

**Are better educated fathers more “involved”? The education effect on paternal  
time with children**

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## **Are better educated fathers more “involved”? The education effect on paternal time with children**

*Abstract:* Better educated fathers are often considered more involved with their children than less educated fathers, yet empirical findings of fathers’ educational effect on childcare time have been mixed and the education effect could reflect other characteristics associated with highly educated fathers rather than behavioral inclinations (e.g., fathers’ work hours, earnings, and spouses’ characteristics). Using data from the 2003 American Time Use Survey (ATUS), this study examines the role of education in married fathers’ time with children by disentangling different factors that fathers’ education might work through or interact with to influence paternal childcare time. The results indicate that among fathers with different education levels, college graduates rather than postgraduates are the most “involved” fathers when total childcare time (engaged and accessible) are counted. The preliminary findings suggest that unlike the common assumption that better educated fathers are more “involved” fathers, the relationship between fathers’ education and their time with children might be curvilinear.

Better educated fathers are often assumed to be more involved with their children than less educated fathers, given that more highly educated men generally support more egalitarian beliefs about shared breadwinning and caregiving (Ishii-Kuntz & Coltrane, 1992) and they are more likely than less educated fathers to subscribe to an ideology of involved fatherhood that prescribes time-intensive parental behaviors (Daly, 2001).

However, the empirical findings of the effect of fathers' education on their childcare time have been mixed, varying with the age of the child and type of activity engaged in with children (Sayer, Gauthier, & Furstenberg 2004). Some research indicates that fathers' education has no effect or even a negative effect on the direct physical care of young children (Marsiglio, 1991; Aldous, et al. 1998). Other studies using time diaries show that better educated fathers spend more time with children, relative to less educated fathers (Sayer, Bianchi, & Robinson, 2004; Bianchi et al, 2004 ). Further, better educated fathers spend more time on activities related to children's achievement than less educated fathers (Yeung, et al. 2001).

Several factors might complicate educational effects on fathers' time with children. First, different childcare time by fathers' education may be due to fathers' work schedules and work hours. In a cross-national study on educational differences in parents' time, Sayer, Gauthier, & Furstenberg (2004) suggest that educational effects on fathers' time with children could be ameliorated by public policies which support families and children: In countries with universal and comprehensive state-supported family programs, such as Norway, education has no effect on fathers' child-care time. Therefore, education effects may reflect time constraints rather than behavioral inclinations, given that less educated fathers, compared to well-educated fathers, may be more likely to be employed in occupations with nonstandard or inflexible hours, and may have to work multiple jobs to make ends meet. Other research also shows that fathers' work hours are negatively related to their time with children (Hofferth & Anderson, 2003; Aldous, Mulligan, & Bjarnason, 1998).

Second, previous studies of father involvement found fathers' wages were negatively related to their time with children (e.g. Aldous, Mulligan, & Bjarnason, 1998; Hofferth & Anderson, 2003), even though the effect of wages was not significant on

weekends (Yeung, et al., 2001). However, well-educated fathers usually earn higher wages than less educated fathers, and the educational earnings gap actually widened in the 1980s and 1990s during a period of economic growth (Levy 1998). If well-educated fathers also earn higher wages, then this wage effect contradicts with the education effect which indicates well-educated fathers spend more time with children. One possible explanation may be that the wage effect on father's time with children differs by fathers' education. In other words, an interaction term between fathers' wages and their education might need to be integrated in the analysis.

Finally, well-educated fathers may be more likely to be married to well-educated wives. Studies on assortative mating show that newly wed couples have moderate similarity in education and verbal intelligence (Feng & Baker, 1994; Watson et al., 2004). Moreover, both highly educated men and women are more likely to marry than their counterparts (Qian, 1998) and high rates of marital homogamy by educational attainment have also been increasing (see Kalmijin 1991). Given that highly educated women have higher rates of employment than less-educated women (Levy 1998), we might expect higher levels of involvement among well-educated fathers to reflect fathers' responses to their wives' employment and work hours. Previous findings on husbands' childcare time in relation to wives' employment have been mixed, varying by type of activities fathers are engaged in. Some studies find that mother's work hours have a weak positive relationship with father's time providing basic childcare to a child (Aldous, Mulligan, & Bjarnason, 1998). Moreover, fathers' time with children has increased more for those married to employed mothers than for those married to non-employed mothers (Sandberg & Hofferth, 2001). Despite these findings, others note that mothers' work hours have no effect on children's time with fathers (Yeung, et al. 2001). The inconsistent findings on the relationship between father's involvement and mother's employment status and work hours call for new angles of research – fathers' education may be one of them.

In summary, previous studies on father involvement have generally identified fathers' education as a contributing factor to their time with children, yet conflicting findings in the field indicate that the education effect may reflect time constraints as well as the response to spouse's employment rather than behavioral inclinations. Further, fathers' education is often captured by comparing some college or college educated

fathers with those without any college education (e.g., Yeung, et al.2001; Bianchi et al, 2004; Sayer, Bianchi, & Robinson, 2004), it is unknown how fathers with graduate education differ from other fathers in their time with children.

Using data from the 2003 American Time Use Survey (ATUS), the current study fills this gap by disentangling different factors that fathers' education might work through or interact with to influence paternal childcare time. A measure of education across all educational spectrums is used. In so doing, this study sheds light on the complex mechanisms through which fathers are motivated to participate in childcare. Given that fathers play an important role in children's development (Harris 1996; Yeung, et al.2000), research identifying which factors are more important in explaining fathering differences ( i.e., education, work hours/schedule, or other factors) also has implications for public policy efforts that promote father involvement.

### **Theoretical perspectives on paternal time with children**

#### *Paternal involvement: concepts and measures*

Lamb, et al. (1985, 1987) proposed three components of paternal involvement: (a) paternal engagement (direct interaction with the child) (b) accessibility (availability) to the child, and (c) responsibility for the care of the child. Specifically, engagement is the time spent in actual one-on-one interaction with the child (e.g. caretaking, play or leisure). Accessibility involves less intense interaction as well as time when a parent and a child are not actually interacting with one another (e.g. cooking in the kitchen while the child plays in the next room). Responsibility involves knowing when the child needs to go to the pediatrician, making the appointment, and making sure that somebody takes the child to it. Much of the time involved in being a responsible parent does not involve direct interaction with the child (Lamb, 1987).

Measures of father involvement in time diaries generally capture the first two components: engagement and accessibility, although measures of these two components generally vary across different collection of time diaries. In a set of studies based on the Child development Supplement of the Panel Study of Income Dynamics (e.g. Yeung, et al,2001;Hofferth,2003 ), fathers' engagement time and accessible time were measured by questions "who's doing the activity with child?" and "who else was there but not directly

involved in the activity?”, respectively. In other words, paternal engagement measures children’s time in activities in which the father is listed as doing the child’s activity with the child, whereas paternal accessibility is coded as children’s time in activities in which the father is noted as present but not directly involved in the child’s activity (see Pleck & Masciadrelli 2004).

In studies using adult-focused time diaries (e.g. Bianchi, 2000; Sayer, Bianchi and Robinson 2004), three questions are usually asked about one activity: Q1. What were you doing? Q2. At any time while you were (repeat activity), did you do anything else ? (like talking, reading, watching TV, listening to the radio, eating, or caring for children, usually referring to the “secondary activity”) Q3. While you were (repeat activity) who was with you. For activities related to childcare, the first two questions could measure the engagement time, either the primary childcare time or the secondary child care time when parents were also doing other things while taking care of children (Sayer, Bianchi,& Robinson 2004, Zick& Bryant 1996 ). The accessibility time could be captured by the last question, which measures time in which a parent reported any activity (childcare or other) with children present (Bianchi, 2000).

Accessibility was defined as “the father’s potential availability for interaction, by virtue of being present or accessible to the child whether or not direct interaction is occurring.” in Lamb et al. (1985, p.884). In other words, fathers do not have to be present to be accessible to their children. Previous surveys only captured the accessible time when fathers are present with the child but not the time when fathers are not physically with the child but accessible (e.g., talking in the living room, child in another room).

### *Explaining father involvement*

The demand-capacity hypothesis states that paternal participation in child care is a function of demands placed on fathers as well as their capacity to respond to these demands (Coverman 1985; Brayfield 1995). Men take on child care responsibilities only to the extent that there are demands placed on them and that they have the capacity to respond to those demands. Coverman (1985) found that wives’ paid work outside the home and the presence of children pressure husbands to spend more time on childcare and other domestic tasks (even though wives’ paid work seem to be a weak predictor).

On the other hand, the time a husband spends at his own job limits the available time he can allocate to family work. To expand the demand-capacity argument, Brayfield (1995) argues that employment schedules influence men's capacity to respond to child care demands, and her research using the 1990 National Child Care Survey found that fathers who work evenings or nights are more likely to be the primary caregiver for their youngest preschool-age children relative to fathers who work during the daytime.

From the demand side, parents perform more childcare duties when there is more need for them. Thus, younger children and more children are expected to exert greater demands on parental time. Number of children is positively related to fathers' share of child care (Ishii-Kuntz & Coltrane, 1992), while findings on the age of child are mixed. On the one hand, fathers are most likely to take care of their youngest child when mothers are not available (Brayfield 1995). On the other hand, fathers also prefer interacting with and caring for older children (Daly, 1996), and fathers of older children are likely to do more of the child care than fathers with younger children (Ishii-Kuntz & Coltrane, 1992). Moreover, fathers are also more likely than mothers to specialize in "fun" activities (Pleck 1997), which may require that children reach a certain age (e.g., playing sports). Further, fathers are also found to spend more time with sons than daughters in play/companionship activities (Yeung et al., 2001), which probably indicates a role modeling function in child socialization. Therefore, the presence of a son in the household may motivate fathers to spend more time with their children.

On the one hand, the tension of balancing the demand and capacity in childcare time might be less intense among the highly educated fathers, given that highly educated fathers might be more likely to be employed in occupations with better family-friendly policies and more flexibility in their work schedules and work hours. On the other hand, the work schedules/work hours are, to some extent, endogenous to parents' time with children. For example, mothers may choose their hours of employment in order to preserve "quality time" with children (Budig & Folbre, 2004), and the same thing could happen to fathers. The reason why fathers' work schedules could influence their capacity of responding to childcare is largely due to the fact that fathers' work schedules often restrict their time availability for children. Therefore, a direct measure of fathers' available time for child care may do a better job than work schedules in capturing father's

capacity to provide childcare, even though the endogeneity issue may still exist. For example, a father's time at home or some other place where childcare could be provided, regardless of children's schedule, could be counted as his "potential" available time or maximum time for children.

Some other variables may affect the demand and capacity of fathers' time with children as well. First, the capacity of fathers for childcare should be bigger during the weekends than during the weekdays, given that fathers are supposed to have more available time for childcare when they are not working. Fathers actually spend more time with children on weekends than on weekdays (Yeung, et al.2001), therefore the weekday-weekend differentiation need to be taken into consideration. Second, children's school activities may affect the demand for fathers' time: During summer when school is over, school-aged children may demand more time from parents, including fathers.

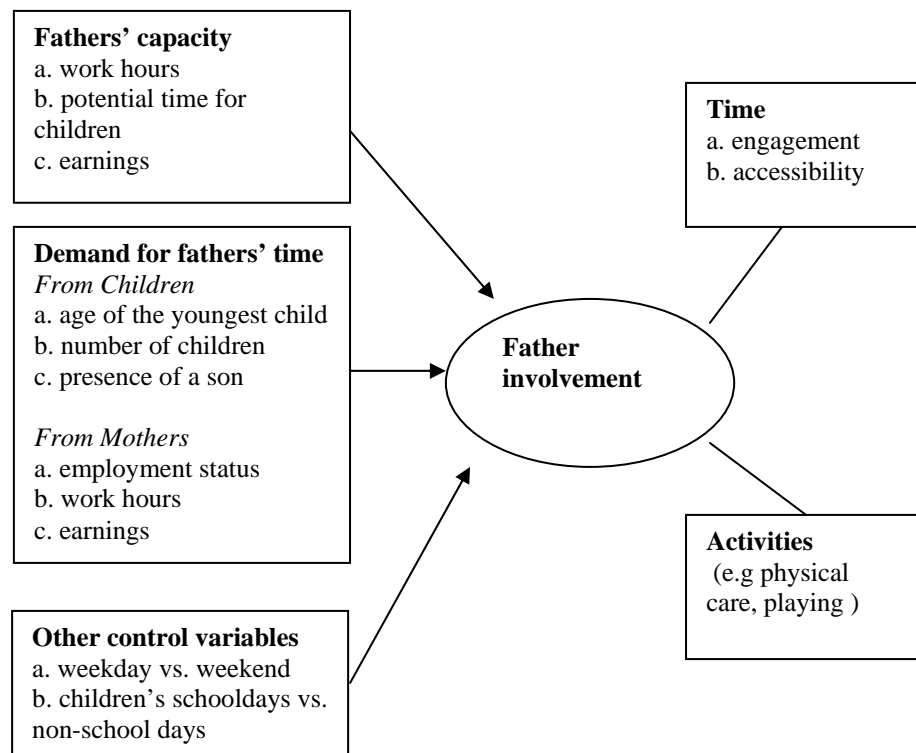
### **Conceptual framework**

The current study examines fathers' childcare time among married fathers with children and focuses on the first two components of father involvement: engagement and accessibility (Lamb, 1985, 1987). Fathers' roles may vary substantially across family types (Furstenberg, 1993). Furthermore, the patterns of fathering among non resident fathers and single fathers could be very different from those of married fathers. Thus, separate research is needed on non-resident fathers and single fathers.

Through the demand -capacity model, Figure 1 describes the general framework associated with paternal involvement and two dimensions of father involvement: the engaged/accessible time and the activities involved during that time.

Figure1. Conceptual framework of characteristics associated with paternal involvement





A father's education may be related to his work hours, earnings, potential child care time, and his wife's employment. Whether the father's education indicates a constraint or a capacity to his time with children and how the education interacts with other factors in the framework are the main focuses of this study.

## Data and Method

### Data

The data used in this study come from the 2003 American Time Use Survey (ATUS), which was the first annual nationally representative time-use survey that the Bureau of Labor Statistics (BLS) launched to measure how people in the United States divide their time among life's activities. The ATUS sample is drawn from the current population survey (CPS), which selects approximately 60,000 households every month from the civilian, non-institutional population residing in 105 million households in the United States. ATUS interviews randomly selected individuals from a subset of the households that complete their eighth and last interview for the CPS. In 2003, 3,375

households leaving the CPS sample were selected for the ATUS each month (approximately 40,500 households over the 12 months). The monthly sample is divided into four randomly selected panels, one for each week of the month and also is split evenly between weekdays and weekend days. The ATUS overall response rate averaged 57% and the sample size for completed interviews is 20,720 in 2003.

The ATUS collects the primary childcare time for all children but only collects the secondary child care time among households with children under age 13. To be consistent with ATUS's measure of the secondary childcare time, the study is limited to parents with kids aged 12 or younger. Further, the effects of spouses' characteristics on fathers' time with children could be different among couples who live together from among those who do not (e.g. married, spouse absent). Therefore the sample was also limited to married fathers with their spouses present (98% of married fathers in the sample). Moreover, as the question of work hours was only asked for those employed respondents in the ATUS, the sample is further restricted to employed fathers in this study (93% of fathers with spouses present in the sample).

The final sample used in this study consists of 2,171 married fathers with at least one child under the age of 13 present in the household. Detailed descriptive statistics about the sample can be found in Table 1.

<Table 1 is about here>

### *Measures*

#### Engaged vs. Accessible Time

The current study uses both measures of fathers' time from the ATUS: fathers' engaged time and accessible time. The ATUS collects a detailed account of the respondent's primary activities from 4 a.m the previous day to 4 a.m on the interview day by asking the respondents "what were you doing" at each time point during the 24 hour diary day. Engaged childcare time is captured when the respondent was doing childcare related activities.

The ATUS captures secondary childcare time in a measure which differs from measures of secondary childcare time in previous surveys. After the respondent

completes the 24 hour time-diary activity report, the interviewer asks if, at any time during those activities, a child was “in your care.” If respondents are unclear about what “in your care” means, the interviewer provides this definition: “By ‘in your care’ I mean that you were generally aware of what your child was doing, and you were near enough that you could provide immediate assistance, if necessary”(Schwartz 2002). Therefore, the measure of secondary childcare in ATUS may match closer to Lamb’s concept of accessibility compared to previous measures used in the field, given that “in your care” doesn’t require parents be with their children when an activity happens.

### Childcare activities

Focusing on the total amount of childcare time and not the specific nature of the time fathers spend with their children could run the risk of losing the meaning of parental time (Pleck & Stueve 2001). Fathers may spend more time with children in leisure activities rather than private talks and reading/homework (Marsiglio, 1991), and studies have shown that well-educated fathers spend more time on activities related to children’s achievement than less educated fathers (Yeung, et al.2001).

In addition to counting the time fathers spend with children, this study also examines the types of activities fathers are engaged in when providing childcare. All time-diary activities related to childcare are grouped into the following six major activity categories in the analysis.

1. Physical care activities
2. Playing activities (including playing with household children, sports or non-sports, Arts and crafts with children)
3. Reading, talking and teaching activities (including reading to children, listening to child read, talking with/listing to children, and helping/teaching children how to do things)
4. Supervising and planning (including supervising and monitoring children, organizing and planning events for children, attending children’s events, and waiting or picking up children)
5. Activities related to children’s education (including helping children with their homework, meetings and school conferences, etc.)

6. Activities related to children's health (including providing medical care to children, taking children to the doctors, etc.)

#### Key variables in the analysis

##### Fathers' characteristics

1. Fathers' educational attainment (1=high school or below, 2= some college or associated degree, 3= college degree, 4= postgraduate degree)
2. Fathers' earnings (measured by fathers' weekly earnings )
3. Fathers' work hours (weekly work hours )
4. Fathers' potential time for children (This is a measure for fathers' maximum time available for childcare. As parents in the ATUS diary are found to provide childcare at home, someone else's home or other places, fathers' potential time for childcare is measured by summing up the time fathers spend at home, someone else's home, or other places where any childcare could be provided)

##### Mothers' characteristics

5. Mothers' educational attainment (the same measure as fathers' education)
6. Mothers' employment status (work or not)
7. Mothers' work hours (weekly)
8. Mothers' earnings (weekly)

##### Children's characteristics

9. Age of the youngest child
10. Presence of a male child in the family
11. Number of children under age 13 in the family

##### Other control variables

11. Age of the father
12. Whether the dairy day is during weekends
13. Whether the dairy day is during summer or school vacation

#### *Analysis Plan*

Using cross-sectional time diary data, this study aims to assess the strength of the association between education and father's time in childcare rather than estimating a

causal model. Descriptive analyses of fathers' time with children are conducted first and multivariate analyses follow.

Tobit models instead of OLS (ordinary least squares) models are used in the multivariate analyses because the sample is limited by censoring due to the fact that many fathers report zero minutes of time in certain childcare activities and it is unknown how much time a father would have spent in the activity had they spent any time at all. The OLS models could result in overestimation of the intercept and underestimation of the slope when the dependent variable is censored (Long 1997). Tobit regressions are estimated to correct for the overestimation due to the censoring (Greene, 1997). All analyses are weighted to adjust for the sample stratification, distribution of weekdays-weekends, and different response rates across demographic groups and days of the week.

Two sets of multivariate regressions are used to disentangle how the education effect interacts with other variables related to paternal childcare time. First, a set of hierarchical (nested) models are used to examine the extent to which educational differences in fathers' childcare time remain after controlling for fathers' work hours, potential time for children, earnings, and mothers' characteristics. In the first step, measures of fathers' childcare are regressed on education only. In the second step, fathers' work hours and potential time for children are added, and the third step adds characteristics related to mothers' employment (e.g. work hours, earnings). Other control variables are added in the final step. I will test the significance of the change in the effect of being in a particular educational group on paternal childcare time due to the addition of each set of variables (Clogg, Petkova, & Haritou, 1995).

A second set of Tobit regressions are used to determine the effect of education on fathers' engaged and accessible childcare time as well as fathers' time allocation in different childcare activities. The interaction between education and other variables such as fathers' wage, work hours, and mothers' employment are tested through separate models by fathers' education.

### **Results from descriptive analyses**

Table 2 shows the profiles of fathers in the sample. Consistent to earlier expectations, better educated fathers seem to work longer hours and have higher earnings

than less educated fathers. Spouses of highly educated fathers also have higher levels of education. Among women who are married to high school graduates, about 64% of them are high school graduates and about 2% of them have postgraduate degrees. However, among women who are married to fathers with a postgraduate degree, only around 4 % of them are high school graduates and 42% of them have postgraduate degrees.

Some other findings are rather unexpected: Although fathers with higher education generally have more time available to their children, fathers with postgraduate degrees have less available time for children than fathers with some college or college degrees. Further, spouses of fathers with postgraduate degrees have the lowest rate of labor force participation among the four groups of women, even though this group of women has the highest education and the highest earnings when they work for pay.

<Table 2 is about here>

Table 3 presents the time that fathers are engaged with or accessible to children by fathers' education. Fathers' time allocation in different activities associated with engaged childcare time is also shown in the table. High school graduates spend the least amount of engaged time with children (about 43 minutes per day), followed by postgraduates (about 1 hour 8 minutes), and fathers with some college or college education seem to spend the most amount of the time in engaged childcare time (1 hour 11 minutes). A similar pattern holds for fathers' accessible time to children, except that fathers with college education exceed fathers with some college education in their accessible childcare time. In counting the total childcare time (engaged + accessible time), it is the college graduates rather than postgraduates who are the most "involved" fathers.

<Table 3 is about here>

The preliminary findings from descriptive tables suggest that unlike the common assumption that better educated fathers are more "involved" fathers, the relationship between fathers' education and their time with children might be curvilinear. Will this education effect pattern remain after other variables are introduced? Will the education effect on paternal childcare time interact with characteristics associated with fathers (e.g., earnings, work hours) and their spouses? These questions will be examined further in the multivariate regression analysis.

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## Tables

Table 1. Percentages and means for sample characteristics

	n	Percentage (%)	<i>M</i>	<i>SD</i>
<i>Fathers'</i>				
Education	2171			
High school or below		39.02		
Some College		24.42		
College graduate		22.95		
Postgraduate		13.61		
Work hours	2076		46.99	11.65
Potential time for children	2171		416.99	247.45
Earnings (weekly)	1897		1010.62	651.53
Age	2171		37.46	7.19
<i>Children's</i>				
Age of the youngest child	2171		4.86	3.72
Number of children	2171		1.78	0.83
Presence of a son	2171		0.68	0.47
<i>Spouses'</i>				
Education	2125			
High school or below		34.94		
Some College		28.41		
College graduate		25.25		
Postgraduate		11.4		
Employment status(work or not)	2171		0.61	0.49
Work hours (for those who are employed)	1305		34.28	12.17
Earnings(weekly)	1180		580.66	461.46

Note: Percentages and means are weighted.

Table 2.Characteristics of fathers by education (N=2171)

	High school	Some college	College	Postgraduate
<i>Fathers'</i>				
Work hours	45.56	46.35	48.58	49.36
Potential time for children (minutes)	393.46	431.12	435.89	427.27
Earnings (weekly)	668.43	921.13	1298.55	1691.27
Age	35.77	36.92	38.76	41.11
<i>Children's</i>				
Age of the youngest child	5.05	4.82	4.41	5.11
Number of children	1.78	1.8	1.76	1.76
Presence of a son	0.66	0.69	0.69	0.71
<i>Spouses'</i>				
Education				
High school or below	64.47	27.8	11.48	4.3
Some College	24.01	49.06	24.08	11.37
College graduate	9.44	18.06	48.98	42.36
Postgraduate	2.08	5.08	15.46	41.97
Employment status(work or not)	0.6	0.67	0.62	0.55
Work hours(for those who are employed)	35.19	34.95	32.53	33.312
Earnings(weekly)	452.53	515.39	695.61	911.99
n	724	543	560	344

Note: Weighted means are reported.

Table 3. Mean time (Minutes per day) fathers spend with children by fathers' education

	All fathers	High school	Some college	College	Postgraduate
<i>Engaged time</i>					
Physical care	19.06	10.39	22.31	26.12	26.15
Playing	19.09	16.01	21.74	20.73	20.35
Reading, talking and teaching	4.19	2.44	4.91	5.83	5.11
Supervising and planning	9.14	7.26	10.9	10.31	9.37
Activities related to children's education	4.67	4.18	4.72	5.35	4.83
Activities related to children's health	1.81	2.02	2.57	1.09	1.02
Total engaged time	59.74	43.35	70.72	70.96	68.15
<i>Accessible time</i>	259.29	251.7	261	273.31	254.37
Total time with children	319.03	295.05	331.72	344.27	322.52
Total time with children (Hours)	5.32	4.92	5.53	5.74	5.38
N	2171	724	543	560	344

Note: Weighted means are reported, and there is no time overlapped between engaged and accessible time.