

Gender Differences in Single Parents' Living Arrangements and Child Care Time

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Published online: 28 August 2017
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Abstract Although seemingly identical in their circumstances, research has found single fathers to engage less in child care than single mothers. Guided by both a structuralist and a “doing gender” perspective, we examine gender differences in single parents' child care time and whether the presence and gender of coresident adult kin moderate this association. Our sample drawn from the 2003–2013 American Time Use Survey ($N = 10,985$) consists of non-cohabiting single parents aged 18 to 64 who live with at least one own child under age 18. We first found that single fathers spent slightly less time in all types of child care except play than single mothers. Either coresident adult female kin or adult male kin, or both predicted single parents' spending less time in child care activities, particularly management. Living only with adult male kin also predicted single parents' lower time spent in teaching. Lastly, gender differences in single parents' child care time were larger in any child care, play, and teaching when living with both adult female kin and male kin than when living without any kin. The presence of both female kin and male kin may relieve the parent of tasks gender-appropriate to the related household members. Additional research about the contexts of gender differences in single parents' child care enriches our understanding of parenting by men and women.

Keywords Child care · Gender · Living arrangements · Single-parent families · Time use

Introduction

Since 1970 the proportion of single mother households among family households with children under age 18 has increased approximately twofold (11.51% in 1970 to 25.55% in 2016); that of single father households has shown a fourfold increase over the same period (1.33 to 5.31%) (U.S. Census Bureau 2017b). Despite such a large percentage increase in single father households over the decades, the actual number of single father families is quite small. Consequently, early research on single parents, particularly single fathers, was mainly descriptive, and their engagement with children compared with that of married parents, not with other single parents. It was not until the 1990s that sufficient data were available to examine gender differences in single parents' child care time (Coles 2015). Such research found single fathers to engage less in child care than single mothers (Downey and Powell 1993; Dufur et al. 2010; Hall et al. 1995; Hawkins et al. 2006; Hook and Chalasani 2008; Powell and Downey 1997). However, little is known about how and why this is so.

Living with a single parent in the household does not necessarily mean that there are no other adults; one third of children under age 18 living with an unmarried male or female parent have at least one adult relative in their household (U.S. Census Bureau 2017a). The presence of adult family members is an important family context because it indicates potential coresidential support for parenting (Shin 2013). Yet, most studies on single parents' child care have focused on nonresident parent's coparenting,

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and relatively little attention has been given to the roles of the coresident adult kin with whom single parents interact every day. The extent to which coresident adult kin care for single parents' children may depend on the composition of adult kin, in particular whether male, female, or both. There is, however, little research on how not only the presence but also the gender of adult family members are associated with the participation of single parents in child care, as well as whether they may moderate gender differences in child care among single parents.

There are two perspectives in research on gender differences in child care among single parents that directly pertain to this study. First, researchers with a *structuralist perspective* argue that men and women behave differently due to their different positions in institutional settings, such as the family (Risman 1998). Men and women in the identical structural position (being sole parents) are expected to behave similarly so that single mothers would be involved in routine care as well as play traditionally performed by fathers and single fathers would engage in play alongside daily routine care considered mothers' tasks. The structuralist perspective emphasizes the context in which behavior occurs. One such context is the gender and relationship of other household members.

Second, a *"doing gender" perspective* proposes that single parents would show differences in child care because of social expectations about gendered behaviors (West and Zimmerman 1987). Researchers with this perspective argue that women and men encounter social expectations and norms appropriate for each gender and they behave in a way congruent with these expectations and norms. Thus, "doing gender" leads through social interactions and behaviors to creating differences between women and men that are seen as natural and legitimate, but reinforce inequality. This perspective predicts single fathers to show less engagement than single mothers in most of the child care activities. The exception would be play; "doing gender" would predict that single fathers may be as involved in it as single mothers because it is socially expected and not seen as unmanly.

A small body of empirical research from relatively large and representative samples has shown a few gender differences in single parents' child care. Using the 1987–88 National Survey of Families and Households, Hall et al. (1995) found that single fathers spent less time in private talk and more time in leisure away from home than single mothers. They spent similar amounts of time in play, reading or homework, and having meals. Based on data from the Early Childhood Longitudinal Study (Kindergarten cohort), Dufur et al. (2010) examined gender differences among single parents of children aged 4–6 in participation in parent–child activities and involvement in school. Single fathers were more likely to have breakfast with children at a regular time per week than single mothers but single fathers

were less likely to meet the child's teacher and attend regularly scheduled conferences than single mothers. Using questions about parent–child interactions of eighth graders in single-parent families from the National Educational Longitudinal Study of 1988, Downey and Powell (1993) found that single fathers talked less frequently with children than single mothers. 2 years later, when the children became sophomores in high school, however, no gender difference in talking was found (Powell and Downey 1997). Finally, using the adolescents' reports in the National Longitudinal Survey of Adolescent Health, Hawkins et al. (2006) found that single fathers were more likely to have played sports with children in the past 4 weeks than single mothers. Yet, single mothers were more likely than single fathers to have gone shopping, attended a religious event, worked on school projects, and talked about personal problems and school-related topics with children.

Recent studies have taken advantage of time diary studies, with their more precise detail on time spent caring for children over a 24-h period. Examining daily child care time in the American Time Use Survey (ATUS), Hook and Chalasani (2008) showed that single fathers reported slightly less time in child care than single mothers but the difference was significant only when their youngest child was under five. When the youngest child was under the age of five, single fathers spent more time in play but less time in physical care than single mothers. Additionally, single fathers were less physically present with children while doing housework but more available to children when eating than single mothers. Yeung et al. (2001) demonstrated that partnered fathers spent the highest amount of time relative to mothers in play; in some play activities (sports, outdoor activities, hobbies and television or video viewing), they spent more time than mothers. Both results support the doing gender perspective. Based on theoretical perspectives and previous research, we expect, similarly, that single fathers would spend less time in all types of child care except play than single mothers.

Coresident adult kin are, in general, the most likely to engage in child care for single parents, given that single parents tend to face time and mobility constraints in their child care responsibilities (Bianchi et al. 2006). However, most of the studies about the living arrangements of single parents and their child care have been conducted only on single mothers and even fewer studies have considered their household composition. Among the aforementioned studies on gender differences in single parents' child care, three studies explicitly noted that their samples were limited to single parents living without any kin (Dufur et al. 2010; Hook and Chalasani 2008; Powell and Downey 1997) and others were unclear about their living arrangements. Furthermore, the gender of coresident family members has not been fully taken into consideration when classifying single

parents' living arrangements. Researchers found that the presence of parents influenced single mothers' child care (Kendig and Bianchi 2008; Raymo et al. 2014), but the influence may be different if the parent is a father rather than a mother or when both parents are present. Given that an individual decides on his or her involvement in caregiving activities in conjunction with the presence of other family members and their gendered caregiving expectations (Rivero 2011), not only the presence but also the gender of coresident family members should be considered simultaneously.

According to the gendered norm that women are more involved in caregiving activities than men and consistent with previous research (Short et al. 2006), *adult female kin* may take on the responsibility of child care, resulting in single parents' reduced child care time. The extent to which adult female kin would be involved in child care may differ by the gender of single parents. Based on the "doing gender" perspective, congruent with the gender norm, adult female kin living in single father households may feel more pressure to engage in child care than those living in single mother households because the former are the only adult females who could perform women's tasks whereas the latter can share these tasks with single mothers. Thus, living with adult female kin only may reduce single fathers' child care time more than single mothers'. This may not happen in play, however, the main fathering domain.

Coresident adult male kin may also help with single parents' child care, but regarding the degree of their overall help, findings are scarce and mixed. Shin (2013) documented that, in Mexico, living with an adult male extended family member reduced single mothers' child care time but this was not statistically significant. In contrast, literature on men's caregiving has shown that men are just as likely as women to provide support for those who need assistance when they are the only available caregiver (Rivero 2011). It is plausible that living with adult male kin only may be associated with single parents' reduced child care time, but there is little research to predict the existence of a moderating effect.

What about *living with both adult female kin and male kin*? Because there are both gender adult kin present and the presence and gender of other family members are closely related to individuals' participation in caregiving (Rivero 2011), there may be not only cooperation but also gender specialization in child care. That is, adult female kin may participate in routine care and adult male kin engage in sporadic or less demanding care. The overall prediction would thus be similar to that of living with adult female kin only, so that living with both gender adult kin may decrease single parents' child care time and lead to larger gender differences in child care. The only predictive difference is that the direct and moderating effects of living with both

gender adult kin are expected across all types of child care activities, whereas those of living with adult female kin only are expected in all types of child care except play.

There are several factors that relate to single parents' child care and should be controlled. The first set of factors consists of single parents' sociodemographic variables: age, education, family income, and race/ethnicity. Higher age, education, and family income predict a greater level of parental involvement in child care (Hook and Chalasani 2008; Yeung et al. 2001), and there are racial/ethnic variations in single parents' child care as well (Eitle 2006). The second set of variables includes the amount of paid work time and whether or not single parents are professionally employed (Hook and Chalasani 2008) as they indicate how much time single parents can allocate to child care (Coles 2015). The third set of variables comprises child characteristics: age of youngest child, number of own children under age 18, and presence of a boy in the household. Given that parents' involvement in child care differs on weekdays and weekends (Yeung et al. 2001), what day the single parent's child care time was measured should be controlled. Lastly, we controlled for the presence of a non-adult kin, such as a non-romantic roommate, in the household.

This study uses data from the ATUS to understand single parents' child care by answering two questions: (1) are there gender differences in single parents' child care?; (2) are the gender differences in child care among single parents moderated by the presence and gender of coresident adult kin? We paid attention to single parents who live with adult family members as well as those live without such kin and developed hypotheses by dividing them into four groups—single parents living without any adult kin, single parents living with adult female kin only, single parents living with adult male kin only, and single parents living with both adult female kin and male kin. *Hypothesis 1* states that single fathers spend less time in all types of measured child care activities except play than single mothers. *Hypothesis 2a* predicts that single parents living with adult female kin only spend less time in all types of measured child care activities except play than those living without any adult kin. *Hypothesis 2b* posits that single fathers' deficiency in child care time (relative to single mothers) except play is larger when living with adult female kin only than when living without any adult kin. *Hypothesis 3a* states that single parents living with adult male kin only spend less time in all types of measured child care activities than those living without any adult residential kin. *Hypothesis 3b* anticipates that single fathers' deficiency in child care time except play when living with adult male kin only is similar to that when living without any adult kin. *Hypothesis 4a* predicts that single parents living with both adult female kin and male kin spend less time in all types of measured child care activities than those living without any adult kin. Finally,

Hypothesis 4b posits that single fathers' deficiency in child care time is larger in all types of measured child care activities when living with both adult female kin and male kin than when living without any kin.

Method

Participants

Using the 2003 through 2013 waves of the ATUS (148,345 respondents in total), we selected 10,985 single parents aged 18 to 64 who live with at least one own child under the age of 18 but do not live with a spouse or unmarried partner. On average, one thousand single parents per year met these criteria, ranging 1492 in 2003 to 852 in 2013.

Procedures

Data for this study were drawn from the ATUS, a representative annual nationwide survey of the time use of Americans aged 15 or older from 2003 to the present (Hofferth et al. 2015; <https://www.atusdata.org/atus/>). From an outgoing rotation of the Current Population Survey, a subsample of households is selected for the ATUS, and one randomly-selected person aged 15 years or older in each selected household is asked to describe how he or she spent time over the 24-h period that began at 4 a.m. on the designated day and ended at 3:59 a.m. on the following day. The telephone interviewer collects the individual's activities, their beginning and ending time, the person(s) accompanying the individual during the activities, and the location of the activities. Ten percent of the ATUS diary days are assigned to each of 5 weekdays, 25% are assigned to Saturdays, and the remaining 25% are assigned to Sundays. Such time diaries along with the respondents' socio-demographic information have been collected since 2003. The average annual response rate up to 2013 is about 55% (Bureau of Labor Statistics 2014a).

Measures

Dependent variables

Activities in the ATUS are coded as child care when the respondent directly interacts with a child, watches the child, or does activities of which the purpose is none other than the child (Bureau of Labor Statistics 2014b). Using the coding lexicon, we selected single parents' primary child care activities. Although the ATUS asked parents about other times in which they were responsible for children but child care was not the main primary activity ("secondary care"), such care is not commonly included as child care in

the literature. Following prior studies (Kalil et al. 2012; Musick et al. 2016), we further divided primary child care activities into four mutually exclusive categories (routine care, play, management, and teaching). Routine care includes physical care for children, helping or teaching children (not related to education), looking after children, and providing medical care to children. Play includes playing with household children (not sports), doing arts and crafts with children, and playing sports with them. Management of children consists of organization and planning for children, attending children's events, waiting for or with children, picking up or dropping off children, obtaining medical care for children, waiting associated with children's health, and traveling related to children's health or caring for children. Teaching includes reading to or with children, talking with or listening to children, activities related to children's education (e.g., checking child's homework for completion), and traveling related to children's education. The total amount of time the respondents spent in each category of activities (including zero time) was coded as a continuous activity variable.

Independent variable

The gender of single parents is the independent variable. Single fathers were coded as 1; single mothers were coded as 0.

Moderator

The moderator is the presence and gender of coresident adult family members, divided into four groups: single parents living without any adult kin (reference category), those living with adult female kin only, those living with adult male kin only, and those living with both adult female kin and male kin. The kin include single parents' own household child (biological, adopted, or step child), grandchild, parent, brother/sister, other relative, or foster child aged 18 or above.

Control variables

The sociodemographic control variables include respondent's age, years of schooling, race/ethnicity, and the family's total annual income. Single parents' age and years of schooling are continuous, and the family's total annual income is divided into five quintiles based upon national income statistics for the years 2003 to 2013. Race/ethnicity includes non-Hispanic White, non-Hispanic Black, Asian/Pacific islander, Hispanic, and Other. We also control for single parents' employment characteristics: whether or not they are professionally employed and the amount of paid work time during the diary day. Another set of variables

related to child care time comprises children's characteristics. The age of the youngest child, the number of own children under age 18, and the presence of a boy under age 18 were included in the analysis. Lastly, we control for whether the time diary was collected on a weekday or weekend day and whether respondents lived with a non-kin adult, such as a live-in nanny or non-romantic roommate, in their households.

Data Analyses

After presenting descriptive statistics and simple mean comparisons, we conducted ordinary least squares (OLS) regression of time spent in each child care category to test our hypotheses. There have been concerns about using OLS in time-use data that include a number of zero-minute values. The zeros arise when an individual never engages in an activity (e.g., a childless individual is likely to report 0 min of child care time) or when an individual does not do an activity during the specific period of observation (e.g., a parent is likely to report 0 min of play time during a randomly selected 24-h period if he or she happens to be working late on the diary day) (Brown and Dunn 2011; Stewart 2013). Because we selected single parents living with their own children, we assumed that the zeros in our data occurred for the latter reason.

To handle the zeroes, Tobit models have been widely used in time-use data; however, it is now understood that OLS regression generates less biased estimates than Tobit or two-part models (Gershuny and Egerton 2006; Stewart 2013). Stewart (2013) argued that when excluding those who never do the activity in question (e.g., childless individuals), the zeroes in time-use data are generally due to the combination of the short, 24-h window in a diary day with the day-to-day variation in the amount of time spent in activities. He empirically found OLS estimates to be less biased than estimates in Tobit or two-part model using parents' child care time in the ATUS from 2003 to 2008, particularly as the number of zeros increased. This evaluation was consistent with an analysis based on the Australian Time Use data showing that Tobit and OLS marginal effects on parents' child care time were very similar but the former tended to be more sensitive to the prevalence of zero values and they were less precisely estimated (Foster and Kalenkoski 2013). In this sample, 32% of single parents reported 0 min spent in any child care activities, 49% in routine care, 86% in play, 61% in managerial care, and 75% in teaching. We thus used OLS regressions for subsequent multivariate analyses. All analyses were conducted with the sample multiply imputed by chained equations to handle respondents who did not report their family's total annual income ($n = 844$, 7.7%) or their relationship to household members ($n = 6$, 0.05%) and weighted to adjust for the complex

sampling design and the distribution of weekday and weekend diary days.

Results

Table 1 presents the descriptive statistics for the sample. On average, single parents spent one h and 31 min in all types of measured child care, including 38 min in routine care, 16 min in play, 23 min in management, and 14 min in teaching. Single fathers spent significantly less time in each child care activity than single mothers ($p < .001$). The average amount of time spent in any child care was 54 min for single fathers whereas it was 1 h and 39 min for single mothers. For single fathers, none of the average times spent in specific child care activities exceeded 20 min. Single mothers, however, spent 43 min in routine care and 25 min in management.

Eighteen percent of the sample were single fathers; 82% were single mothers. Six out of ten lived without any adult kin, which was more prevalent among single fathers than single mothers ($p < .001$). Thirteen percent of the sample lived with adult female kin only, 8% lived with adult male kin only, and 14% lived with both adult female kin and male kin. Of the latter, 60% lived with their own parents and the remaining 40% lived with diverse combinations of adult female kin and male kin, including their own parents and siblings or just siblings (results not shown). Living with adult female kin was less prevalent among single fathers than single mothers ($p < .01$). Comparable proportion of single fathers and mothers (under 10%) lived with adult male kin only. On average, single parents were in their mid-thirties and economically disadvantaged relative to the national population because 66% fell in the lowest two quintiles of income. They were also more likely to be of minority background than the U.S. population: 47% were White, 29% were Black, and 21% were Hispanic. Two in ten were professionally employed and the average time worked on the diary day was about 4 h. The youngest child averaged 7 years of age (range: 0–17) and the average number of own children under age 18 was less than two (range: 1–9). Compared to single mothers, single fathers tended to have at least one non-kin adult in the household ($p < .001$). Gender differences in the sociodemographic information for our sample are consistent with the previous literature (Coles 2015; Livingston 2013).

Presented in Table 2 are the results of the OLS regression models predicting the amount of time single parents spent in child care (The models including control variables are presented in Table 4). Panel 1 in Table 2 shows that single fathers spent about 27 fewer minutes than single mothers in any child care ($p < .001$), a gender difference found in all types of child care activities except play ($p < .001$). The differences ranged from about 4 min in teaching to 12 min

Table 1 Weighted proportions/means and standard deviations for variables

Variable	Single parents (<i>N</i> = 10,985)		Single fathers ^a (<i>n</i> = 1806)		Single mothers (<i>n</i> = 9179)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Time spent in child care (min)						
Any child care	91	111	54***	96	99	113
Routine care	38	67	18***	43	43	70
Play	16	49	11***	50	17	49
Management	23	48	15***	40	25	49
Teaching	14	35	9***	33	15	36
Gender of single parents						
Single father	0.18		—		—	
Single mother	0.82		—		—	
Living arrangements						
Living without any adult kin	0.64		0.68***		0.64	
Living with adult female kin only	0.13		0.12**		0.14	
Living with adult male kin only	0.08		0.09		0.08	
Living with both adult female & male kin	0.14		0.12**		0.15	
Age	35.58	9.14	38.97***	9.01	34.84	9.00
Education in years	12.75	2.82	12.60*	2.87	12.79	2.81
Family income						
Lowest quintile	0.37		0.22***		0.40	
Second quintile	0.29		0.28		0.29	
Third quintile	0.17		0.23***		0.16	
Fourth quintile	0.12		0.17***		0.11	
Highest quintile	0.05		0.09***		0.05	
Race/ethnicity						
White	0.47		0.61***		0.44	
Black	0.29		0.17***		0.31	
Asian/Pacific islander	0.02		0.02		0.02	
Hispanic	0.21		0.19*		0.21	
Other	0.02		0.02		0.02	
Employment characteristics						
Professionally employed	0.20		0.20		0.20	
Paid work time (min)	238	259	320***	286	220	252
Child characteristics						
Age of the youngest child	7.26	4.93	8.37***	4.77	7.02	4.93
Number of own children < age 18	1.67	0.89	1.49***	0.71	1.71	0.91
Presence of a boy < age 18	0.66		0.65		0.66	
Diary day						
Weekends	0.29		0.27		0.29	
Presence of a non-kin adult in household	0.09		0.18***		0.07	

^a The two-sided t-test was conducted between single fathers and single mothers at

* $p < .05$, ** $p < .01$, *** $p < .001$

in routine care. Compared to single parents living without any adult kin, living with only adult female kin reduced the amount of time single parents spent in management (9 min, $p < .001$) but was not significantly related to overall time spent or time spent on other tasks. Living with only adult male kin decreased single parents' overall child care time by

9 min ($p < .05$), their management time by 6 min ($p < .01$), and their teaching time by 4 min ($p < .01$). Single parents living with both adult female kin and male kin spent 16 fewer minutes in any child care ($p < .01$) and 13 fewer minutes in management ($p < .001$) than those living without any adult kin.

Table 2 Ordinary least square regression models predicting the amount of time spent in child care (N = 10,985)

Variable	Any child care		Routine care		Play		Management		Teaching	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Panel 1										
Gender of single parents ^a										
Single father	-26.64***	3.42	-11.58***	1.93	-2.68	1.64	-7.99***	1.17	-4.38***	1.04
Living arrangements ^b										
Living with adult female kin only	-9.06	4.91	1.65	3.42	-0.47	2.02	-9.43***	2.00	-0.81	1.52
Living with adult male kin only	-9.95*	4.59	0.42	2.73	0.20	1.64	-6.20**	2.11	-4.37**	1.46
Living with adult female & male kin	-16.03**	5.61	-5.96	3.47	3.90	3.48	-13.74***	1.94	-0.24	1.69
<i>df</i>	20		20		20		20		20	
<i>F</i>	61.87***		56.54***		25.11***		23.47***		16.66***	
<i>R</i> ²	0.21		0.20		0.10		0.07		0.05	
Panel 2										
Gender of single parents ^a										
Single father	-23.35***	3.79	-9.66***	2.24	-1.08	1.81	-8.35***	1.51	-4.26***	1.13
Living arrangements ^b										
Living with adult female kin only	-7.94	5.49	3.24	3.90	-0.39	2.23	-9.54***	2.32	-1.25	1.63
Living with adult male kin only	-12.75*	5.23	-0.56	2.99	-0.24	1.87	-7.09**	2.48	-4.86**	1.69
Living with adult female & male kin	-10.92	6.26	-4.31	3.85	6.30	4.13	-13.59***	2.20	0.68	1.94
Interactions										
Single father × adult female kin only	-5.58	11.85	-9.46	6.98	0.19	5.26	0.67	3.58	3.03	4.50
Single father × adult male kin only	14.24	9.52	5.01	6.39	2.22	3.73	4.58	4.02	2.44	2.87
Single father × adult female & male kin	-29.89*	11.99	-9.23	7.37	-14.22*	5.76	-0.86	2.97	-5.57*	2.36
<i>df</i>	23		23		23		23		23	
<i>F</i>	54.54***		50.63***		21.91***		21.81***		15.59***	
<i>R</i> ²	0.21		0.20		0.10		0.06		0.05	

Control variables including age, education years, family income, race/ethnicity, employment characteristics, child characteristics, diary day, and the presence of a non-kin adult are adjusted in all models, although coefficients are not presented

^a Referent is single mother

^b Referent is living without any adult kin

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

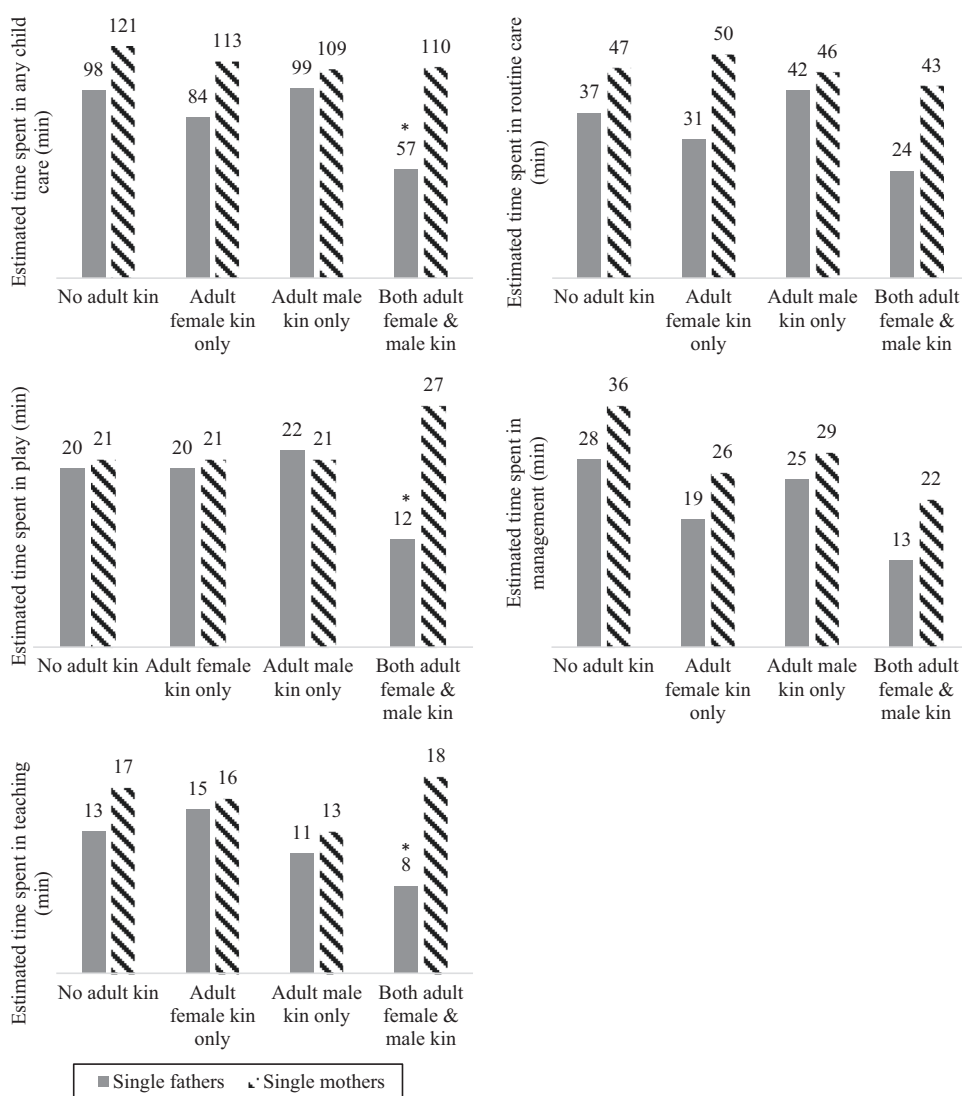
Panel 2 (Interactions) in Table 2 tests the moderating roles of the presence and gender of coresident adult kin. The negative association between being a single father and time in any child care, play, and teaching was greater when living with both adult female kin and male kin than when living without any adult kin (*p* < .05). For easier interpretation of these interaction terms, we estimated the amount of time single parents spent in each child care activity by the presence and gender of coresident adult kin (Fig. 1).

Regarding any child care (top left in Fig. 1), the estimated amount of time spent in it when living without any adult kin was 98 min for single fathers and 121 min for single mothers, so the gender difference was 23 min. The comparable time when living with both adult female kin and male kin was 57 min for single fathers and 110 min for single mothers. Because the drop in single fathers' time was larger than that in single mothers' time, the overall gender difference increased from 23 min to 53 min (*p* < .05).

The second significant interaction was found in play (middle left in Fig. 1). Single fathers were estimated to spend 1 fewer minute in play than single mothers when they lived without any adult kin (20 min for single fathers and 21 min for single mothers). Yet, the small difference was dramatically increased when they lived with both adult female kin and male kin, so that single fathers were estimated to spend 15 fewer minutes than single mothers (12 min for single fathers and 27 min for single mothers, *p* < .05).

Regarding teaching (bottom left in Fig. 1), the estimated amount of time spent in it when living without any adult kin was 13 min for single fathers and 17 min for single mothers. The comparable time when living with both adult female kin and male kin was 8 min for single fathers and 18 min for single mothers. The decline in single fathers' teaching time when living with both adult female kin and male kin contributed to increasing the gender difference from 4 to 10 min

Fig. 1 Estimated amount of time spent in child care, by presence and gender of coresident adult kin (N = 10,985) *Note:* The estimated amount of time was calculated based on the following information (Averages: age, education in years, age of youngest child, number of children under age 18, and paid work time; Being in the third quintile, not being professionally employed, White or Other, presence of son, weekday diary day, and not living with a non-kin adult) in the full sample. **p* < .05 indicates a significant difference from No adult kin



(*p* < .05). Table 3 summarizes our hypotheses and whether they were supported by the findings.

To check the robustness of our models, we conducted three sets of sensitivity analyses. The first set of sensitivity analyses focused on children’s characteristics. We considered only coresident children when measuring child care time as a dependent variable and children’s characteristics as control variables; it is possible that the presence and number of nonresident children may be associated with single parents’ child care time. We included the presence and number of nonresident children, and the age of the youngest child (including nonresident children), respectively, in the models but our current findings did not change. Among coresident children, older children often take care for younger children, which may reduce single parents’ child care time. To capture the dynamics of child care activity among children, we controlled for the age gap between the oldest and youngest child and conducted

sensitive analyses. This did not alter the significance of our findings, either. We recoded the age of youngest child into three binary variables (infant and toddlerhood, middle childhood, and adolescence) and reran the models, yielding the same significant results.

The second set of sensitivity analyses pertained to paid work time, day, and year of the diary day. First, the market work time variable indicates how much time parents can allocate to child care, and has been suggested as an important variable to include in single fathers’ research (Coles 2015). At the same time, there is concern that including paid work time variable to predict child care time creates an endogeneity problem; that is, rather than work time influencing child care time, single parents’ decision about how much time to spend in child care may influence how much time they spend in paid work. We reran the models without the paid work time variable and found that the coefficients of the key variables became larger but their

Table 3 Summary of hypotheses and findings

Hypotheses	Findings
H1: Single fathers spend less time in all types of measured child care activities except play than single mothers	Supported
H2a: Single parents living with adult female kin only spend less time in all types of measured child care activities except play than those living without any adult kin	Supported in management
H2b: Single father's deficiency in child care time except play is larger when living with adult female kin only than when living without any adult kin	Not supported
H3a: Single parents living with adult male kin only spend less time in all types of measured child care activities than those living without any adult kin	Supported in any child care, management, and teaching
H3b: Single father's deficiency in child care time except play when living with adult male kin only is similar to that when living without any adult kin	Supported
H4a: Single parents living with both adult female kin and male kin spend less time in all types of measured child care activities than those living without any adult kin	Supported in any child care and management
H4b: Single fathers' deficiency in child care time is larger in all types of measured child care activities when living with both adult female kin and male kin than when living without any kin	Supported in any child care, play, and teaching

significance did not change. A recent study about women's housework time also noted the potential endogeneity issue when using employment and housework time together (Hook 2016). That author noted that actual work hours are determined by employers before women decide how much time to spend on housework. The minimal and insignificant increase in the coefficients in our sensitivity analysis suggests that including market work time does not unduly influence our findings. Second, parents' child care time varies by whether the time diary was collected on a weekday or weekend day (Yeung et al. 2001). We controlled for the day the time diary was collected (weekday or weekend day) since this is not our main research interest. We reran the models separately to see whether the time diary day makes a difference. The patterns of gender differences in the amount of time spent in child care were the same on both weekdays and weekends, but the associations between living arrangements and single parents' child care time and the identically significant interactions were mainly found on weekday diaries. We think some of our results reflect single parents' weekday child care patterns, which makes sense because parents tend to work on weekdays. Lastly, we pooled the ATUS data collected over a 11-year period since any temporal change in single parents' child care time is not our research interest. We reran the models including the year the time diary was collected as a control variable and confirmed no change in the current findings. To retain as a parsimonious model as possible, we did not use the year of time diary in the final models.

The third set of sensitivity analyses was related to the sociodemographic characteristics of single parents and coresident kin. One sociodemographic characteristic of single parents that we dealt with in the sensitivity analyses is their marital status (e.g., never-married, widowed, or divorced). Slightly fewer than half (46%) of our sample were never-married single parents, followed by divorced

parents (31%). It is thus most likely that coresident kin would be single parents' siblings or parents and their marital status was not significantly related to any of our dependent variables. Regarding the sociodemographic characteristic of the coresident kin, their age is the only available information other than their presence and gender. When we controlled for their age, the associations between living with adult male kin and teaching time and total child care time became insignificant but the age of the coresident kin was also insignificant. Other findings were the same. Because living with adult male kin still significantly predicted single parents' lower time in management and the age of the coresident kin was not significant, we did not accept this model, though further examination is recommended. Sensitivity analyses results are available from the corresponding author upon request.

Discussion

Guided by the structuralist and "doing gender" perspectives, we addressed whether single parents' child care time differed by their gender and to what extent any gender differences are moderated by the presence and gender of coresident adult family members. These two research questions were tested based on time in four mutually exclusive types of child care activities, as well as time in any child care activities.

The results first support the structuralist perspective, in that the presence of adult female kin (*Hypothesis 2a*), adult male kin (*Hypothesis 3a*), and both adult female and male kin (*Hypothesis 4a*) was linked to less parental child care time, primarily managerial time. Given that most of the studies on single parents did not clarify their living arrangements, our findings show the importance of distinguishing such an essential context where daily child care

takes place. That such reduction in single parents' child care time was not found in routine care and play but in management is also new and important. One interpretation is that because the average age of children in the sample is around 7 years old, coresident adult kin may help single parents through picking up or dropping off children for their activities after school or attending children's events on their behalf. Another interpretation is that single parents living with female or male adult kin may arrange fewer extra-curricular activities than those living without any adult kin. In this case, the presence of coresident adult female kin or male kin may reflect single parents' strategy for arranging child care activities, rather than the engagement in child care of such coresident kin. Unfortunately, we were unable to test these possibilities with the current data.

In addition to the results that held for all living arrangements, living only with adult male kin predicted single parents' lower teaching time. Given that, historically, teaching has been an important task for fathers (Griswold 1993) and is an interactive activity, adult male kin's participation in teaching may reflect their gendered role as a father figure. Because this association was not statistically significant after controlling for the age of coresident kin in the sensitivity analysis, however, this should be considered as suggestive.

The current study also provides support for the "doing gender" perspective. As posited in *Hypothesis 1*, we found that single fathers spent significantly less time in all types of measured child care activities except play than single mothers. Such gender differences in child care time among single parents were not consistent across living arrangements and the types of child care activities, however. First, gender differences in single parents' total child care time were significantly moderated by living with both adult female and male kin, supporting *Hypothesis 4b*. Single parents' gender differences in overall child care when living without any adult kin were 23 min but 53 min when living with both adult female kin and male kin. Given that this is daily child care time, the difference is quite substantial.

Second, even when single parents (particularly single fathers) live with both adult female and male kin, gender differences were more pronounced in play and teaching than in routine care and management. Because the significant interactions occurred due to single fathers' substantial drop in child care time, not single mothers', single fathers appear to be more responsive to coresident adult kin's involvement in child care than single mothers. This also reflects that while adult female kin provide support in many types of child care activities, single fathers share their fathering role such as playing with or teaching children with adult male kin, supporting family members' cooperation and specialization (Rivero 2011). It is possible that the presence of both adult female and male kin may relieve the parents of tasks gender-appropriate to the related household members.

This inference is supported by the finding that even the play time gap between male and female single parents was significant when living with both female and male kin whereas it was not significant when living with either only adult female or only adult male kin.

Our study suggests that the structuralist and "doing gender" perspectives play out simultaneously in single parents' child care. Consistent with the structuralist perspective (Risman 1998), single parents' living arrangements matter for both mothers and fathers in understanding their involvement in child care. Also in line with previous findings based on the "doing gender" perspective (West and Zimmerman 1987), gender differences exist in single parents' child care. This study further shows that even in a certain living arrangement (e.g., living with both adult female and male kin), extant gender differences vary by the gendered nature of child care activities and gender-appropriateness of household members. Thus, one perspective in itself is insufficient to understand single parents' child care, particularly when considering detailed living arrangements or types of child care activities.

Limitations and Directions for Future Research

We note some important limitations. First, we cannot rule out selection effects. The characteristics of single parents who live with other family members may differ from those who live without any kin. Such characteristics could include lack of competent parenting skills so that single parents need to rely on coresident kin's support. Alternatively, competent single parents may invite family members needing assistance themselves to live with them. From the data used in this study, we cannot distinguish these two possibilities. Second, the information about coresident household members, such as their health or their role in the household, was limited in this data set. Coresident family members may contribute to single parents' child care through a number of mechanisms. They could engage in child care as an alternative child care provider so that single parents can participate in paid employment. Also, they could work as a breadwinner in order to give single parents more time to spend with their children. Because our descriptive statistics showed that single mothers worked fewer hours than single fathers, this may be plausible for single mothers. With the ATUS data we cannot, however, determine in what ways coresident family members contribute to single parents' child care. Third, our results are limited to single parents' primary child care, which includes direct interaction, watching children, and doing activities that meet only children's needs. Single parents may take care of children while doing other activities, such as cooking or going shopping, or they may watch a TV show with children but this time is not recorded as child care given the current ATUS coding lexicon. Additionally, specific

information regarding single parents’ child care, such as whether single parents use any outsourced child care or who holds custody of the children, could not be obtained from this data set. Incorporating such information would be another valuable way to fully capture their child care.

We conclude this paper by suggesting directions for future research. First, it would be worthwhile for future research to study whether and how the differences in child care time among single parents are associated with differences in children’s developmental outcomes. If there are no differences in children’s academic achievement by gender of single parents (Dufur et al. 2010), it would be important to examine in what types of detailed activities single fathers engage to make up the deficit in time spent with children. Second, our study focused on non-cohabiting single parents, but future research could examine child care of single parents with romantic cohabiters. The roles of romantic cohabiters would differ by their gender, which could be associated with single parents’ time spent in child care. Lastly, some of the control variables in this research, such as race of single parents or the ages of children, could serve as contextual factors to examine differences in single parents’ child care time. Future research regarding to what extent single parents’ involvement in child care varies by gender and living arrangements will enrich our understanding of parenting by men and women in similar contexts.

Acknowledgements A preliminary version of this paper was presented at the Population Association of America in San Diego, CA in 2015. Support for this research was provided by the National Institute of Child Health and Human Development (Grant number R01-HD053654, S. Hofferth, PI, and R24-HD041041, the Maryland Population Research Center).

Author Contributions Y.L.: designed the study, conducted statistical analyses, and wrote the paper. S.H.: collaborated with the design of the study and editing of the final manuscript.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no competing interests.

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.

Appendix

Table 4

Table 4 Ordinary least squares regression models predicting the amount of time spent in child care (N = 10,985)

Variable	Any child care		Routine care		Play		Management		Teaching	
	<i>b</i>	SE	<i>b</i>	SE	<i>b</i>	SE	<i>B</i>	SE	<i>b</i>	SE
Gender of single parents^a										
Single father	-26.64***	3.42	-11.58***	1.93	-2.68	1.64	-7.99***	1.17	-4.38***	1.04
Living arrangements^b										
Living with adult female kin only	-9.06	4.91	1.65	3.42	-0.47	2.02	-9.43***	2.00	-0.81	1.52
Living with adult male kin only	-9.95*	4.59	0.42	2.73	0.20	1.64	-6.20**	2.11	-4.37**	1.46
Living with adult female & male kin	-16.03**	5.61	-5.96	3.47	3.90	3.48	-13.74***	1.94	-0.24	1.69
Age	-0.08	0.22	-0.27*	0.14	-0.17	0.10	0.05	0.08	0.31***	0.07
Education in years	1.75**	0.59	0.70*	0.33	0.04	0.31	0.70**	0.25	0.30	0.23
Family income^c										
Second quintile	-1.42	3.65	-2.79	2.27	0.09	1.73	1.75	1.50	-0.48	1.30
Third quintile	3.60	4.22	-0.17	2.59	0.47	2.00	5.35**	1.90	-2.06	1.54
Fourth quintile	11.91	6.22	2.64	3.64	4.78	4.04	5.21*	2.28	-0.72	1.57
Highest quintile	10.00	8.15	7.89	6.11	-0.25	3.19	5.45	2.94	-3.09	2.20
Race/ethnicity^d										
Black	-20.57***	3.25	-4.63*	2.12	-11.92***	1.54	-2.48	1.36	-1.55	1.04
Asian/Pacific islander	-6.91	9.05	-9.20*	4.40	-7.17**	2.67	4.03	3.74	5.43	3.46
Hispanic	-9.07*	4.35	-5.36	2.80	-6.53**	2.53	3.40*	1.63	-0.57	1.20

Table 4 continued

Variable	Any child care		Routine care		Play		Management		Teaching	
	<i>b</i>	SE	<i>b</i>	SE	<i>b</i>	SE	<i>B</i>	SE	<i>b</i>	SE
Employment characteristics ^e										
Professionally employed	1.38	3.08	-2.80	1.86	-1.50	1.32	3.87**	1.40	1.81	1.32
Paid work time	-0.09***	0.01	-0.04***	0.00	-0.02***	0.00	-0.01***	0.00	-0.01***	0.00
Child characteristics										
Age of youngest child	-7.16***	0.37	-4.33***	0.23	-2.37***	0.17	-0.58***	0.16	0.12	0.12
No. of children < age 18	13.05***	1.93	7.51***	1.19	-3.13***	0.82	4.54***	0.91	4.13***	0.60
Presence of a boy < age 18 ^f	-0.61	2.87	-1.63	1.92	3.20*	1.45	-1.06	1.16	-1.12	0.92
Diary day: Weekend ^g	-40.17***	3.18	-10.85***	2.05	-0.55	1.67	-16.96***	1.18	-11.81***	0.89
Presence of a non-kin adult ^h	-21.88***	5.09	-10.02**	3.29	2.13	2.90	-8.90***	1.83	-5.08***	1.25
Intercept	151.09***	10.59	79.19***	6.59	50.99***	5.94	19.51***	4.06	1.39	3.29
<i>df</i>	20		20		20		20		20	
<i>F</i>	62.41***		56.54***		25.11***		23.35***		16.66***	
<i>R</i> ²	0.21		0.20		0.10		0.07		0.05	

^a Referent is single mother

^b Referent is living without any adult kin

^c Referent is being in the lowest quintile

^d Referent is White or Other

^e Referent is being unemployed or not professionally employed

^f Referent is No boy in the household

^g Referent is weekday diary day

^h Referent is having a non-kin adult in the household

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

References

- Bianchi, S. M., Robinson, J. P., & Milkie, M. A. (2006). *Changing rhythms of American family life*. New York, NY: Russel Sage Foundation.
- Brown, J., & Dunn, P. (2011). Comparisons of Tobit, linear regression and Poisson-gamma regression models: An application of time use data. *Sociological Methods & Research*, 40, 511–535. doi:10.1177/0049124111415370.
- Bureau of Labor Statistics (2014a). American Time Use Survey user's guide: Understanding ATUS 2003 to 2013. https://www.atusdata.org/atus/linked_docs/atususersguide.pdf.
- Bureau of Labor Statistics (2014b). American Time Use Survey – Activity coding lexicons. <http://www.bls.gov/tus/lexicons.htm>.
- Coles, R. L. (2015). Single-father families: A review of the literature. *Journal of Family Theory & Review*, 7, 144–166. doi:10.1111/jftr.12069.
- Downey, D. B., & Powell, B. (1993). Do children in single-parent households fare better living with same-sex parents? *Journal of Marriage and the Family*, 55, 55–71.
- Dufur, M., Howell, N. C., Downey, D. B., Ainsworth, J. W., & Lapray, A. J. (2010). Sex differences in parenting behaviors in single-mother and single-father households. *Journal of Marriage and Family*, 72, 1092–1106. doi:10.1111/j.1741-3737.2010.00752.x.
- Eitle, D. (2006). Parental gender, single-parent families, and delinquency: Exploring the moderating influence of race/ethnicity. *Social Science Research*, 35, 727–748. doi:10.1016/j.ssresearch.2005.06.003.
- Foster, G., & Kalenkoski, C. M. (2013). Tobit or OLS? An empirical evaluation under different diary window lengths. *Applied Economics*, 45, 2994–3010. doi:10.1080/00036846.2012.690852.
- Gershuny, J., & Egerton, M. (2006). Evidence on participation and participants' time use from day- and week-long diaries: Implications for modeling time use. Paper presented at the annual meeting of the International Association of Time-Use Research, Copenhagen, Denmark.
- Griswold, R. L. (1993). *Fatherhood in America: A History*. New York, NY: Basic Books.
- Hall, L. D., Walker, A. J., & Acock, A. C. (1995). Gender and family work in one-parent households. *Journal of Marriage and the Family*, 57, 685–692.
- Hawkins, D. N., Amato, P. R., & King, V. (2006). Parent-adolescent involvement: The relative influence of parent gender and residence. *Journal of Marriage and Family*, 68, 125–136. doi:10.1111/j.1741-3737.2006.00238.x.
- Hofferth, S. L., Flood, S. M., & Sobek, M. (2015). American time use survey data extract system: Version 2.5 [Machine-readable database]. Maryland Population Research Center, University of Maryland, College Park, Maryland, and Minnesota Population Center, University of Minnesota, Minneapolis, Minnesota.
- Hook, J. L. (2016). Women's housework: New tests of time and money. *Journal of Marriage and Family*, 79, 179–198. doi:10.1111/jomf.12351.
- Hook, J. L., & Chalasani, S. (2008). Gendered expectations? Reconsidering single fathers' child care time. *Journal of Marriage and Family*, 70, 978–990. doi:10.1111/j.1741-3737.2008.00540.x.

- Kalil, A., Ryan, R., & Corey, M. (2012). Diverging destinies: Maternal education and investments in children. *Demography*, *49*, 1361–1383. doi:10.1007/s13524-012-0129-5.
- Kendig, S. M., & Bianchi, S. M. (2008). Single, cohabitating, and married mothers' time with children. *Journal of Marriage and Family*, *70*, 1228–1240. doi:10.1111/j.1741-3737.2008.00562.x.
- Livingston, G. (2013). *The rise of single fathers: A ninefold increase since*. Washington, DC: Pew Research Center 1960.
- Musick, K., Meier, A., & Flood, S. (2016). How parents fare: Mothers' and fathers' subjective well-being in time with children. *American Sociological Review*, *81*, 1069–1095. doi:10.1177/0003122416663917.
- Powell, B., & Downey, D. B. (1997). Living in single-parent households: An investigation of the same-sex hypothesis. *American Sociological Review*, *62*, 521–539.
- Raymo, J. M., Park, H., Iwasawa, M., & Zhou, Y. (2014). Single motherhood, living arrangements, and time with children in Japan. *Journal of Marriage and Family*, *76*, 843–861. doi:10.1111/jomf.12126.
- Risman, B. J. (1998). *Gender vertigo: American families in transition*. New Haven, CT: Yale University Press.
- Rivero, E. (2011). Gender and intra-household organization for the care of people with disabilities in Mexico. *International Journal of Sociology*, *41*, 48–66. doi:10.2753/IJS0020-7659410103.
- Shin, H. (2013). Coresident extended kin and time allocation among employed mothers in Mexico. *Journal of Family Issues*, *34*, 918–951. doi:10.1177/0192513X12448740.
- Short, S. E., Goldscheider, F. K., & Torr, B. M. (2006). Less help for mother: The decline in coresidential female support for the mothers of young children, 1880–2000. *Demography*, *43*, 617–629. doi:10.1353/dem.2006.0038.
- Stewart, J. (2013). Tobit or not tobit? *Journal of Economic and Social Measurement*, *38*, 263–290. doi:10.3233/JEM-130376.
- U. S. Census Bureau (2017a). America's families and living arrangements: 2017. Table C3: Living arrangements of children under 18 years and marital status of parents, by age, gender, race, and Hispanic origin of the child for all children. <https://www.census.gov/data/tables/2016/demo/families/cps-2016.html>. Accessed 28 April 2017.
- U.S. Census Bureau (2017b). Table FM-2: All parent/child situations by type, race, and Hispanic origin of the householder or reference person: 1970 to present. <https://www.census.gov/data/tables/time-series/demo/families/families.html>. Accessed 28 April 2017.
- West, C., & Zimmerman, D. H. (1987). Doing gender. *Gender & Society*, *1*, 125–151.
- Yeung, W. J., Sandberg, J., Davis-Kean, P. E., & Hofferth, S. L. (2001). Children's time with fathers in intact families. *Journal of Marriage and Family*, *63*, 136–154. doi:10.1111/j.1741-3737.2001.00136.x.