
Night shift				−0.89	0.33	0.41**
Other shift				−0.06	0.30	0.94
Supportive workplace				−0.14	0.13	0.87
X^2		44.84***			20.20**	
df		10			8	

Note: Black, married, some college or more, Pennsylvania, male, and day shift are the reference categories.

* $p < 0.05$,

** $p < 0.01$,

$^{***}p < 0.001$,

$^{\dagger}p < 0.10$.

Table 3

Summary of hierarchical OLS regression analysis predicting childcare quality (N = 315).

	Model 1			Model 2			Model 3		
Predictor	***B***	**SE**	***β***	***B***	**SE**	***β***	***B***	**SE**	***β***
Maternal age	0.01	0.03	0.01	−0.01	0.03	−0.01	−0.0005	0.03	−0.001
Marital status									
Cohabiting	−0.01	0.49	−0.001	0.08	0.49	0.01	−0.003	0.49	−0.0003
Single	0.22	0.40	0.04	0.46	0.40	0.08	0.36	0.40	0.06
State	−0.18	0.43	−0.03	−0.19	0.43	−0.03	−0.14	0.42	−0.02
Race/ethnicity	1.20	0.42	0.22**	0.87	0.43	0.16*	0.86	0.42	0.16*
Education									
Less than high school	−1.07	0.67	−0.09	−0.93	0.67	−0.08	−0.88	0.66	−0.08
High school diploma/GED	−0.77	0.34	−0.14*	−0.30	0.35	−0.05	−0.27	0.35	−0.05
Number of children	−0.15	0.15	−0.06	−0.16	0.15	−0.06	−0.16	0.14	−0.06
Geographic isolation	0.20	0.21	0.05	0.21	0.21	0.06	0.21	0.21	0.06
Child gender	0.58	0.30	0.11†	0.51	0.30	0.09†	0.46	0.29	0.09
Childcare center	0.71	0.32	0.13*	0.66	0.32	0.12*	0.70	0.31	0.13*
Self-direction				0.01	0.01	0.05	0.01	0.01	0.05
Hazardous conditions				−0.002	0.01	−0.01	−0.001	0.01	−0.004
Care work				0.01	0.01	0.03	0.01	0.01	0.03
Maternal pay				0.0003	0.0001	0.15*	0.0003	0.0001	0.14*
Hours worked/week				−0.02	0.02	−0.06	−0.02	0.02	−0.06
Shift									
Night shift				0.20	0.46	0.03	0.24	0.46	0.03
Other shift				−0.01	0.40	−0.001	−0.05	0.40	−0.01
Supportive workplace				0.68	0.19	0.21***	1.04	0.23	0.32***
Supportive workplace* Type							−0.88	0.36	−0.17*
R^2		0.12			0.18			0.19	
F for change in R^2		3.60***			2.74**			6.18*	

Note: Black, married, some college or more, Pennsylvania, male, and day shift are the reference categories.

$^{*}p < 0.05$,

$^{**}p < 0.01$,

$^{***}p < 0.001$,

$^{\dagger}p < 0.10$.