



Are mothers' work-to-family conflict, school involvement, and work status related to academic achievement?

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Abstract

This study investigates a moderated mediational model whereby maternal involvement in schooling mediates the association between maternal work-to-family conflict and children's academic achievement in early adolescence, and socioeconomic contexts interact with maternal work status to moderate this association. Participants reflect a subsample of 725 fifth graders (and their employed mothers and teachers) from the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development Study of Early Child Care and Youth Development (NICHD SECCYD). Of the children in this subsample, 49.4% were female and 79.7% were White, non-hispanic. On average mothers completed 14.7 years of education ($SD = 2.4$), with 75.4% of mothers completing more than a high school education. Multi-group analyses in SEM using *Mplus* 7.4 tested whether maternal work status would interact with core socioeconomic contexts (e.g., maternal education, child race, marital status, poverty status, work schedule, and number of children in the home) to moderate the relationship between maternal work-to-family conflict, maternal involvement in school, and academic outcomes. Results revealed partial mediation between maternal work-to-family conflict and achievement through maternal involvement in school. Our hypothesis that maternal work status would interact with other core socioeconomic contexts to moderate the relationship between maternal work-to-family conflict, maternal involvement in school, and academic outcomes was supported. We conclude that mothers' involvement in school may be an important way in which negative outcomes of work-to-family conflict may be minimized. We also highlight the importance of situating maternal employment in a larger familial and socioeconomic context.

Keywords maternal employment · work-family conflict · parent school involvement · academic achievement · grades · part-time employment

Introduction

In the last several decades the incidence of paid work among mothers has increased (U.S. Department of Labor, Bureau of Labor Statistics 2011). In 1975, 47.4% of U.S. mothers participated in the labor force. By 2016, this number had increased to 70.6% of mothers with children under age 18 working or looking for paid work (U.S. Department of Labor, Bureau of Labor Statistics 2017). Levels of work-family conflict also significantly increased

between 1977 and 1997 (Nomaguchi 2009). In light of these trends, researchers have tried to understand the effect of maternal employment on children's academic achievement (Goldberg et al. 2008), with some evidence that maternal employment hours may impact maternal involvement in children's schooling (Buehler and O'Brien 2011) and further evidence supporting the important role maternal school involvement plays in children's academic success (Fan and Chen 2001).

By looking at maternal work hours alone, however, researchers may be missing an important aspect of the way the work-family interface impacts children. More research on employment-related factors that may spillover into family life and impact child development is needed (Brooks-Gunn et al. 2010). Other employment-related factors that may be relevant to children's academic achievement include a mother's work-to-family conflict (Allen et al. 2000), her involvement in school (Youn et al. 2012),

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her employment status (Buehler et al. 2011; Hill et al. 2004), and the socioeconomic contexts in which she and her family are developing (Goldberg et al. 2008). For example, higher work-to-family conflict may reduce a mother's involvement in her child's school, which may also reduce her child's academic achievement. A mother's employment status (e.g., full-time vs. part-time) and other socioeconomic contexts (e.g., maternal education, child race, family structure, poverty status, and maternal work schedules) may moderate these processes, providing opportunities for some and risks for others. By investigating maternal employment in context, scholars may better understand associations between the work-family interface and children's academic success.

Two theories informed this research: ecological systems theory and role theory. According to ecological systems theory, individuals develop within the context of several environmental systems including the microsystem, mesosystem, exosystem, macrosystem, and chronosystem (Bronfenbrenner 1986). In the case of the work-family interface, parents' work environments and the family are each part of systems affecting children's development. This perspective suggests that a parent's work—an exosystem—affects child development through its influence on family processes (Bronfenbrenner 1986). In other words, the experiences parents have at work are likely to impact their interactions with children at home, impacting child development. Additionally, this perspective suggests that parental involvement in school links home and school life forming a mesosystem.

According to Bronfenbrenner, processes that occur within the home, workplace, and school also occur within a broader socioeconomic context called a macrosystem. This macrosystem encompasses any group whose members “share resources, hazards, lifestyles, opportunity structures, life course options, and patterns of social interchange” (1993, p. 23). Thus, poverty status, race, education, family structure, and other such features comprise resources, opportunities, and/or risks that continue to impact the developing child. Consistent with these theoretical premises, scholars conducted a meta-analysis covering 45 years of research and found evidence that children whose mothers work part-time tend to have higher achievement outcomes compared to children whose mothers work full-time (Goldberg et al. 2008). They further discovered that family structure, race/ethnicity, and socioeconomic status were important moderators of associations between maternal employment and child academic outcomes, emphasizing the importance of social context (as Bronfenbrenner suggested) in understanding work-family linkages.

To further enhance the understanding of employment related factors that spillover into family life, scholars may also combine ecological systems theory with role theory. Role theory posits that individuals experience conflict and

stress as they attempt to meet the demands of multiple roles (Goode 1960). Ultimately, time spent fulfilling the duties of one role takes away from the time available for another, and stressors associated with one role negatively impact performance in another (Greenhaus and Beutell 1985). In the case of working parents, time spent on paid work is time away from family and household responsibilities; additionally, stress created at work affects interactions at home and vice versa. Consistent with role theory, in a review of the literature on cognitive and socioemotional outcomes for children of mothers with various work statuses (Buehler et al. 2011), few differences were found in child achievement outcomes when comparing non-employment and part-time employment in mothers; however, maternal full-time employment had more negative outcomes for children (Buehler et al. 2011; Goldberg et al. 2008). The authors concluded that part-time work arrangements may be an adaptive solution whereby mothers can gain some economic benefit while at the same time achieving more time for family and personal activities (Buehler et al. 2011). Such work arrangements may help reduce mothers' work-to-family conflict, increasing their ability to be involved in their children's education (Hill et al. 2004).

Role strain theory might further suggest that the relationship between maternal employment and child outcomes can be better explained by work-to-family conflict than by studying maternal work hours or work status alone. Heightened work-to-family conflict may exacerbate role strains for some mothers, spilling over into their parenting and subsequent child outcomes. Other mothers may not experience much work-to-family conflict, meaning the employment experience may have little effect on a mother's role when work-to-family conflict is low or absent (Allen et al. 2000). Nonstandard work schedules may contribute to greater role conflict demands as well due to less consistency in scheduling, and a greater likelihood that parents will have to work nights and weekends (Presser 2003). Nonstandard parental work has been associated with poorer mental health, increased behavior problems, poorer cognitive development, and greater obesity among children (see Li et al. 2014 for review).

Another possible mechanism by which maternal employment and work-to-family conflict may affect child academic outcomes is through maternal involvement in schooling (Youn et al. 2012). Mothers experiencing role strain, particularly those in full-time work arrangements, may lack the time and energy needed to be fully involved in their children's schooling. Those who experience high levels of role strain may struggle to communicate with their children's teachers, to spend time volunteering at school, to encourage positive attitudes towards education in their children, or to be involved in parent-teacher conferences. Maternal work hours have been associated with school

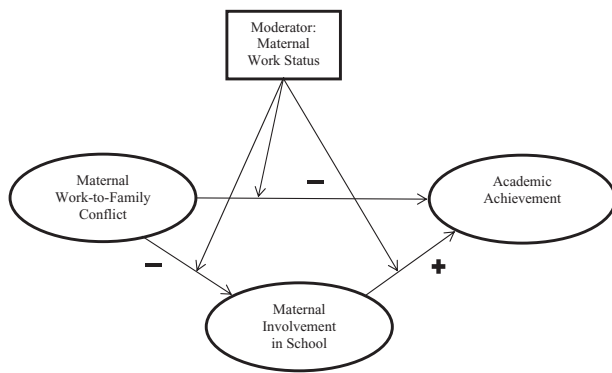


Fig. 1 Conceptual model, Showing the mediation of maternal work-to-family conflict and child academic achievement by maternal involvement in school. Also showing moderational process of maternal work status. These illustrated moderational processes are consistent with the moderational processes between work status and socioeconomic contexts also tested (i.e. maternal education, child race, marital status, poverty status, work schedule, and number of children in the home)

involvement (Buehler and O'Brien 2011; Muller 1995), suggesting that part-time employment may facilitate maternal school involvement, while full-time employment may reduce it. Multiple studies have also established a link between parental school involvement and academic outcomes (Hill and Tyson 2009; Jeynes 2005). Additionally, when scholars investigated the relationship between maternal work hours, parental involvement in school, and students' learning growth in school, they discovered that full-time employment was associated with lower rates of school involvement, which negatively impacted learning growth in math and science (Youn et al. 2012). Taken together, these studies establish a relationship between maternal work hours, school involvement, and child academic outcomes.

Finally, in an ecological systems framework, one must not ignore previously established interactions between work status and other features of social context. For example, Goldberg et al. (2008) concluded that the results of their meta-analysis “underscore the need to place maternal employment in a larger familial and social context” (p. 99). In their longitudinal exploration of the effects of maternal employment on children's development using the first two phases of SECCYD data, Brooks-Gunn et al. (2010) concurred that the longitudinal effects of maternal employment differed not only by maternal work status, but also by race. They further emphasized the need to explore interactions between maternal work status and maternal education, maternal marital status, and the family's poverty status. While race, education, marital status, and income are well-known socioeconomic contexts that impact families (see for example Bradley and Corwyn 2002), research linking parental work schedules with work-to-family conflict, maternal school involvement, and children's academic outcomes is still relatively new. Those who have studied parental work

schedules suggest that variability in the work schedule including daytimes, evenings, and weekends, may interact with maternal work status to impact the experience of work-to-family conflict (Presser 2003), and may also impact children's outcomes (Li et al. 2014).

The aim of the present study is to investigate the relationship between work-to-family conflict, maternal involvement in school, and academic achievement in early adolescence. Further, this study aims to test whether maternal work status (part-time versus full-time) moderates the effects of these variables. Based on established theory and literature, this study hypothesizes a moderated mediational model (see Fig. 1) whereby work-to-family conflict will be negatively associated with early adolescents' academic achievement outcomes; the relationship between work-to-family conflict and early adolescents' academic achievement outcomes will be mediated by maternal school involvement; and work status (part-time versus full-time) will moderate the relationships between maternal work-to-family conflict, maternal school involvement, and early adolescents' academic outcomes.

Method

Participants

The sample for this study was a subset of the larger sample in the longitudinal *Eunice Kennedy Shriver* National Institute of Child Health and Human Development Study of Early Child Care and Youth Development (NICHD SECCYD). Researchers recruited participants from 31 hospitals in 10 geographic locations around the United States. Recruitment resulted in a sample of 1,364 healthy infants and their families. The sampling plan and selection are described in more detail in NICHD Early Child Care Research Network (1997). These participants were demographically similar to the families in the catchment areas though the sample was not representative of the overall United States population (see NICHD Early Child Care Research Network 2001 for a more complete description of sampling procedures). For the purposes of this paper, the sample was restricted to children whose mothers were working ($n = 725$). Of the children in this subsample, 49.4% were female and 79.7% were White, non-Hispanic. On average mothers completed 14.7 years of education ($SD = 2.4$), with 75.4% of mothers completing more than a high school education (See Table 1).

Procedure

The NICHD SECCYD data were collected across four phases that spanned the birth of the child until the child's

Table 1 Means, Standard Deviations, and Factor Loadings for All Measured Variables for Full Sample

	Mean or %	SD or <i>n</i>	Factor loadings
<i>Latent Variables</i>			
<i>Maternal Work-to-Family Conflict</i>			
Creates strains for your children	1.81	.74	.71
Leaves you with too little time	1.93	.92	.84
Causes you to miss out on rewarding aspects	1.95	.91	.76
Leaves you with too little energy	1.92	.89	.88
Have to miss out on home or family activities	1.76	.88	.71
Family time is less enjoyable and more pressured	1.67	.83	.75
<i>Maternal Involvement in School</i>			
Can talk to and be heard by this parent	3.98	1.00	.68
Parent has the same goals for child as school	4.13	.99	.79
Encourages positive attitude toward education	3.81	1.17	.87
Parent volunteers or visits at school	2.50	1.31	.61
Involved in child's education and school life	3.73	1.17	.92
<i>Academic Achievement</i>			
Reading	3.60	1.10	.87
Oral language	3.63	.97	.87
Written language	3.36	1.07	.85
Math	3.50	1.07	.84
Science	3.57	.93	.88
Social studies	3.55	.94	.87
<i>Socioeconomic Context Variables</i>			
<i>Child Gender</i>			
Male	50.6	367	
Female	49.4	358	
<i>Child Race</i>			
White non-Hispanic	79.7	578	
Other	20.3	147	
<i>Maternal Education</i>			
College graduate	41.1	298	
Not a college graduate	58.9	427	
<i>Family Income-to-Needs Ratio</i>			
Above poverty threshold	82.7	575	
Below poverty threshold	17.3	120	
<i>Marital Status</i>			
Married or partnered	83.7	607	
Single	16.3	118	
<i>Work Schedule</i>			
Daytime	66.1	479	

Table 1 (continued)

	Mean or %	SD or <i>n</i>	Factor loadings
Variable (including evenings and weekends)	33.9	246	
Number of Children in the Home	2.4	.94	
≤2 Children	62.8	455	
≥3 Children	37.2	270	

n = 725 with 490 (67.6%) mothers working full-time and 235 (32.4%) mothers working part-time

9th grade year in school (e.g., Phase I: birth-age 3; Phase II: 54 months-1st grade; Phase III: 2nd-6th grades; Phase IV: 7th through 9th grades). Data were collected and analyzed by a network of scholars who identified themselves as the NICHD Early Child Care Research Network. Procedures included in-home visits, child-care site visits, observation in a laboratory playroom, and reports from caregivers, parents, and teachers on a variety of ecological characteristics relevant to child development. Originally, this comprehensive, longitudinal project was funded to explore associations between childcare characteristics, childcare experiences, and children's development. The current study uses data from Phase III because this is where maternal work-to-family conflict and maternal school involvement data were available to test our hypotheses. (Please consult this website for an overview of the study: <https://www.nichd.nih.gov/research/supported/seccyd/overview>).

Measures

The key measures in this study were maternal work-to-family conflict, maternal involvement in school, child academic achievement outcomes, and maternal work status. All measures were taken at the fifth grade mark except maternal education, which was only available when the study children were one month old.

Maternal work-to-family conflict

Mothers completed a questionnaire adapted from Marshall and Barnett (1993) measuring the strains and gains associated with combining work and family. A latent construct was created representing work-to-family conflict using six items including, "Your working creates strains for your children," "Working leaves you with too little time to be the kind of parent you want to be," "Working causes you to miss out on some of the rewarding aspects of being a parent," "Working leaves you with too little energy to be the kind of parent you want to be," "Because of the

requirements of your job(s), you have to miss out on home or family activities that you would prefer to participate in,” and “Because of the requirements of your job(s), your family time is less enjoyable and more pressured.” Mothers responded on a four-point Likert-type scale ranging from 1 (not at all true) to 4 (very true), with higher scores indicating a higher level of maternal work-to-family conflict. Using factor analysis, items loaded appropriately, with scores ranging from .71 to .88.

Child academic outcomes

Teachers completed a “mock” report card assessing how children were doing in school. Teachers responded on a five-point scale (1 = “Below Grade Level to 5 = “Excellent”) indicating how children were performing in six subject areas: reading, oral language, written language, math, science, and social studies. A latent construct was created using all six subject areas. Factor analysis of these items indicated appropriate factor loadings for all six items (loadings range from .84 to .88).

Potential mediator: maternal involvement in school

Teachers completed the ten-item Parent-Teacher Involvement Questionnaire (Miller-Johnson et al. 1995) assessing how involved parents were in the child’s education and schooling. A latent construct was created using five items based on factor analysis and correlational analyses. Items included, “How well do you feel you can talk to and be heard by this parent,” “How much do you feel this parent has the same goals for his/her child that the school does,” “To the best of your knowledge, how much does this parent do things to encourage this child’s positive attitude toward education (e.g., take him/her to the library, play games to teach the child new things, read to him/her, help him/her make up work after being absent),” “How often does this parent volunteer or visit at school,” and “How involved is this parent in his/her child’s education and school life?” Teachers responded on a five-point Likert-type scale ranging from 1 (not at all) to 5 (a great deal), with higher scores indicating a higher level of school involvement. Factor analysis revealed appropriate factor loadings for each item (loadings range .61 to .92).

Potential moderator: maternal work status

As part of an interview relating to mothers’ employment, mothers responded to a question asking if they would call their primary job part-time or full-time. Of the subsample, 490 mothers worked full-time and 235 mothers worked part-time (See Table 2). Self-reported work status was used as there is evidence that part-time versus full-time work

status designations vary between occupational fields and do not rely solely upon the number of hours worked. For example, some professional and managerial positions consider 40-hour workweeks to be part-time employment (Williams and Boushey 2010).

Potential moderators: socioeconomic context

The other potential moderators explored in this study include maternal education, child race, maternal marital status, family income-to-needs ratio, maternal work schedule, and number of children in the home. (See Table 1 for descriptives.) Family income-to-needs ratio was calculated by dividing the total family income by the poverty threshold based on family size. Maternal work schedule was reported by mothers and accounts for variability in the work schedule including work during the day, evenings, and week-ends. Mothers also reported the number of children in the home. Child race, and mother’s education were collected when the child was one month. Mother’s marital status, family income-to-needs ratio, maternal work schedule, and number of children in the home were collected when the child was in fifth grade. These variables were chosen because they have been established as important correlates of the primary study variables in prior research (e.g., Brooks-Gunn et al. 2010; Buehler and O’Brien 2011).

To test the interaction between maternal work status and socioeconomic contexts, we created dummy coded variables combining maternal work status with each moderator listed above. For example, we created a dummy-coded variable for maternal education and combined it with maternal work status to create four distinct groups: mothers with a college degree who work full-time, mothers without a college degree who work full-time, mothers with a college degree who work part-time, and mothers without a college degree who work part-time. Descriptions of each of these grouping variables are noted on Tables 3–8.

Data Analyses

Data for this study were analyzed using Mplus, Version 7.4 (Muthén and Muthén 2012). Structural equation modeling (SEM) was beneficial because it allowed a test and refinement of the theoretical model, modeled measurement error, and distinguished between direct and indirect relationships in the model (Kline 2011). As recommended in the structural equation modeling literature (MacKinnon 2008; Preacher and Hayes 2008), mediation was examined by testing the indirect effects in the model using bias-corrected bootstrap analysis. Confidence limits were estimated on the basis of 2,000 bootstrap samples. Bias-corrected bootstrapping analyses for mediation allow the decomposition of direct, indirect, and total effects, and provide adjusted

Table 2 Means, standard deviations, and factor loadings for all measured variables by work status

	Mean or % FT (PT)	SD or <i>n</i> FT (PT)	Factor loadings FT (PT)
<i>Latent Variables</i>			
Maternal Work-to-Family Conflict			
Creates strains for your children	1.87** (1.70)	.76 (.69)	.70 (.76)
Leaves you with too little time	2.11*** (1.56)	.93 (.77)	.83 (.82)
Causes you to miss out on rewarding aspects	2.13*** (1.59)	.92 (.78)	.74 (.76)
Leaves you with too little energy	2.05*** (1.65)	.91 (.77)	.87 (.90)
Have to miss out on home or family activities	1.87*** (1.53)	.93 (.74)	.70 (.65)
Family time is less enjoyable and more pressured	1.75*** (1.50)	.86 (.72)	.75 (.72)
Maternal Involvement in School			
Can talk to and be heard by this parent	3.90** (4.16)	1.03 (.93)	.69 (.66)
Parent has the same goals for child as school	4.08* (4.25)	1.01 (.94)	.82 (.75)
Encourages positive attitude toward education	3.68*** (4.07)	1.19 (1.08)	.88 (.84)
Parent volunteers or visits at school	2.28*** (2.97)	1.21 (1.38)	.59 (.61)
Involved in child's education and school life	3.58*** (4.04)	1.16 (1.11)	.90 (.94)
Academic Achievement			
Reading	3.49*** (3.85)	1.13 (1.00)	.86 (.89)
Oral language	3.58* (3.75)	.99 (.93)	.87 (.87)
Written language	3.27** (3.53)	1.10 (1.01)	.85 (.85)
Math	3.43** (3.66)	1.11 (.98)	.86 (.79)
Science	3.52* (3.70)	.95 (.87)	.89 (.83)
Social studies	3.47** (3.71)	.96 (.88)	.89 (.86)
<i>Socioeconomic Context Variables</i>			
Child Gender			
Male	52.4 ^{NS} (46.8)	257 (110)	
Female	47.6 ^{NS} (53.2)	233 (125)	
Child Ethnicity			
White non-Hispanic	76.3** (86.8)	374 (204)	
Other	23.7** (13.2)	116 (31)	
Maternal Education			
College graduate	14.5** (15.0)	2.45 (2.12)	
Not a college graduate	25.2*** (15.9)	183 (115)	
Family Income-to-Needs Ratio	42.3*** (16.6)	307 (120)	
Above poverty threshold	4.44 ^{NS} (4.83)	3.35 (3.75)	
Below Poverty threshold	56.5*** (29.4)	378 (197)	
	14.1*** (3.7)	17.3 (26)	
Marital Status			
Married or partnered	80.0*** (91.5)	392 (215)	
Single	20.0*** (8.5)	98 (20)	
Work Schedule			
Daytime	47.3*** (18.7)	343 (136)	
Variable (including evenings and weekends)	20.3*** (13.7)	147 (99)	
Number of Children in the Home			
≤2 Children	2.4	.94	
	44.3 (18.5)	321 (134)	
≥3 Children	23.3 (13.9)	169 (101)	

n = 725 with 490 (67.6%) mothers working full-time and 235 (32.4%) mothers working part-time. Sample characteristics listed by full-time (FT) employed mothers and part-time (PT) employed mothers: FT (PT)

p* < .05, *p* < .01, ****p* < .001 indicates difference between part-time and full-time based on independent samples t-tests and chi-square tests

Table 3 Decomposition of effects on maternal involvement in school and academic achievement within maternal work status and maternal education groups

Variable	Indirect			Direct			Total		
	FTC ^(a) (FTNC) ^(b)	PTC ^(c) (PTNC) ^(d)	PTC ^(c) (PTNC) ^(d)	FTC ^(a) (FTNC) ^(b)	PTC ^(c) (PTNC) ^(d)	PTC ^(c) (PTNC) ^(d)	FTC ^(a) (FTNC) ^(b)	PTC ^(c) (PTNC) ^(d)	
Maternal Work-to-family Conflict → Maternal Involvement in School	–	–	–	–.12* (–.10*)	–.13* (–.08*)	–.13* (–.08*)	–.11* (–.10*)	–.13* (–.08*)	
Maternal Work-to-family Conflict → Academic Achievement	–.05* (–.05*)	–.04* (–.04*)	–	–.02 (–.02)	–.02 (–.02)	–.06 (–.06)	–.07 (–.06)	–.06 (–.06)	
Maternal Involvement in School → Academic Achievement	–	–	–	.42*** (.44***)	.32*** (.49***)	.42*** (.44***)	.42*** (.44***)	.32*** (.49***)	
Control Variables									
Female → Academic Achievement	.01 (.01)	.01 (.01)	–	.11*** (.10**)	.11** (.10**)	.12** (.12**)	.13*** (.11**)	.12** (.12**)	
Other Races → Maternal Involvement in School	–	–	–	–.13*** (–.16***)	–.16** (–.13**)	–.16** (–.13**)	–.13** (–.16***)	–.16** (–.13**)	
Other Races → Academic Achievement	–.06** (–.07**)	–.05* (–.06*)	–	–.06 (–.07)	–.05 (–.06)	–.10* (–.13**)	–.11** (–.14**)	–.10* (–.13**)	
Income-to-Needs Ratio → Maternal Involvement in School	–	–	–	–.15 ^{b,c,d} (.17**)	.17 ± .a,d (.37***) ^{a,b,c}	.17 ± .a,d (.37***) ^{a,b,c}	–.15 ^{b,c,d} (.17**)	.17 ± .a,d (.37***) ^{a,b,c}	
Income-to-Needs Ratio → Academic Achievement	–.06 (.07**)	.05 ± (.18***)	–	.11* (.06*)	.13* (.06*)	.18*** (.24***)	.05 (.13***)	.18*** (.24***)	

n = 725 with 183 (25.2%) mothers working full-time with a college degree, 307 (42.3%) mothers working full-time without a college degree, 115 (15.9%) mothers working part-time with a college degree, and 120 (16.6%) mothers working part-time without a college degree. Effects listed by full-time employment with a college degree (FTC), full-time employment without a college degree (FTNC), part-time employment with a college degree (PTC), and part-time employment without a college degree (PTNC). Bootstrap bias-corrected p-values: #p < .10, *p < .05, **p < .01, ***p < .001. Indirect and direct effects may not sum to total due to rounding. All estimates regressed on child gender, child ethnicity, income-to-needs ratio, and maternal marital status. Only significant controls reported in this table. The model fit the data appropriately: χ^2 1013.93, df = 754, p < .001, CFI = .97, TLI = .97, $RMSEA$ = .04 (lo = .03, hi = .05). Alphabetic superscripts indicate significant differences from tests of individual regression paths between groups at p < .05

standard errors for the indirect effects (MacKinnon 2008). To test moderating effects, several multiple group analyses were used to evaluate the equivalency of each model. For example, the first model evaluated the equivalency of the model for children whose mothers work part-time versus full-time. Both measurement and structural equivalence were determined through chi-square difference tests on a series of nested models (Vandenberg and Lance 2000). Wald tests were then used to compare coefficients across groups.

Results

Preliminary analyses in SPSS investigated differences in the study variables between full-time and part-time employed mothers (see Table 2). Independent samples t-tests and chi-square tests indicated that part-time employed mothers experienced less work-to-family conflict and were more involved in their children’s schooling than full-time employed mothers. Children of part-time employed mothers also performed better in school than children of full-time employed mothers. There were significant differences in the likelihood of a mother working full-time versus part-time based on race, maternal education, poverty status, marital status, and work schedule.

Using Mplus 7.4 a structural equation model was constructed to evaluate associations between maternal work-to-family conflict, maternal involvement in school, and child academic achievement. The model fit the data well: χ^2 = 336.47, df = 177, p < .001, CFI = .98, TLI = .98, $RMSEA$ = .04 (lo = .03, hi = .04) (Hu and Bentler 1999; see Table 9 for decomposition of indirect, direct, and total effects). These results supported the first two hypotheses that maternal work-to-family conflict would be negatively associated with academic outcomes and that maternal involvement in school would mediate this relationship between work-to-family conflict and academic outcomes.

Maternal Work Status

The literature suggests, however, that the relationship between maternal work-to-family conflict, maternal involvement in school, and child academic outcomes may differ between mothers who work full-time and mothers who work part-time. Therefore, measurement and structural invariance were tested across work status groups using chi-square difference tests to compare a series of nested models. Within the measurement model, constraints were examined with factor loadings, observed variable intercepts, and error variances. Constraining factor loadings to be equal across groups did not worsen model fit, yet constraining observed variable intercepts and error variances worsened model fit,

Table 4 Decomposition of standardized effects on maternal involvement in school and academic achievement within maternal work status and child race groups

Variable	Indirect			Direct			Total		
	FTW ^(a)	FTO ^(b)	PTW ^(c)	FTW ^(a)	FTO ^(b)	PTW ^(c)	FTW ^(a)	FTO ^(b)	PTW ^(c)
Maternal Work-to-Family Conflict → Maternal Involvement in School	–	–	–	–.12**	–.13**	–.10**	–.12**	–.14**	–.12**
Maternal Work-to-Family Conflict → Academic Achievement	–.05**	–.05**	–.05*	–.01	–.01	–.01	–.05	–.05	–.06
Maternal Involvement in School → Academic Achievement	–	–	–	.44***	.41***	.47***	.43***	.39***	.40***
Control Variables									
Female → Academic Achievement	.01	.01	.01	.10**	.09*	.11**	.11**	.10**	.13**
Income-to-Needs Ratio → Maternal Involvement in School	–	–	–	–.06 ^{b,c}	.18 ^{a,c}	.16 ^{***a,b}	–.06 ^{b,c}	.18 ^{a,c}	.16 ^{** a,b}
Income-to-Needs Ratio → Academic Achievement	–.03	.07	.02	.11*	.06	.07	.09 ±	.13	.10*
Maternal Education → Maternal Involvement in School	–	–	–	.39***	.36***	.37***	.37***	.38***	.37***
Maternal Education → Academic Achievement	.17**	.15***	.15***	.15**	.12**	.15**	.32***	.27***	.31***
Partnered → Academic Achievement	.02	(.02)	.02	–.03 ^b	.23 ^{***a,c}	–.03 ^b	–.01 ^b	.25 ^{***a,c}	.05 ^b

n = 694 with 374 (53.9%) white, non-Hispanic children whose mothers work full-time, 116 (16.7%) children of other races whose mothers work full-time, 204 (29.4%) white, non-Hispanic children whose mothers work part-time. Please note there were 31 children of other races whose mothers work part-time. The sample was too small for the number of parameters to be estimated, thus this group was omitted from these analyses. Effects listed by maternal full-time employment for white, non-Hispanic children (FTW), maternal full-time employment for children of other races (FTO), and maternal part-time employment for white, non-Hispanic children (PTW). Bootstrap bias-corrected p-values: ±p < .10, *p < .05, **p < .01, ***p < .001. Indirect and direct effects may not sum to total due to rounding. All estimates regressed on child gender, income-to-needs ratio, maternal education, and maternal marital status. Only significant controls reported in this table. The model fit the data appropriately: χ^2 785.76, *df* = 553, *p* < .001, *CFI* = .97, *TLI* = .97, *RMSEA* = .04 (lo = .03, hi = .05). The omnibus Wald Test approached significance (*W* = 33.16, *df* = 22, *p* = .06). Alphabetic superscripts indicate significant differences from tests of individual regression paths between groups at *p* < .05

Table 5 Decomposition of standardized effects on maternal involvement in school and academic achievement within maternal work status and maternal marital status groups

Variable	Indirect			Direct			Total		
	FTP	FTS	PTP	FTP	FTS	PTP	FTP	FTS	PTP
Maternal Work-to-Family Conflict → Maternal Involvement in School	–	–	–	–.12**	–.13**	–.11**	–.12**	–.13**	–.11**
Maternal Work-to-Family Conflict → Academic Achievement	–.05**	–.06*	–.04*	–.02	–.03	–.02	–.07	–.09	–.06
Maternal Involvement in School → Academic Achievement	–	–	–	.41***	.44***	.39***	.41***	.44***	.39***
Control Variables									
Female → Academic Achievement	.01	.01	.	.10**	.11**	.11**	.11**	.11**	.11**
Other Races → Maternal Involvement in School	–	–	–	–.14**	–.15**	–.13**	–.14**	–.15**	–.13**
Other Races → Academic Achievement	–.06**	–.07**	–.05*	–.08 ±	–.09 ±	–.07 ±	–.13**	–.15**	–.12**
Income-to-Needs Ratio → Academic Achievement	.02	.02	.02	.06	.05	.08	.08*	.07*	.10*
Maternal Education → Maternal Involvement in School	–	–	–	.36***	.34***	.37***	.36***	.34***	.37***
Maternal Education → Academic Achievement	.15***	.15***	.14***	.16***	.16***	.15**	.30***	.31***	.29***

n = 705 with 392 (55.6%) partnered mothers working full-time, 98 (13.9%) single mothers working full-time, 215 (30.5%) partnered mothers working part-time. Please note there were 20 single mothers working part-time. The sample was too small for the number of parameters to be estimated, thus this group was omitted from these analyses. Effects listed by partnered mothers working full-time (FTP), single mothers working full-time (FTS), and partnered mothers working part-time (PTP). Bootstrap bias-corrected p-values: ±p < .10, *p < .05, **p < .01, ***p < .001. Indirect and direct effects may not sum to total due to rounding. All estimates regressed on child gender, child race, income-to-needs ratio, and maternal education. Only significant controls reported in this table. The model fit the data appropriately: χ^2 723.56, *df* = 537, *p* < .001, *CFI* = .98, *TLI* = .97, *RMSEA* = .04 (lo = .03, hi = .05). The omnibus Wald Test was not significant (*W* = 27.02, *df* = 22, *p* = .21). Tests of individual regression paths showed the same result

Table 6 Decomposition of standardized effects on maternal involvement in school and academic achievement within maternal work status and poverty status groups

Variable	Indirect			Direct			Total		
	FTNP ^(a)	FTP ^(b)	PTNP ^(c)	FTNP ^(a)	FTP ^(b)	PTNP ^(c)	FTNP ^(a)	FTP ^(b)	PTNP ^(c)
Maternal Work-to-Family Conflict → Maternal Involvement in School	–	–	–	–.12**	–.12**	–.11**	–.12**	–.12**	–.11**
Maternal Work-to-Family Conflict → Academic Achievement	–.05**	–.07**	–.04*	–.02	–.02	–.02	–.07	–.09±	–.05
Maternal Involvement in School → Academic Achievement	–	–	–	.39*** ^b	.58*** ^{a,c}	.31*** ^b	.39*** ^b	.58*** ^{a,c}	.31*** ^b
Control Variables									
Female → Academic Achievement	.02	.03	.02	.11**	.08**	.12**	.13**	.11**	.14**
Other Races → Maternal Involvement in School	–	–	–	–.09*	–.11*	–.09*	–.09*	–.11*	–.09*
Other Races → Academic Achievement	–.04*	–.06*	–.03±	–.05	–.06	–.05	–.09*	–.12*	.08±
Maternal Education → Maternal Involvement in School	–	–	–	.31*** ^b	.47*** ^{a,c}	.37*** ^b	.31*** ^b	.47*** ^{a,c}	.37*** ^b
Maternal Education → Academic Achievement	.12***	.28***	.12**	.18***	.09***	.17***	.30***	.37***	.28***

n = 669 with 378 (56.5%) mothers above the poverty threshold working full-time, 94 (14.1%) mothers below the poverty threshold working full-time, 197 (29.4%) mothers above the poverty threshold working part-time. Please note there were 26 mothers below the poverty threshold working part-time. The sample in that group was too small for the number of parameters to be estimated, thus this group was omitted from these analyses. Effects listed by full-time employment for mothers above the poverty threshold (FTNP), full-time employment for mothers below the poverty threshold (FTP), and part-time employment for mothers above the poverty threshold (PTNP). Bootstrap bias-corrected p-values: ±p < .10, *p < .05, **p < .01, ***p < .001. Indirect and direct effects may not sum to total due to rounding. All estimates regressed on child gender, income-to-needs ratio, maternal education, and maternal marital status. Only significant controls reported in this table. The model fit the data appropriately: χ^2 750.35, *df* = 553, *p* < .001, *CFI* = .97, *TLI* = .97, *RMSEA* = .04 (lo = .03, hi = .05). The omnibus Wald test approached significance (*W* = 33.02, *df* = 22, *p* = .06). Alphanumeric superscripts indicate significant differences from tests of individual regression paths between groups at *p* < .05

suggesting partial measurement invariance (χ^2 difference tests available upon request). Among structural components, when covariances and regression paths originating from control variables in the model were constrained to be equal across groups model fit did not worsen (available upon request). Paths from work-to-family conflict and maternal involvement to academic achievement could also be constrained to be equal without worsening model fit (available upon request). However, the path from work-to-family conflict to maternal involvement in school could not be constrained without worsening fit (χ^2 difference = 4.66, *df* = 1, *p* < .05).

Results for full-time and part-time employed mothers are seen in Table 10. Among full-time employed mothers, the model explained 19.2% of the variance in maternal school involvement and 35.3% of the variance in academic achievement (χ^2 = 304.02, *df* = 177, *p* < .001, *CFI* = .98, *TLI* = .97, *RMSEA* = .04 (lo = .03, hi = .05)). Among part-time employed mothers, the model explained 30.5% of the variance in maternal school involvement and 29.7% of the variance in academic achievement (χ^2 = 198.25, *df* = 177, *p* = .133, *CFI* = .99, *TLI* = .99, *RMSEA* = .02 (lo = .00, hi = .04)). Among full-time employed mothers, maternal work-to-family conflict was not related to maternal involvement in school or fifth graders’ academic outcomes. Only

maternal involvement in school was positively related to academic achievement (β = .42, *p* < .000). In other words, a one standard deviation increase in maternal school involvement was linked with a .42 standard deviation increase in academic achievement.

Among part-time employed mothers, a one standard deviation increase in maternal work-to-family conflict was linked with a .20 standard deviation decrease in maternal school involvement, and a one standard deviation decrease in maternal school involvement was linked with a .41 standard deviation decrease in academic achievement. After controlling for child gender, child ethnicity, family income-to-needs ratio, maternal education, and marital status, maternal involvement in school fully mediated the relationship between maternal work-to-family conflict and fifth graders’ academic achievement. The indirect and total effects of maternal work-to-family conflict on academic achievement were significant (β = –.08, *p* < .05 and β = –.17, *p* < .05, respectively). Thus, the results supporting our first two hypotheses only held true for those in the part-time employment group (see Fig. 2).

Child gender, child ethnicity, income-to-needs, and maternal education were each significantly associated with at least one outcome variable (see Table 10). Of particular note are the strong associations between maternal education

Table 7 Decomposition of Effects on Maternal Involvement in School and Academic Achievement within Maternal Work Status and Maternal Work Schedule Groups

Variable	Indirect		Direct		Total	
	FTD ^(a) (FTV) ^(b)	PTD ^(c) (PTV) ^(d)	FTD ^(a) (FTV) ^(b)	PTD ^(c) (PTV) ^(d)	FTD ^(a) (FTV) ^(b)	PTD ^(c) (PTV) ^(d)
Maternal Work-to-Family Conflict → Maternal Involvement in School	–	–	–.12** (–.12*)	–.11** (–.11**)	–.12** (–.12*)	–.11** (–.11**)
Maternal Work-to-Family Conflict → Academic Achievement	–.05** (–.05**)	–.04* (–.05*)	–.03 (–.03)	–.03 (–.03)	–.08 ± (–.07 ±)	–.07 ± (–.07 ±)
Maternal Involvement in School → Academic Achievement	–	–	.43*** (.40***)	.40*** (.44***)	.43*** (.40***)	.40*** (.44***)
Control Variables						
Female → Academic Achievement	.01 (.01)	.01 (.01)	.10** (.09**)	.11** (.11**)	.11** (.10**)	.11** (.11**)
Other Races → Maternal Involvement in School	–	–	–.13** (–.15**)	–.11** (–.13**)	–.13** (–.15**)	–.11** (–.13**)
Other Races → Academic Achievement	–.06* (–.06**)	–.05** (–.05**)	.01 ^b (–.21*) ^a	–.12 (–.01)	–.05 ^b (–.26**) ^a	–.16 (–.06)
Income-to-Needs Ratio → Maternal Involvement in School	–	–	–.11 ± ^{b,c,d} (.14 ±) ^a	.11 ± ^a (.23 ±) ^a	–.11 ± ^{b,c,d} (.14 ±) ^a	.11 ± ^a (.23 ±) ^a
Income-to-Needs Ratio → Academic Achievement	–.05 ± (.06)	.04 ± (.10*)	.07 (.05 ±)	.08 ± (.07 ±)	.02 (.10*)	.13* (.17**)
Maternal Education → Maternal Involvement in School	–	–	.35*** (.44***)	.42*** (.28**)	.35*** (.44***)	.42*** (.28**)
Maternal Education → Academic Achievement	.15*** (.18***)	.17*** (.13**)	.16** (.14**)	.14** (.15**)	.31*** (.32***)	.31*** (.28***)

n = 725 with 343 (47.3%) mothers working full-time during the day, 147 (20.3%) mothers working full-time including variable evenings and weekends, 136 (18.7%) mothers working part-time during the day, and 99 (13.7%) mothers working part-time including variable evenings and weekends. Effects listed by full-time employment during the day (FTD), full-time employment on a varying schedule (FTV), part-time employment during the day (PTD), and part-time employment on a variable schedule (PTV). Bootstrap bias-corrected p-values: #p < .10, *p < .05, **p < .01, ***p < .001. Indirect and direct effects may not sum to total due to rounding. All estimates regressed on child ethnicity, income-to-needs ratio, maternal education, and maternal marital status. Only significant controls reported in this table. The model fit the data appropriately: χ^2 1089.60, *df* = 825, *p* < .001, *CFI* = .97, *TLI* = .96, *RMSEA* = .04 (lo = .04, hi = .05). The omnibus Wald Test trended toward significance (*W* = 52.47, *df* = 39, *p* = .07). Alphabetic superscripts indicate significant differences from tests of individual regression paths between groups at *p* < .05

Table 8 Decomposition of effects on maternal involvement in school and academic achievement within maternal work status and number of children in the home

Variable	Indirect		Direct		Total	
	FT2 ^(a) (FT3) ^(b)	PT2 ^(c) (PT3) ^(d)	FT2 ^(a) (FT3) ^(b)	PT2 ^(c) (PT3) ^(d)	FT2 ^(a) (FT3) ^(b)	PT2 ^(c) (PT3) ^(d)
Maternal Work-to-Family Conflict → Maternal Involvement in School	–	–	–.12** (.00) ^c	–.29** ^{a,b} (–.18)	–.12** (.00) ^c	–.29** ^{a,b} (–.18)
Maternal Work-to-Family Conflict → Academic Achievement	–.05* (.00)	–.12* (–.07)	–.03 (–.03)	–.02 (–.03)	–.08 ± (–.03)	–.14* (.10)
Maternal Involvement in School → Academic Achievement	–	–	.41*** (.42***)	.43*** (.41***)	.41*** (.42***)	.43*** (.41***)
Control Variables						
Female → Academic Achievement	.01 (.01)	.01 (.01)	.10** (.09**)	.10** (.10**)	.11** (.10**)	.11** (.12**)
Other Races → Maternal Involvement in School	–	–	–.11** (–.13**)	–.10** (–.12**)	–.11** (–.13**)	–.10** (–.12**)
Other Races → Academic Achievement	–.05** (–.05**)	–.04* (–.05**)	–.07 ± (–.09 ±)	–.07 ± (–.07 ±)	–.12** (–.14**)	–.11** (–.12**)
Income-to-Needs Ratio → Maternal Involvement in School	–	–	–.06 ^{c,d} (–.06) ^{c,d}	.12 ^{a,b} (.14 ±) ^{a,b}	–.06 ^{c,d} (–.06) ^{c,d}	.12 ^{a,b} (.14 ±) ^{a,b}
Income-to-Needs Ratio → Academic Achievement	–.03 (–.03)	.05 (.06)	.06 (.04)	.06 (.07)	.03 (.01)	.11* (.13*)
Maternal Education → Maternal Involvement in School	–	–	.36*** (.48***)	.43*** (.32**)	.36*** (.48***)	.43*** (.32**)
Maternal Education → Academic Achievement	.14*** (.20***)	.19*** (.13**)	.17** (.15**)	.14** (.16**)	.31*** (.35***)	.32*** (.29***)

n = 725 with 321 (44.3%) mothers working full-time with up to 2 children, 169 (23.3%) mothers working full-time with 3 or more children, 134 (18.5%) mothers working part-time with up to 2 children, and 101 (13.9%) mothers working part-time with 3 or more children. Effects listed by full-time employment with up to 2 children in the home (FT2), full-time employment with 3 or more children in the home (FT3), part-time employment with up to 2 children in the home (PT2), and part-time employment with 3 or more children in the home (PT3). Bootstrap bias-corrected p-values: #p < .10, *p < .05, **p < .01, ***p < .001. Indirect and direct effects may not sum to total due to rounding. All estimates regressed on child gender, child ethnicity, income-to-needs ratio, maternal education, and maternal marital status. Only significant controls reported in this table. The model fit the data appropriately: χ^2 1098.46, *df* = 825, *p* < .001, *CFI* = .97, *TLI* = .97, *RMSEA* = .04 (lo = .04, hi = .05). The omnibus Wald test was significant (*W* = 55.98, *df* = 39, *p* = .03). Alphabetic superscripts indicate significant differences from tests of individual regression paths at *p* < .05

Table 9 Decomposition of Effects on Maternal Involvement in School and Academic Achievement

	Indirect	Direct	Total
Variable			
Maternal Work-to-Family Conflict → Maternal Involvement in School	–	–.14***	–.14***
Maternal Work-to-Family Conflict → Academic Achievement	–.06**	–.02	–.08*
Maternal Involvement in School → Academic Achievement	–	.42***	.42***
Control Variables			
Female → Academic Achievement	.01	.10**	.11**
Other Ethnicities → Maternal Involvement in School	–	–.14**	–.14**
Other Ethnicities → Academic Achievement	–.06**	–.07±	–.13**
Maternal Education → Maternal Involvement in School	–	.38***	.38***
Maternal Education → Academic Achievement	.16***	.16***	.32***

n = 725. Bootstrap bias-corrected p-values: ±p < .10, *p < .05, **p < .01, ***p < .001. Indirect and direct effects may not sum to total due to rounding. All estimates regressed on child gender, child ethnicity, income-to-needs ratio, maternal education, and maternal marital status. Only significant controls reported in this table

Table 10 Decomposition of Effects on Maternal Involvement in School and Academic Achievement in Full-time vs. Part-time Work Status Groups

	Indirect FT (PT)	Direct FT (PT)	Total FT (PT)
Variable			
Maternal Work-to-Family Conflict → Maternal Involvement in School	–	–.08 ± (–.20*)	–.08 ± (–.20*)
Maternal Work-to-Family Conflict → Academic Achievement	–.03 ± (–.08*)	.003 (–.09)	–.03 (–.17*)
Maternal Involvement in School → Academic Achievement	–	.42*** (.41***)	.42*** (.41***)
Control Variables			
Female → Academic Achievement	.01 (.001)	.10* (.10)	.12** (.10)
Other Ethnicities → Maternal Involvement in School	–	–.13* (–.16*)	–.13* (–.16*)
Other Ethnicities → Academic Achievement	–.05* (–.07*)	–.06 (–.08)	–.12* (–.15)
Income-to-Needs Ratio → Maternal Involvement in School	–	–.03 (.13*)	–.03 (.13*)
Maternal Education → Maternal Involvement in School	–	.39*** (.35***)	.39*** (.35***)
Maternal Education → Academic Achievement	.17*** (.14***)	.17** (.10)	.33*** (.24**)

n = 725 with 490 (67.6%) mothers working full-time and 235 (32.4%) mothers working part-time. Effects listed by full-time (FT) employed mothers and part-time (PT) employed mothers: FT (PT). Bootstrap bias-corrected p-values: ±p < .10, *p < .05, **p < .01, ***p < .001. Indirect and direct effects may not sum to total due to rounding. All estimates regressed on child gender, child ethnicity, income-to-needs ratio, maternal education, and maternal marital status. Only significant controls reported in this table

and maternal involvement in school ($\beta = .39, p < .001$ for full-time and $\beta = .35, p < .001$ for part-time working mothers) and maternal education and academic outcomes ($\beta = .17, p < .001$ for full-time working mothers).

Maternal Work Status and Socioeconomic Context

Because theory and literature further suggest that the relationship between maternal work-to-family conflict, maternal involvement in school, and child academic outcomes may

differ based on socioeconomic contexts (such as maternal education, race, maternal marital status, etc.) we conducted a series of six more multiple group comparisons of the hypothesized moderated mediational model. For each multiple group comparison, we followed the same analytic procedure outlined above. In all six multiple group models, constraining factor loadings to be equal across groups did not worsen model fit, yet observed variable intercepts and error variances could not be constrained without worsening model fit, suggesting partial measurement invariance (χ^2

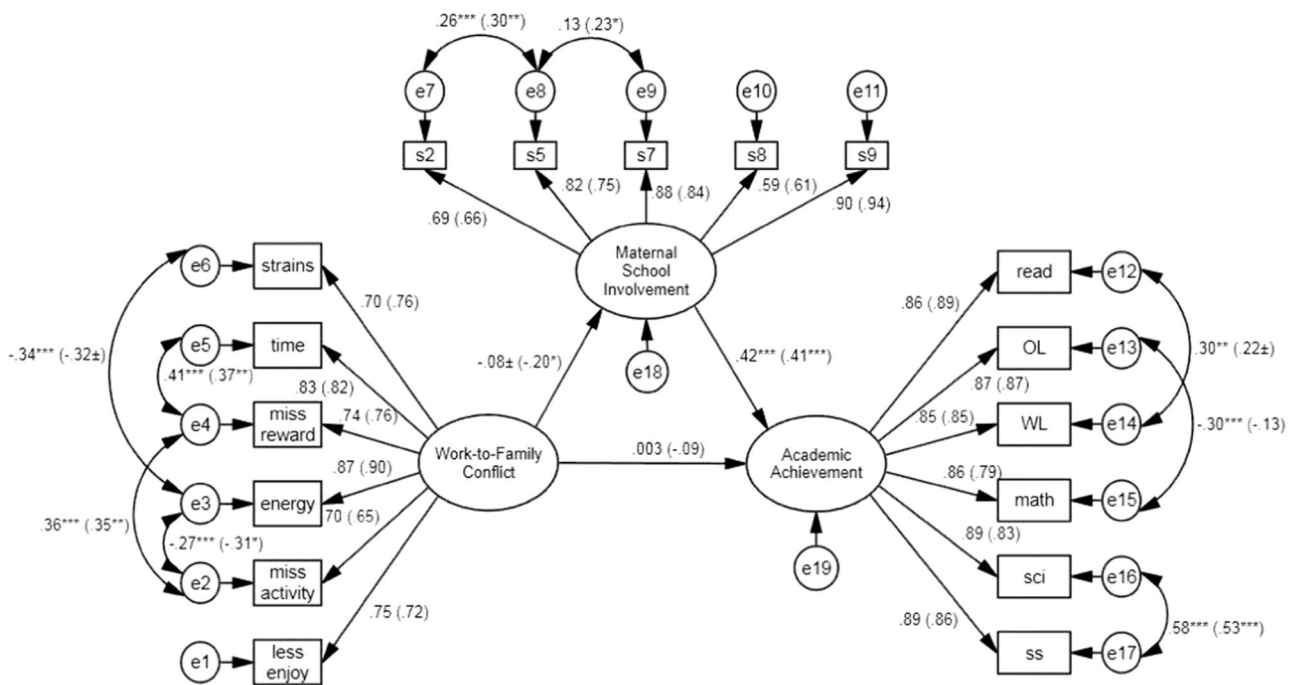


Fig. 2 Final model showing standardized effects for maternal work-to-family conflict, maternal involvement in school, and child academic achievement outcomes. Effects listed by full-time (FT) employed mothers and part-time (PT) employed mothers: FT (PT). All estimates

regressed on child gender, child ethnicity, income-to-needs ratio, maternal education, and maternal marital status. Significant controls reported Table 2. Bootstrap bias-corrected p-values: $\pm p < .10$, $*p < .05$, $**p < .01$, $***p < .001$

difference tests available upon request). Among structural components, when covariances were constrained to be equal across groups model fit did not worsen (available upon request). Differences between structural paths differed from one model to another.

Maternal Work Status and Education

Results for the decomposition of effects of the model comparing mothers who work full-time with a college degree, mothers who work full-time without a college degree, mothers who work part-time with a college degree, and mothers who work part-time without a college degree are reported in Table 3. (Please note, to conserve space in the body of the paper all model fit information, details about the Wald tests, and specific coefficients are reported in Table 3.) Among all mothers regardless of maternal work status and educational attainment, maternal work-to-family conflict was significantly negatively related to maternal involvement in school, and maternal involvement in school was positively related to academic achievement. Maternal work-to-family conflict was not significantly related to academic achievement in any of the groups, and the results of the indirect effects suggest only partial mediation from maternal work-to-family conflict to fifth grader academic achievement. There were no significant differences between groups on these paths.

Consistent with prior multiple group comparisons, gender, race, and the family's income-to-needs ratio continued to impact academic achievement and maternal school involvement respectively (see Table 3). Significant group differences were found on only one regression path: the path leading from the family's income-to-needs ratio to maternal involvement in school. A family's income to needs ratio had the greatest significant positive effect on mothers who worked part-time without a college degree ($\beta = .37$, $p < .001$), and the next greatest positive effect on mothers who worked full-time without a college degree ($\beta = .17$, $p < .01$), or those who worked part-time with a college degree ($\beta = .17$, $p < .10$). The family's income-to-needs ratio was not significantly associated with maternal school involvement for mothers who worked full-time with a college degree.

Maternal Work Status and Child Race

Results for the decomposition of effects of the model comparing white, non-Hispanic children whose mothers work full-time, children of other races whose mothers work full-time, and white, non-Hispanic children whose mothers work part-time are reported in Table 4. (Please note, all model fit information, details about the Wald tests, and specific coefficients are reported in Table 4.) There were only 31 children of other races whose mothers worked part-time in this sample, making that sample too small to estimate.

Consistent with prior multiple group comparisons, among all groups regardless of maternal work status and child race, maternal work-to-family conflict was significantly negatively related to maternal involvement in school, and maternal involvement in school was positively related to child academic achievement. The total effects of maternal work-to-family conflict were not significantly related to academic achievement in any of the groups. The results of the indirect effects suggest only partial mediation from maternal work-to-family conflict to fifth grader academic achievement. There were no significant differences between groups on these paths.

Child gender, the family's income-to-needs ratio, and maternal education continued to impact academic achievement and maternal school involvement respectively (see Table 4). Significant group differences were found, however, for two regression paths in this model. First, a family's income to needs ratio had a significant positive effect on white, non-Hispanic children whose mothers worked part-time ($\beta = .16, p < .001$). The family's income-to-needs ratio was not significantly associated with maternal school involvement for white, non-Hispanic children whose mothers worked full-time, or children of other races whose mothers worked full-time. Though the effect was not significant, children of other races whose mothers worked full-time had a higher standardized total effect than white children whose mothers worked part-time ($\beta = .18, p = .13$). It is possible that this non-significant finding was due to the smaller sample size of that group compared to the other groups. We hope further tests with larger samples can continue to explore these associations.

Second, having a mother with a romantic partner had a significant positive effect on children's academic achievement among children of other races whose mother worked full-time ($\beta = .25, p < .01$). A mother's partnership status did not have a significant effect on academic achievement for white, non-Hispanic children whose mothers worked full-time or part-time.

Maternal Work Status and Marital Status

Results for the decomposition of effects of the model comparing partnered mothers who work full-time, single mothers who work full-time, and partnered mothers who work part-time are reported in Table 5. (Please note, all model fit information, details about the Wald tests, and specific coefficients are reported in Table 5.) Though we would have liked to include single mothers who worked part-time in this model, there were only 20 single mothers in that group in this sample, making that sample too small for the number of parameters to be estimated.

Consistent with prior multiple group comparisons, among all groups regardless of maternal work status and

marital status, maternal work-to-family conflict was significantly negatively related to maternal involvement in school, and maternal involvement in school was positively related to child academic achievement. The total effects of maternal work-to-family conflict were not significantly related to academic achievement in any of the groups. The results of the indirect effects suggest only partial mediation from maternal work-to-family conflict to fifth grader academic achievement. There were no differences between groups on these paths.

Child gender, child race, the family's income-to-needs ratio, and maternal education continued to impact academic achievement and maternal school involvement respectively (see Table 5). The omnibus Wald test was not significant ($W = 27.02, df = 22, p = .21$). Tests of individual regression paths showed the same result.

Maternal Work Status and Poverty

Results for the decomposition of effects of the model comparing families above the poverty threshold where mothers work full-time, families at or below the poverty threshold where mothers work full-time, and families above the poverty threshold where mothers work part-time are reported in Table 6. (Please note, all model fit information, details about the Wald tests, and specific coefficients are reported in Table 6.) Though we would have liked to include families at or below the poverty threshold where mothers worked part-time, there were only 26 families in that group in this sample, making that sample too small for the number of parameters to be estimated.

Consistent with prior multiple group comparisons, among all groups regardless of maternal work status and family poverty status, maternal work-to-family conflict was significantly negatively related to maternal involvement in school. The total effects of maternal work-to-family conflict were not significantly related to academic achievement in any of the groups, though the indirect effects were significant, suggesting only partial mediation from maternal work-to-family conflict to fifth grader academic achievement. However, we did find significant group differences on the path from maternal involvement in school to child academic achievement. Children in families at or below the poverty threshold where mothers work full-time had a higher significant rate of academic achievement when mothers were involved at school ($\beta = .58, p < .001$), than children whose families were above the poverty threshold. There were no significant differences between families above the poverty threshold when mothers worked part-time versus full-time.

Child gender, child race, and maternal education continued to impact academic achievement and maternal school involvement respectively (see Table 6). Significant group

differences were found, however, for another regression path in this model. In families at or below the poverty threshold with mothers who work full-time, mothers were significantly more likely to be involved in school when they had a higher education ($\beta = .47, p < .001$). The effects were also significant and positive for families above the poverty threshold regardless of whether mothers worked part-time or full-time, but the effect size was significantly lower in these two groups than in the group for families at or below the poverty threshold.

Maternal Work Status and Work Schedule

Results are reported in Table 7 for the decomposition of effects of the model comparing mothers who work full-time during the day, mothers who work full-time variable shifts, mothers who work part-time during the day, and mothers who work part-time variable shifts. (Please note, all model fit information, details about the Wald tests, and specific coefficients are reported in Table 7.)

Consistent with prior multiple group comparisons, among all groups regardless of maternal work status and work schedule, maternal work-to-family conflict was significantly negatively related to maternal involvement in school, and maternal involvement in school was positively related to child academic achievement. The total effects of maternal work-to-family conflict were not significantly related to academic achievement in any of the groups, though the indirect effects were significant, suggesting partial mediation.

Child gender, child race, and maternal education continued to impact academic achievement and maternal school involvement respectively (see Table 7). Significant group differences were found for two regression paths in this model. When mothers worked full-time variable schedules, children of other races had significantly lower academic achievement ($\beta = -.26, p < .05$) than children of other races whose mothers worked full-time standard day schedules ($\beta = -.05, n.s.$). Further, when the family's income-to-needs ratio was higher, mothers who worked full-time during the day were less likely to be involved in their children's schooling ($\beta = -.11, p < .10$) than mothers who worked full-time variable schedules ($\beta = .14, p < .10$), or those who worked part-time regardless of their work schedule (part-time day: $\beta = .11, p < .10$; part-time variable: $\beta = .23, p < .10$). No other significant differences between maternal work status and work schedule groups were found on any other regression paths in the model.

Maternal Work Status and Number of Children in the Home

Results are reported in Table 8 for the decomposition of effects of the model comparing mothers who work full-time

with 2 or fewer children in the home, mothers who work full-time with 3 or more children, mothers who work part-time with 2 or fewer children, and mothers who work part-time with 3 or more children. (Please note, all model fit information, details about the Wald tests, and specific coefficients are reported in Table 8. We also note that decisions about creating groups regarding the number of children in the home were influenced by the frequencies in this particular data set. Conceptually, it might make more sense to compare groups where a mother has only 1 child, with groups where a mother has 2 or more children. Unfortunately, we had so few mothers who worked part-time with only 1 child in the home ($n = 15$) that we had to either eliminate that group, or reconfigure our groups to facilitate analyses.)

Consistent with prior tests, maternal involvement in school was positively related to child academic achievement across groups with no significant group differences. There were, however, significant group differences on the path from work-to-family conflict to maternal involvement in school. While mothers with fewer children in the home who work full-time and those who work part-time report significant negative associations between work-to-family conflict and school involvement (full-time ≤ 2 children: $\beta = -.12, p < .05$; part-time ≤ 2 children: $\beta = -.29, p < .05$), results of the Wald test suggest the magnitude of the effect was significantly higher for mothers who worked part-time with fewer children in the home. Unfortunately, mediation of the pathway from maternal work-to-family conflict to academic achievement is harder to determine in this comparison. There appear to be differences between groups when one notices that mothers with two or fewer children who work part-time report a significant total effect, suggesting full mediation, while mothers with 2 or fewer children who work full-time report significant indirect effects supporting partial mediation. The indirect and total effects in the other two groups (i.e. full-time ≥ 3 children and part-time ≥ 3 children) are not significant. However, because the Wald test to detect differences from one group to another was not significant for that regression path, we treat these findings with caution, and suggest further research to test these associations.

Child gender, child race, and maternal education continued to impact academic achievement and maternal school involvement respectively with no significant differences across groups on these regression paths (see Table 8). Significant group differences were found for the path from the income-to-needs ratio to maternal involvement in school. But while the magnitude and direction of effects differed between groups (suggesting that when the income to needs ratio is higher, mothers are more likely to be involved in their children's schooling *only* when mothers work part-time), none of the coefficients reached

significance in any group. Again, we treat these findings with caution and suggest further research to test these associations.

Discussion

The purposes of this study were three-fold. First, a structural equation model was tested hypothesizing that maternal involvement in school would mediate the relationship between maternal work-to-family conflict and academic outcomes among fifth graders. Second, multi-group analyses were used to test whether maternal work status (part-time versus full-time) would moderate the relationship between maternal work-to-family conflict, maternal involvement in school, and academic outcomes. Third, multi-group analyses were used to test whether maternal work status would interact with other core socioeconomic contexts (e.g., maternal education, child race, marital status, poverty status, work schedule, and number of children in the home) to further moderate the relationship between maternal work-to-family conflict, maternal involvement in school, and academic outcomes. Our hypothesis that maternal involvement in school would mediate the relationship between maternal work-to-family conflict and child academic outcomes was only partially supported. We found evidence of full mediation within the entire sample, but in our multi-group comparisons found that work status moderated this association. Only when work-to-family conflict was present for part-time employed mothers, was there increased risk for spillover into maternal involvement in school and into children's academic achievement. In subsequent multi-group analyses, we found continued evidence for partial mediation when maternal work status interacted with other socioeconomic contexts. We also found consistent evidence across groups that maternal work to family conflict was significantly and negatively correlated with maternal involvement in school. Interestingly, the only multi-group comparison where significant differences existed on this pathway was in the interaction between maternal work status and the number of children in the home. When mothers with fewer children experienced work-to-family conflict, this conflict was significantly more likely to reduce maternal involvement in school. When mothers with fewer children who also worked part-time experienced work-to-family conflict, the effects of the association between conflict and involvement were significantly greater than the effects for mothers with fewer children who worked full-time, or mothers with more children regardless of their work status.

We take two important messages from these findings. First, scholars in the work-family and child development field have focused their research on understanding how

mothers' work hours or work status influence child outcomes, including academic outcomes (Buehler et al. 2011; Goldberg et al. 2008), but work to family conflict has been overlooked as a correlate of involvement or academic achievement in this literature. We find evidence across multiple contexts that these are linked. We argue that by ignoring work-family conflict and its association with maternal involvement in school, prior studies may be missing an important aspect of how the work-family interface relates to children. Consistent with ecological theory, negative associations between work-to-family conflict and maternal school involvement seem to extend beyond mothers themselves to influence their children (Bronfenbrenner 1986; 1993). The stability across multiple comparisons suggests that role strains from work-to-family may spillover into maternal school involvement in multiple situations, decreasing a mother's ability to be involved in her children's education (Hill et al. 2004). Inconsistencies suggest a continued need for scholars to explore employment-related factors as correlates of child development (Brooks-Gunn et al. 2010). It is only through continued probing in other samples that we may be able to better understand which contexts matter most, or why the magnitude of these effects may be greater in some contexts than in others.

Some of the differences we found beg the question, why might part-time involvement be a context where the links between work-to-family conflict and maternal school involvement have a greater impact? There are a few possible explanations for these findings. First, mothers employed full-time may expect to feel work-to-family conflict in their lives, whereas mothers employed part-time may not have this same expectation. If a part-time employed mother experiences work-to-family conflict contrary to her expectations, she may feel more overwhelmed or be impacted more by the conflict than had she expected work-to-family conflict in the first place.

This logic also applies to mothers with fewer children in the home. When a mother has fewer children and she works part-time, she may expect her part-time workload and fewer children to facilitate her work-family balance. When she experiences conflict instead, her violated expectations may add to her stress. Second, mothers working full-time may proactively create a support system of resources (e.g., regular childcare arrangements, stay-at-home father, or flexible scheduling) to help manage work-to-family conflict, whereas mothers working part-time may not have these same types of support in place, particularly if there was no expectation for work-to-family conflict. These findings fall in line with role theory (Goode 1960), but we also suggest that expanding the theoretical frameworks used in the work-family conflict literature to include a family stress model (McCubbin and Patterson 1983) that accounts for a

mothers' expectations about her work and the support resources she has available to her would be beneficial.

Further, our hypothesis that maternal work status would interact with other core socioeconomic contexts (e.g., maternal education, child race, marital status, poverty status, work schedule, and number of children in the home) to further moderate the relationship between maternal work-to-family conflict, maternal involvement in school, and academic outcomes was supported. Preliminary results replicated the findings of Goldberg et al. (2008) and Buehler and O'Brien (2011) that part-time employed mothers experienced less work-to-family conflict, were more involved in school, and had children who performed better in school than full-time employed mothers.

Tests of moderated mediational models using SEM further replicated the findings of Goldberg et al. (2008) and Brooks-Gunn et al. (2010) by demonstrating how explorations of socioeconomic contexts moderate key areas of difference in the work-family interface and in its association with children's school outcomes. This finding also supported ecological systems theory, confirming that contextual resources, opportunities, and risks influence individual and group-level developmental processes (Bronfenbrenner 1986; 1993). For example, our results across multiple multi-group analyses consistently demonstrated that child gender, race, maternal education, and poverty were correlated with academic achievement in fifth graders. Being female, being white, non-Hispanic, being above the poverty threshold, and having a mother who graduated from college were all opportunities that made fifth graders in this sample more likely to achieve well in school.

Some of these core contexts also provided opportunities for maternal involvement in school. Two of the most consistent findings across our analyses were that more maternal education was significantly correlated with greater maternal involvement in school, and greater maternal involvement in school was significantly correlated with better achievement at fifth grade. These findings support research by multiple scholars linking parental school involvement and academic outcomes (Fan and Chen 2001; Hill and Tyson 2009; and Jeynes 2005).

But differences across groups in these analyses also support our claims that these processes may be best understood in socioeconomic context. For example, maternal work status and maternal education interacted suggesting that when mothers without a college degree were employed, the family's income-to-needs ratio had a greater effect on a mother's involvement in school than the family's income did for mothers with a college degree. In this interaction we see the intersection of education, work status, and income all impacting a mother's involvement in school. We also found evidence for the intersection of work status,

poverty, academic achievement, and maternal involvement in school. For example, even though some of our findings suggested that mothers who worked full-time were less involved in their children's schooling, our multiple group comparison demonstrated that when mothers worked full-time in families at or below the poverty threshold, mothers involvement in school had a higher significant correlation with their children's academic achievement than children whose families were above the poverty threshold (regardless of maternal work status). For families at or below the poverty threshold, the magnitude of the effects of a mother's education on her involvement in her children's schooling also increased when compared with families who were above the poverty threshold.

Finally, we found that a mother's work schedule and her work status also intersected with race and the family's income-to-needs ratio. Though working full-time day schedules significantly reduced maternal involvement in school in the larger sample, working a full-time variable schedule placed children of other races at more risk for decreased academic achievement than children whose mothers work a full-time day schedule. All of these examples demonstrate that socioeconomic context matters. The largest result of these multi-group comparisons is that contextual opportunities and risks do exist in the work-family interface. We conclude with Goldberg et al. (2008) that our results "underscore the need to place maternal employment in a larger familial and social context" (p. 99).

Limitations

These preliminary explorations of maternal work-to-family conflict, maternal involvement in school, and child academic outcomes in socioeconomic context illuminate the need for further inquiry into processes relating the work-family interface and child development. Despite the strengths of a study like this with data that allow multiple contextual comparisons in an SEM framework, there are limitations that point to directions for future research. First, the current findings focus on one time period. Focusing on only one time period facilitated our capacity to conduct multiple group comparisons exploring a variety of moderators of our mediated model, which was a core feature of our theoretical orientation. However, we recognize that tests of mediation at only one point in time are not as robust as longitudinal tests of mediation (MacKinnon 2008). Longitudinal analyses may help further explain the relationship between mothers' work-to-family conflict and child academic outcomes. For example, it is possible that there is a reciprocal relationship between work-to-family conflict and academic outcomes such that mothers' perception of work-to-family conflict increases when children are not performing well in school while at the same time, children may

do better in school when mothers experience less work-to-family conflict and are therefore more involved in school. It is also possible that children's reduced academic achievement, or a mother's reduced involvement in school exacerbate her work-to-family conflict. To probe, we conducted a preliminary test on the whole sample controlling for third grade reports of maternal work-to-family conflict. The 3rd grade and 5th grade variables were highly correlated. Controlling for prior assessments of work-to-family conflict reduced the effects of work-to-family conflict on maternal school involvement over time, suggesting that contemporaneous but not longitudinal mediation may be at play here.

Second, further investigating mothers' involvement in schooling is important for understanding how to alleviate any negative impact of work-to-family conflict on children. Perhaps future research can address whether encouraging increased levels of mothers' involvement in school in the face of work-to-family conflict can bring about improvements in school outcomes for children. Third, in order to maximize the sample available to us, we had to make a challenging decision to include all employed mothers regardless of marital status. Because employed mothers with no male partner in the home were included in this study, we could not explore other important family systems predictors of child academic achievement such as father involvement in schooling, father responsibility for child-rearing, father's work hours, or father's work-to-family conflict. Future research focused on families where a father or father figure is present in the home should explore how fathers may buffer or heighten mothers' work-family conflict, involvement in schooling, and thereby influence children's academic outcomes.

It should be noted that shared method variance was minimized by selecting the teacher response for mothers' involvement in school as opposed to the mother self-report on involvement in school. Although there may be shared method variance between the measure for mothers' school involvement and the measure for children's academic outcomes, it was important to minimize the effects of this limitation between the measure for mothers' work-to-family conflict and mothers' involvement in school as this was the path of primary importance.

Access to SECCYD data

SECCYD data are considered restricted-use data. These data are available to qualified researchers only. One may apply for access to and use of these data through the University of Michigan Inter-University Consortium for Political and Social Research.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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