Understanding Children's Television Exposure From a Life Logistics Perspective: A Longitudinal Study of the Association Between Mothers' Working Hours and Young Children's Television Time

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Abstract

Prior research has suggested that mothers' life logistics may increase opportunities for children to watch television. However, associations between structural circumstances of mothers' lives and levels of children's TV use have not been empirically investigated. The contribution of this study is that it investigates maternal structural life circumstances longitudinally associated with children's TV time and potential mechanisms underlying this association. More specifically, the study examined the association between mothers' working hours and children's TV time, and the mediating role of mothers' parenting time pressure and well-being in this relationship. Structural equation modeling using data from a two-wave panel survey of mothers of one- to four-year-olds (N=404) demonstrated a longitudinal relationship between mothers' working hours and children's TV time. This relationship was mediated by mothers' parenting time pressure and well-being, indicating that high maternal working hours create parenting time pressure and undermine mothers' well-being, which encourages children to watch more television.

Keywords: children, parenting time pressure, television exposure, well-being, working hours

Understanding Children's Television Exposure From a Life Logistics Perspective: A Longitudinal Study of the Association Between Mothers' Working Hours and Young Children's Television Time

An extensive body of literature has shown that young children spend a substantial amount of their time watching television (Kourlaba, Kondaki, Liarigkovinos, & Manios, 2009; Rideout & Hamel, 2006; Vandewater et al., 2005; van Stralen et al., 2012). While research has increased our knowledge on the effects of watching television (e.g., Bickham, Wright &, Huston, 2001; Garrison, Liekweg, & Christakis, 2011; Thakkar, Garrison, & Christakis, 2006) and provided highly important contributions to our understanding of the explanatory processes underlying these effects (e.g., Nathanson & Fries, 2014), of which much of a psychological nature, sociological perspectives on children's television use are scarce (Pinon, Huston, Wright, 1989). Yet, in the early decades of television research, Anderson and Bryant (1983), as well as other scholars validating the Anderson and Bryant model (Pinon et al., 1989; Truglio, Murphy, Oppenheimer, Huston, & Wright, 1996), demonstrated that sociological models are highly important to fully understand why children are watching television. More specifically, these studies have emphasized the role of social systems within and outside the family, such as parents' employment (Pinon et al., 1989).

In this respect, the role of the mother could be particularly important, because mothers generally take on more caregiving responsibilities (Renk et al.,

2003) and are more intensely involved in parenting (Forehand & Nousiainen, 1993) than fathers, and because working hours affect caregiving time more strongly among mothers than among fathers (Argyrous & Rahman, 2014). In this vein, more recently, scholars have suggested that mothers' structural life circumstances may increase opportunities for children to watch television (Vaala & Hornik, 2014; Warren, 2005). However, propositions to look at structural aspects of mothers' situations when explaining children's television exposure (Vaala & Hornik, 2014; Warren, 2001, 2005) have not been empirically tested. Little empirical research has investigated the relationship between mothers' life circumstances and children's levels of television viewing and the mechanisms underlying the relationship. The present study aims to address this lacuna by adopting a life logistics perspective that combines insights from work-family research with perspectives from television studies to simultaneously investigate maternal factors associated with children's television time. More specifically, as an illustration of the life logistics perspective, this study is the first to investigate the relationship between mothers' working hours and children's television exposure and examine the role of mothers' parenting time pressure and well-being as the explanatory processes underlying this relationship, using a longitudinal design.

The first contribution of this study lies in the importance of a life logistics perspective to explain children's television use. Scholars (Vaala & Hornik, 2014;

Warren, 2001) have emphasized that although parental attitudes are powerful predictors of children's television use, structural life circumstances may be crucial to children's viewing time. In this respect, Warren (2001, 2005) emphasized the importance of work-family conflict. Interviews illustrate that a lack of time and energy at home makes limiting children's television exposure difficult for parents, particularly working parents (Evans, Jordan, & Horner, 2011).

However, structural life circumstance factors have largely been undervalued in research investigating children's television use; for instance, little attention has been paid to the relationship between mothers' working hours and children's television use, particularly among very young children. This lack of empirical understanding reflects a lack of theoretical underpinning, as others have noted (Vaala & Hornik, 2014). Therefore, this study will take a life logistics perspective, which integrates theoretical evidence from work-family research and television studies, and empirically investigate the role of circumstances of mothers' lives in children's television viewing, more specifically the relationship between mothers' working hours and children's television time.

The second contribution of this study is that it investigates the underlying mechanisms by which the life circumstances factor of maternal working hours might contribute to children's television time. Scholars have stated that research is lacking that rigorously investigates the mechanisms explaining potential

relationships between mothers' structural circumstances and children's television exposure (Vaala & Hornik, 2014).

A review of the literature suggests a mechanism that encompasses two possible mediators: mothers' perceived parenting time pressure and mothers' well-being. Indications for this mechanism stem from two groups of studies. The first group of studies indicates a relationship involving work hours, parenting time pressure and well-being, showing that higher working hours increase time pressure when parenting, and that parenting time pressure decreases mothers' well-being (Roxburgh, 2006, 2012; van der Lippe, 2007).

The second group of studies supports an association between mothers' work hours, well-being and children's television time, demonstrating that mothers' employment increases their well-being (Moen, Robison, & Dempster-McClain, 1995), and that better maternal well-being is associated with lower amounts of television viewing among children (Bank et al., 2012; Conners, Tripathi, Clubb, & Bradley, 2007; Thompson & Christakis, 2007). Therefore, the present study aims to examine the mediating role of mothers' parenting time pressure and well-being in the relationship between mothers' working hours and children's television time in an extensive life logistics model, as shown in Figure 1.

In order to adequately test the life logistics model, we will apply a longitudinal design. Scholars have highlighted the lack of research into the

longitudinal processes of media use among children and called for research that increases our understanding about the long-term influence of predictors of children's media use (Lee, Bartolic, & Vandewater, 2009; Vaala & Hornik, 2014). The longitudinal design will allow us to investigate whether the relations in the life logistics model hold longitudinally while controlling for children's baseline television viewing and other potential confounders in order to document changes in children's television viewing over time. In addition, the longitudinal design is needed to establish the temporal order of the relationships (Kline, 2011) and to assess the significance of life logistics as predictors of children's television use over time.

[FIGURE 1 about here]

The Role of Parenting Time Pressure in Children's Television Exposure

A possible mechanism linking mothers' working hours with children's television exposure, is mothers' parenting time pressure. The theoretical grounds for these relationships lie in the stress process model (Pearlin, 1989), border theory (Clark, 2000), and time conflict theory (Eby, Casper, Lockwood, Bordeaux, & Brinley, 2005). An explanation for the relationship between mothers' working hours and parenting time pressure can be found in the stress process model (Pearlin, 1989) and border theory (Clark, 2000). The stress process model identifies relationships between stressors, such as role demands (Wheaton, 1999), and stress outcomes. According to the stress process model, primary stressors

create secondary stressors, in a process known as stress proliferation. Border theory (Clark, 2000) posits that demands in one sphere may influence stressors in another sphere. Building on the notions of the stress process model and border theory, mothers' demands in the work sphere (primary stressor) may create time pressure in the parenting sphere (secondary stressor). Moreover, because working parents in modern Western societies increasingly face demands in both their work and family life (van der Lippe, 2007), research grounded in the work-family literature argues for a role-overload hypothesis, stating that separate roles with different demands may conflict (Moen et al., 1995).

Consistent with the assumptions of time conflict theory (Eby et al., 2005; Greenhaus & Beutell, 1985), the amount of time parents work has frequently been identified as an important work stressor contributing to work-family conflict and cutting into parents' time and energy (Huston & Rosenkrantz Aronson, 2005). A specific type of work-family conflict is parenting time pressure, which is defined as a feeling of time deficit, feeling rushed and worried about time when executing the parenting role (Roxburgh, 2006, 2012). Empirical evidence exists for the relationship between stressful aspects in the work domain and stressful circumstances related to parenting, particularly between long working hours and parenting time pressure (Roxburgh, 2006, 2012).

Goode (1960) predicted that when people experience conflict when juggling different role demands, they will try to cope by adjusting their roles or

the role-related behavior. Mothers who experience parenting time pressure because of their long working hours may try to cope with this time pressure by entertaining their child with television or using television as a babysitter for their child, so that it provides a break from parenting and creates time for themselves (Evans et al., 2011).

Based on the premises of the stress process model (Pearlin, 1989), border theory (Clark, 2000), and time conflict theory (Eby et al., 2005; Greenhaus & Beutell, 1985), we expect that the relationship between maternal working hours and children's television viewing time is partially mediated by parenting time pressure. Therefore, we propose the following hypothesis:

Hypothesis 1 (H1): Longer maternal working hours positively predict parenting time pressure, which, in turn, positively predicts children's television viewing time.

The Role of Well-Being in Children's Television Exposure

Another possible mechanism linking mothers' working hours with children's television exposure, is mothers' well-being. Support for a relationship between mothers' working hours and their well-being can be found in studies that support the role-enhancement perspective (Moen et al., 1995; Rozario, Morrow-Howell, Hinterlong, 2004). According to this perspective, being employed improves one's well-being, because working people experience more social contact, increased self-fulfillment, and have more resources and other benefits

(Moen et al., 1995). This is supported by studies showing that employed women (Glass & Fujimoto, 1994), and employed mothers in particular (Baruch & Barnett, 1986; Lavee, Sharlin, & Katz, 1996), are less depressed than non-employed women and mothers.

Further, indications exist that mothers' well-being influences children's television viewing. More specifically, mothers with lower well-being prefer to use television to occupy or entertain their child in order to cope with their poor well-being (Potts & Sanchez, 1994). For instance, mothers with poor well-being may use television to occupy their child so that they may attend to their personal needs, because these mothers may believe that watching television is more beneficial for their child than engaging in mother-child interactions or because these mothers neither have the motivation or energy to engage in interactions with their child (Conners et al., 2007; Lovejoy, Graczyk, O'Hare, & Neuman, 2000; Potts & Sanchez, 1994). This is supported by empirical evidence demonstrating that children of mothers with lower well-being watch more television (Bank et al., 2012; Bickham et al., 2003; Conners et al., 2007; Thompson & Christakis, 2007).

Based on these assumptions, we expect that mothers' well-being mediates the relationship between mothers' working hours and children's television time. Accordingly, we will investigate the following hypothesis:

Hypothesis 2 (H2): Longer maternal working hours positively predict maternal well-being, which, in turn, negatively predicts children's television viewing time.

The Role of Parenting Time Pressure and Well-Being in Children's Television Exposure

Working hours may relate to children's television time in another way as well. The relationship between mothers' working hours and well-being (Moen et al., 1995), which is associated with children's television time (Bank et al., 2012) as explained above, may be partially mediated by parenting time pressure. According to the stress process model (Pearlin, 1989), stressors, such as role demands, are related to stress outcomes, such as anxiety and depression. In this respect, research has found an association of feelings of time pressure with depression (Roxburgh, 2012).

Applying the notions of the stress process model to this study, long working hours (primary stressor) may create parenting time pressure (secondary stressor), which may result in lower well-being (stress outcome). Research has supported this assumption by demonstrating that working longer hours creates parenting time pressure and, consequently, decreases mothers' well-being (Roxburgh, 2012). Therefore, we expect that parenting time pressure partially mediates the relationship between mothers' working hours and their mental well-

being, which, in turn, negatively predicts children's television time. Hence, we hypothesize as follows:

Hypothesis 3 (H3): Longer maternal working hours positively predict parenting time pressure, which negatively predicts maternal well-being, which, in turn, negatively predicts children's television viewing time.

Alternative Models for Understanding Children's Television Exposure

In order to investigate whether the life logistics model withstands controls for classical factors that were already known to be associated with children's television exposure, the present study will investigate two alternative models.

The first alternative model will include mothers' television attitudes, in particular mothers' attitudes toward the educational value of television, because attitudes are a major recurring factor that contributes to children's television viewing. Research has demonstrated that maternal attitudes toward television predict children's television use, showing that children of parents with more positive views of television watch more television (Vandewater et al., 2005). Therefore, the following research question is posited:

Research Question 1 (RQ1): Do the hypothesized relationships between mothers' life logistics and children's television viewing remain significant when attitudes are included in the life logistics model?

The second alternative model will include mothers' television viewing, because it may 1) predict children's television viewing, because parents are

important role models for their children's television viewing (Bleakley, Jordan, & Hennessy, 2013; Rideout & Hamel, 2006); and 2) mediate the relationship of mothers' parenting time pressure and well-being with children's television viewing (Conners et al., 2007), because adults experiencing stress (Anderson, Collins, Schmitt, & Jacobvitz, 1996) and low well-being (Sidney et al., 1996) watch more television. In this line, we expect that mothers with low well-being and with parenting time pressure watch more television. Subsequently, because children's television viewing is influenced by parental modeling (Bickham et al., 2003; Bleakley et al., 2013; Rideout & Hamel, 2006), we expect that children watch more television when their mothers watch high amounts of television. Thus, mothers' stress and well-being may influence their own television exposure, thereby influencing their children's television exposure (Conners et al., 2007). The present study will test these assumptions in the following research question:

Research Question 2 (RQ2): Do the hypothesized relationships between mothers' life logistics and children's television viewing remain significant when mothers' television viewing time is included in the life logistics model?

Control Variables

Previous studies have shown that parents' level of education (Bickham et al., 2003; Certain & Kahn, 2002), the number of children in a family (Barr, Danziger, et al., 2010), and children's age (Barr, Danziger, et al., 2010; Certain &

Kahn, 2002) are associated with children's television viewing time. These variables may play a role in the relationship between mothers' life logistics and children's television exposure. Therefore, these variables are included as control variables in our analyses.

Method

Participants and Procedures

Data were collected as part of the Child Activities Research (Care), a research project investigating young children's activities and television use at home with a two-wave panel survey among mothers of one- to four-year-old children. At baseline, public and private daycare centers and kindergartens in various regions in Belgium were randomly selected. After the daycare administrators and school principals granted the investigators permission, mothers were given a questionnaire, an informational letter, and a consent form. Mothers were guaranteed that participation in the study was voluntary, anonymous, and confidential and were invited to complete the questionnaire at home. In the case of two or more children, the mothers were asked about the child who would have the next birthday, so that mothers only responded with regards to one child. Mothers returned their completed questionnaires in sealed envelopes to their daycare center or kindergarten, where the questionnaires were collected by research assistants. Mothers provided consent to participate by completing and

signing consent forms. The Institutional Review Board of the authors' university approved all study procedures.

A follow-up survey was administered after six months. A six-month interval between waves was chosen because six-month lags are statistically more powerful in detecting effects regarding processes in the family compared with shorter time intervals (Cox et al., 1987) and reduce the possibility that confounding variables account for the relationships studied compared with longer time intervals. Also, scholars have argued that well-being is a more powerful predictor in longer time intervals, because it reflects a more permanent and stable state over time (Derdikman-Eiron, Hjemdal, Lydersen, Bratberg, & Indredavik, 2013). Mothers who had provided their e-mail address were sent an online survey and two reminders if the survey was not yet completed (Total Design Method; Dillman, 1978). Mothers who had not provided an e-mail address were sent a paper questionnaire and a stamped return envelope at their home address.

A total sample of 691 mothers completed the first questionnaire (Wave 1), and 404 mothers (58.47%) completed the follow-up questionnaire (Wave 2). Mothers who completed both questionnaires were 32.85 years old, on average (SD = 3.90) at the first wave of the study. The mothers in the sample were predominantly White (99%), which is representative of the relatively homogeneous White Belgian society (Child and Family, 2012). Almost twenty percent completed high school (19.3%), 46.3% had finished college, and 33.3%

had a graduate degree. The children were two years old, on average (M = 2.15, SD = 0.78). Forty-seven percent of the children were boys (47.3%), 52.7% were girls. Most children lived in two-parent biological families (96.4%) and 38.6% were only children.

According to a χ^2-test, mothers of girls (61.1%) and mothers of boys (58.4%) were equally likely to complete both questionnaires, χ^2 (1) = .51, p = .47. A multivariate analysis of variance (MANOVA) using Pillai's Trace revealed significant differences at Wave 1 between respondents and non-respondents of Wave 2 (V= .03, F(5, 621) = 3.58, $p < .01$, $\eta_p^2 = .03$). Tests of between-subjects effects indicated that children of mothers participating in only the first wave were older (M = 28.61, SD = 9.87) than children of mothers completing both waves (M = 25.99, SD = 9.43), F(1, 625) = 11.15, $p < .01$, $\eta_p^2 = .018$. In addition, the children of mothers participating in only the first wave watched more television (M = 6.96, SD = 6.04) than the children of mothers who participated in both waves (M = 5.67, SD = 5.37), F(1, 625) = 7.82, $p < .01$, $\eta_p^2 = .01$. No further significant differences were found.

Measures

Mothers' Working Hours. Following previous studies (Huston & Rosenkrantz Aronson, 2005; Roxburgh, 2012), the mothers were asked to report the number of hours of paid work they completed per week (Wave 1).

Mothers' Parenting Time Pressure. To measure mothers' feelings of time pressure related to parenting (Wave 1), Roxburgh's (2006) Parenting Time Pressure scale was used. The scale consists of three items (e.g., "You often feel rushed when you're with your child(ren)"). Response options ranged from *(almost) never* (1) to *(almost) always* (6). The reliability of the scale (Cronbach's $\alpha = .69$, $M = 2.43$, $SD = 0.71$) was slightly higher than in the original study (.67; Roxburgh, 2006). Higher scores indicate more time pressure.

Mothers' Well-Being. The Mental Health Inventory (MHI-5; Berwick et al., 1991), a scale employed in previous research on maternal mental health and children's television viewing (Thompson & Christakis, 2007) that has been found to be a reliable screening instrument for mental distress (Rumpf et al., 2001), was used to measure maternal well-being (Wave 1). Mothers were asked to indicate on a six-point scale ranging from *(almost) all of the time* (1) to *(almost) none of the time* (6) how much of the time during the past month they "had been a very nervous person," "felt calm and peaceful," "felt downhearted and blue," "felt so down in the dumps that nothing could cheer them up," and "had been a happy person" (Cronbach's $\alpha = .85$, $M = 22.68$, $SD = 3.57$). Lower scores indicate poorer mental well-being. Prior research has identified a score of 21 or less as a cutoff point for having mental distress (Rumpf, Meyer, Hapke, & John, 2001). Individuals with scores of 21 or lower can be identified as being at high risk for mood disorders.

Children's Television Viewing Time. Children's television viewing time (Wave 2) was measured according to the procedure outlined by Van den Bulck and colleagues (e.g., Van den Bulck, 2006; Van den Bulck & Hofman, 2009). Three timelines ranging from 6 A.M. until 5 A.M. the next day were presented. Each hour was divided into four quarters of an hour. Each timeline thus consisted of 96 checkboxes. Mothers were asked to indicate when their child watches television on a typical Monday, Tuesday, Thursday or Friday (Timeline 1), a typical Wednesday (Timeline 2), and a typical Saturday and Sunday (Timeline 3) by marking all corresponding checkboxes. Watching television was defined as instances in which the television, a video or DVD was turned on for the child to watch. Wednesday was singled out because in Belgium children are out of school on Wednesday afternoons, which typically creates extra opportunities for watching television. Television viewing time in hours per timeline was calculated by adding up all of the marked checkboxes and dividing the total sum by four. Weekly television viewing time was calculated by multiplying the weekday viewing hours (Timeline 1) by four and adding the result to the number of hours reported for Wednesday (Timeline 2) and Saturday and Sunday (Timeline 3).

Mothers' Television Viewing Time. Mothers' television viewing time was measured using the same procedure as for children's television viewing time. Mothers indicated on timelines when they usually watch television by marking the corresponding checkboxes. Television viewing time in hours per timeline was

calculated by adding up all of the marked checkboxes and dividing this sum by four. Weekly television viewing time was calculated by multiplying the weekday viewing hours (Timeline 1) by four and adding the result to the number of hours reported for Wednesday (Timeline 2) and Saturday and Sunday (Timeline 3).

Mothers' Attitudes Toward Television. Following previous measures of parental attitudes toward the educational value of television (Rideout & Hamel, 2006; Vandewater et al., 2005), mothers were asked to indicate whether television mostly helps children's learning, using three items (e.g., "Do you think that watching television is beneficial for children's education?"). Response options ranged from *strongly disagree* (1) to *strongly agree* (5) (Cronbach's $\alpha = .75$, $M = 3.13$, $SD = .55$). Higher scores reflect a more positive attitude toward television.

Control Variables. Mothers' reported their educational level, their child's age, and the number of children in their family. Based on prior research (Barr, Danziger, et al., 2010; Bickham et al., 2003; Certain & Kahn, 2002) and on bivariate analyses showing significant correlations between the control variables and factors of our hypothesized model, these variables were controlled for by including paths from mothers' educational level to mothers' working hours, well-being and children's television time, as well as from the number of children to mothers' parenting time pressure and children's television time, and from children's age to children's television time. In addition, we controlled for

television viewing time measured at Wave 1 by including a path from television viewing time at Wave 1 to television viewing time at Wave 2.

Analyses

To evaluate the proposed models, structural equation modeling was applied using Amos (Arbuckle, 2010). The two-step approach (Anderson & Gerbing, 1988) was used. In the first step, the measurement part of the model was estimated using Confirmatory Factor Analysis (CFA). In the second step, the structural part of the model was estimated. The goodness of fit of the models was determined using the ratio of chi-square to degrees of freedom (χ^2/df), the Comparative Fit Index (CFI), the Root-Mean-Square Error of Approximation (RMSEA), the Goodness of Fit Index (GFI), and the Adjusted Goodness of Fit Index (AGFI). Indirect effects were computed by calculating the product of the relevant indirect standardized path coefficients, as outlined by Cohen and Cohen (1983). To examine the significance levels of the indirect effects, Sobel's approximate significance test (Sobel, 1982) was used (Kline, 2011). Following the procedure used by Teo (2013), we compared the life logistics model with the alternative models by computing the Akaike information criterion (AIC; Akaike, 1987), the Bayesian information criterion (BIC; Raftery, 1995), and the expected cross-validation index (ECVI; Browne & Cudeck, 1993) and by calculating the AIC difference ($\Delta AIC_i = AIC_i - AIC_{min}$; Burnham & Anderson, 2002) and BIC difference ($\Delta BIC_i = BIC_i - BIC_{min}$; Raftery, 1995).

Results

Descriptive Statistics

At baseline, the mothers worked an average of 29.39 hours per week (*SD* = 12.57). This average is comparable ($t(390) = -.69$, $p = .49$) to the average weekly work hours of mothers with young children in Belgium reported in previous research (Abendroth, van der Lippe, & Maas, 2012). One-tenth of the mothers did not engage in paid employment (10%), which is representative of the overall population of Belgian mothers with young children (10.75%; Child and Family, 2012). Most mothers agreed that they have time to enjoy their child (76.1%). However, one-fourth of the mothers (24.4%) agreed that they worry about having sufficient time to care for their child, and approximately one in six mothers (15.4%) agreed that they feel rushed when they are with their child. The mothers' well-being could be conceived as moderate because the mean level of mental well-being was slightly above the cutoff point of being at risk for mood disorders ($M = 22.68$; $SD = 3.57$). On a weekly basis, children spent six hours, on average, watching television ($M = 5.71$; $SD = 5.44$). The zero-order correlation matrix of all key variables of interest and control variables is provided in Table 1.

[TABLE 1 about here]

Testing the Life Logistics Model

Confirmatory Factor Analysis (CFA) showed that the measurement model of the life logistics model yielded a good fit, $\chi^2 (14) = 32.67$, $\chi^2/df = 2.33$, $p < .01$,

CFI = .98, RMSEA = .06, GFI = .98, AGFI = .95. Structural equation modeling showed that the life logistics model (controlling for mothers' education, number of children, children's age and television exposure at Wave 1) yielded a good fit, χ^2 (61) = 114.62, χ^2/df = 1.88, $p < .001$, CFI = .97, RMSEA = .05, GFI = .96, AGFI = .93. As shown in Figure 2, mothers' working hours were a positive predictor of mothers' parenting time pressure, $\beta = .15$, $B = .01$, $SE = .00$, $p < .01$. As expected, when mothers worked longer hours, they felt more time pressure during parenting. However, mothers' parenting time pressure did not predict children's television time, $\beta = -.07$, $B = -.50$, $SE = .39$, $p = .20$. Thus, H1, which predicted that longer working hours increase mothers' parenting time pressure, thereby increasing children's television viewing time, was not supported.

[FIGURE 2 about here]

The analyses further revealed that mothers' working hours marginally significantly increased their well-being, $\beta = .09$, $B = .00$, $SE = .00$, $p < .10$. When mothers worked longer hours, they had better mental well-being. Mothers' well-being negatively predicted children's television time, $\beta = -.16$, $B = -1.72$, $SE = .49$, $p < .001$, even when controlling for children's age, number of children in the family, mothers' education and children's television time at Wave 1. As we expected, the better mothers' well-being was, the less television children watched. Sobel *z*-test indicated that the indirect effect of working hours on television viewing through well-being was marginally significant (-.01 = .09 x -.16; *z* = -

1.74, $p < .10$). This indicates that children watched less television when their mothers worked longer because the longer working hours improved their mothers' well-being. Thus, weak support was found for H2.

Finally, H3 was supported because mothers who worked longer hours experienced more parenting time pressure, $\beta = .15$, $B = .01$, $SE = .00$, $p < .01$, and had, in turn, lower well-being, $\beta = -.49$, $B = -.35$, $SE = .06$, $p < .001$, which resulted in increased television viewing time among their children, $\beta = -.16$, $B = -1.72$, $SE = .49$, $p < .001$. Thus, mothers' working hours predicted children's television viewing time through parenting time pressure and well-being, even when controlling for mothers' education, number of children, children's age and television time at Wave 1. Sobel tests revealed that parenting time pressure significantly mediated the relationship between working hours and well-being ($-.07 = .15 \times -.49$; $z = -2.65$, $p < .01$) and that mothers' well-being significantly mediated the relationship between mothers' parenting time pressure and children's television time ($.08 = -.49 \times -.16$; $z = 2.98$, $p < .01$).

Analyses further showed that children's television exposure at Wave 1 positively predicted children's television time, $\beta = .67$, $B = .68$, $SE = .04$, $p < .001$ and that mothers' education negatively predicted children's television time, $\beta = -.09$, $B = -.65$, $SE = .27$, $p < .05$. The number of children in a family did not predict children's television time, $\beta = -.05$, $B = -.37$, $SE = .28$, $p = .18$, nor did

children's age, β = -.02, *B* = -.01, *SE* = .02, *p* = .66. Overall, the predictors in the model collectively explained 51% of the variance in television viewing ($R^2 = .51$).

Finally, we investigated a potential unmediated relationship between mothers' working hours and children's TV time and the possibility of a reverse relationship between children's television viewing and mothers' well-being. First, the analyses showed that, in a simple structural equation model including only mothers' working hours and children's TV time, a direct relationship was found showing that the more mothers worked, the less television children watched, β = -.11, *B* = -.05, *SE* = .02, $p < .05$. However, in the life logistics model, no direct relationship was found between mothers' working hours and children's TV time, β = -.03, *B* = -.01, *SE* = .02, *p* = .49. This indicates that mothers' parenting time pressure and well-being mediated the relationship. Second, the analyses showed that mothers' well-being (Wave 2) was not affected by their children's television viewing (Wave 1), β = -.03, *B* = -.00, *SE* = .01, *p* = .55. Thus, there was no evidence of a reciprocal relationship.

Testing Alternative Models

As shown in Figure 3, the alternative model that included mothers' television attitudes (RQ1) yielded a good fit, χ^2 (101) = 174.46, $\chi^2/df = 1.73$, $p < .001$, CFI = .96, RMSEA = .04, GFI = .95, AGFI = .93. The significant paths of the life logistics model remained significant when controlling for mothers' television attitudes. Moreover, mothers' attitudes did not predict children's

television viewing time, β = .06, *B* = .65, *SE* = .46, *p* = .16. As shown in Table 2, adding mothers' television attitudes to the life logistics model did not improve the fit. The AIC- and BIC-differences (Raftery, 1995) provided very strong evidence favoring the life logistics model over the alternative model including mothers' attitudes ($\Delta AIC_i = 278.46 - 202.62 = 75.84$; $\Delta BIC_i = 486.02 - 378.25 = 107.77$). The predictors in this model collectively explained 52% of the variance in television viewing ($R^2 = .52$).

[FIGURE 3 about here]

[TABLE 2 about here]

As shown in Figure 4, the model that included mothers' television time as a mediator between mothers' parenting time pressure and well-being and children's television viewing time (RQ2) yielded a good fit, χ^2 (70) = 127.93, χ^2/df = 1.83, $p < .001$, CFI = .94, RMSEA = .06, GFI = .95, AGFI = .91. The significant paths of the life logistics model remained significant when mothers' viewing time was added to the model. However, adding mothers' television time to the life logistics model did not improve the fit (Table 2). Very strong evidence was found favoring the life logistics model over the model including mothers' television time ($\Delta AIC_i = 265.00 - 202.62 = 25.31$; $\Delta BIC_i = 452.60 - 378.25 = 74.35$). The analyses indicated that mothers' television use was not predicted by their well-being, β = .05, *B* = .81, *SE* = 1.03, *p* = .43, or parenting time pressure, β = -.06, *B* = -.71, *SE* = .83, *p* = .39, and that mothers' television time did not

predict children's television time, $\beta = .02$, $B = .01$, $SE = .02$, $p = .61$. Thus, mothers' television use did not explain the relationship between mothers' well-being and children's television exposure. Overall, the predictors in this model collectively explained 51% of the variance in children's television viewing ($R^2 = .51$).

[FIGURE 4 about here]

To explore the marginally significant and positive relationship between mothers' working hours and well-being more deeply, we examined whether the relationship was curvilinear, by inserting the polynomial of working hours in our model (Kline, 2011). In order to solve possible collinearity problems, we created a residualized squared term using orthogonalization (Little, 2013; Little, Bovaird, & Widaman, 2006) by regressing the squared term on the main variable. The model yielded a good fit, χ^2 (74) = 129.35, $\chi^2/df = 1.75$, $p < .001$, CFI = .97, RMSEA = .04, GFI = .96, AGFI = .93. The squared working hours term marginally significantly predicted mothers' well-being in a positive way, $\beta = .09$, $B = .00$, $SE = .00$, $p < .10$, reflecting a U-shaped relationship, indicating that well-being is lowest for mothers with mean working hours and highest for mothers with low and high working hours. The significant paths of the life logistics model remained significant. However, the model did not perform better than the main life logistics model ($\Delta AIC_i = 221.35 – 202.62 = 18.73$; $\Delta BIC_i = 404.95 – 378.25 = 26.70$).

Finally, to complement our findings, we also tested an integrative life logistics model that encompasses the life logistics model and mothers' television attitudes, mothers' television viewing, and the curvilinear relationship between working hours and well-being. This integrative model resulted in a good fit, χ^2 (130) = 209.84, $\chi^2/df = 1.61$, $p < .001$, CFI = .96, RMSEA = .04, GFI = .95, AGFI = .92. However, there was strong evidence that the integrative model did not perform better than the basic life logistics model ($\Delta AIC_i = 329.84 – 202.62 = 127.22$; $\Delta BIC_i = 569.33 – 378.25 = 191.08$).

Discussion

This study investigated the influence of mothers' structural life circumstances on children's television time using a two-wave panel survey. Adopting a life logistics perspective and building upon insights from the stress process model (Pearlin, 1989), border theory (Clark, 2000), and time conflict theory (Eby et al., 2005; Greenhaus & Beutell, 1985), this study sought to contribute to the existing body of knowledge on young children's television use. As an answer to scholars' (e.g., Thompson & Christakis, 2007) call to examine the reasons why parents allow their children to watch television, this study showed that life logistics, particularly mothers' working hours, parenting time pressure, and well-being, are important predictors of children's television time. The findings highlight the importance of adopting a life logistics perspective in

studying children's television use and offer several distinct contributions to the literature.

The relationship between mothers' working hours and children's television time arises from two different processes. First, to the extent that work and family demands do not conflict, children's television viewing does not increase. Although mothers' working hours only marginally predicted their well-being, the findings suggest that being employed has a positive impact on mothers' well-being, which, consequently, decreases children's television time. In this sense, our study supports the role-enhancement perspective (Moen et al., 1995), which starts form the premise that people who are employed have more social contact, more resources, increased self-fulfillment, and other benefits that improve one's well-being. Additional analyses found a trend towards a U-shaped curve for the relationship between mothers' working hours and well-being, suggesting that mothers with lower and higher than average working hours have better well-being.

Second, also a contrasting process was found to explain the relationship between mothers' working hours and children's television time. The findings indicate that if work and family demands conflict, children's television use increases. More specifically, children's television viewing increases because, in line with time conflict theory (Eby et al., 2005; Greenhaus & Beutell, 1985) and studies in support of a role-overload hypothesis (Goode, 1960; Moen et al., 1995), working longer hours increases mothers' parenting time pressures and,

consequently, causes mental distress. Our findings thus indicate that when mothers' work demands conflict with their parenting demands, children tend to watch more television.

Our life logistics model showed that mothers' well-being is a fundamental mechanism in the chain of events linking mothers' working hours with children's television use. The fact that children watch more television when their mothers have lower well-being confirms the results of previous research (Thompson & Christakis, 2007). However, compared with other studies, the mothers in our study appeared to have relatively low well-being. According to the cutoff point used to identify mothers at risk for mood disorders (Rumpf et al., 2001), more than one-third of the mothers (35.4%) we studied could be considered to have mental distress. This proportion is significantly higher (χ^2 (1) = 54.12, $p < .001$) than the proportion reported in a previous study of young children's television viewing using Berwick et al.'s (1991) Mental Health Inventory, in which 21% of the mothers was identified as having mental distress (Thompson & Christakis, 2007), but significantly lower (χ^2 (1) = 7.686, $p < .01$) than the percentage of 42% reported by Olson & DiBrigida (1994).

The fact that one third of the mothers in our study has mental distress is of particular concern considering that a substantial proportion of children potentially watch high amounts of television because of their mothers' mood disorders. This highlights the importance of investigating mothers' life circumstances to

understand children's television time and the relevance of well-being to identify children who watch high amounts of television. Further research is also needed to determine whether watching more television because a parent suffers mental illness is necessarily unfavorable. Consistent with what Thompson and Christakis (2007) have argued, it is plausible that watching television, given that it is high-quality content, is more stimulating for a child than interacting with a parent who experiences mental distress. Watching television may offset the negative impact of parental distress on children's social and cognitive development.

The findings of the present study are of theoretical importance. This study contributes to the existing literature by showing that a life logistics approach is a promising direction for research investigating children's television use. For instance, media effects research may benefit greatly from adopting a life logistics perspective because structural life circumstance factors may explain why some children are more influenced by television than others. Mothers' working hours and time pressures may be moderators that help identify children at particular risk for the impact of television viewing and may explain children's differential susceptibility to television effects (cf., Valkenburg & Peter, 2013). The impact of television on children's social, cognitive, and physical outcomes (e.g., Dennison & Edmunds, 2008; Thompson & Christakis, 2005; Zimmerman & Christakis, 2007) may be different for children who watch television because they themselves take the initiative to watch compared with children who watch television due to

parents' structural life circumstances, for instance because parents try to entertain or occupy their child by allowing him/her to watch television when parents feel time pressured or experience mental distress.

In this respect, future research should also consider the impact of other life circumstances and other work characteristics. For instance, studies have demonstrated that nonstandard work schedules are associated with lower involvement in family activities (Presser, 2000) and less cognitively stimulating parent-child interaction (Gassman-Pines, 2011), which may encourage children to watch more television. Also, future research would benefit from exploring additional factors that are linked to levels of child television viewing, such that we increase the empirical validation for the factors tested in this study, which have been tested in a relatively narrow model.

This study provided a robust test of the life logistics model. Our model withstood critical examination, providing evidence that the impact of structural life circumstances on children's television exposure persists over time, even when controlling for children's baseline television viewing and variables that have previously been shown to be strong predictors of children's television use. Compared to mothers' attitudes about the educational value of television for children, mothers' structural life circumstances have a stronger influence on children's television use. Mothers' television attitudes did relate to children's television viewing, but not when they were included in the life logistics model.

This indicates that mothers' life logistics outweigh their attitudes toward the educational value of television as predictors of children's television viewing time.

It is important to note, however, that whereas the amount of television exposure is primarily predicted by life logistics, the content that children watch may be primarily under attitudinal control. In this respect, research showed that although parental attitudes toward television did not predict the time children spent watching television, they did predict the content (Barr, Danziger, et al., 2010). Also, several studies have indicated that attitudes about television are a strong predictor of parental mediation of children's television viewing (Nathanson, 2001; Warren, 2005).

Although mothers' television use correlated significantly with children's television exposure ($r = .27$, $p < .001$), parental modeling of television viewing did not play a role in children's viewing when it was integrated in the life logistics model. The assumption that mothers with low well-being would watch more television, thereby modeling the television behavior for their children so that their children would watch more television, as suggested by others (Conners et al., 2007), was not supported in this study. A possible explanation might be that mothers may do much of their viewing late at night, after having taken care of the children, when the children can no longer observe it such that parental modeling cannot take place. This is possible as mothers' television viewing is influenced by structural factors as well. For instance, working mothers may have less time for

viewing (Hochschild & Machung, 2012; Juster & Stafford, 1985). Future studies are needed to further entangle the relationship between maternal well-being and children's television use. For instance, it is possible that watching television displaces mother-child interactions because depressed mothers have poorer parenting abilities (Downey & Coyne, 1990) and exhibit fewer interactions with their children (Lovejoy et al., 2000). In this view, scholars have argued that depressed mothers may be more likely to use television as an electronic babysitter (Conners et al., 2007). Also, research is needed that includes children's well-being to investigate whether young children might be learning to use television to entertain themselves as a way to cope with stress. Research among older children already showed that they frequently watch television to cope with stress (Chen & Kennedy, 2005).

The longitudinal design of our study showed that the relations in the life logistics model hold longitudinally, even while controlling for children's baseline television viewing, thereby documenting changes in children's television viewing over time. Further, the two-wave design also allowed us to establish the temporal order of the relations (Kline, 2011), showing that mothers' structural circumstances predict children's television viewing, but not vice versa. In this sense, our study moves beyond cross-sectional research by complying with the temporal precedence condition of causal order (Kline, 2011). Following other

scholars (Lee et al., 2009), we encourage more research to investigate longitudinal relationships when examining predictors of children's television viewing.

The present study is also of practical importance. The findings indicate that mothers' life logistics make it challenging to monitor young children's television exposure. Because mothers' structural life circumstances are associated with increased television viewing among children when it creates mental distress, future interventions aimed at reducing children's television time should target mothers' life logistics. We agree with Thompson and Christakis (2007) that health practitioners should screen for maternal mental distress. Policy makers should provide opportunities for families that create a healthy work-family balance so that parents are able to better attend to the needs of their children and limit children's television viewing time.

It is important to note that the data for this study were collected in Belgium, a Western European country. Whereas studies of children's television viewing primarily use data collected in U.S samples (e.g., Bank et al., 2012; Bickham et al., 2003; Conners et al., 2007; Thompson & Christakis, 2007; Warren, 2005), this study adds a European perspective to the literature by using data collected in a European, non-U.S. sample. However, while the average working hours are representative of Belgian mothers with young children and comparable to the average reported by European employed mothers (Abendroth et al., 2012), they are relatively low compared with the average working hours of U.S. mothers

(e.g., Roxburgh, 2006). Also, children's television exposure tends to be higher in U.S. samples (e.g., Barr, Lauricella, Zack, & Calvert, 2010; Bickham et al., 2003; Thompson & Christakis, 2007) than in our sample and other European samples (e.g., Beyens & Eggermont, 2014; Kourlaba et al., 2009; van Stralen et al., 2012). Future studies should therefore investigate whether U.S. mothers' life logistics would have a stronger impact. The higher working hours and higher viewing time suggest that the life logistics model might be more powerful in a U.S. context.

Further, some selection bias might be inherent to the recruitment procedure of this study, in which children were recruited from daycare centers and kindergarten. People with different backgrounds, either ethnic, social or other, might have different approaches to child raising and the use of child care provision. It might be possible that people with a particular background are more likely to use kindergarten and daycare centers. Therefore, White respondents are over-represented in our study as well as working mothers. In order to increase our understanding of the relationships examined in this study, more research is needed in samples with different ethnic, social and other backgrounds. Also, research should look at fathers' role and investigate the role of fathers' structural circumstances. In order to increase the validity of the life logistics model, studies should test the model in samples of fathers and people from different ethnic, cultural and social backgrounds. Further, other socioeconomic factors should be included in future studies. For instance, while mothers' educational level was

used as an indicator of the socioeconomic status and controlled for in our study, other studies might also include other socioeconomic factors as a control variable, such as parents' income.

It should also be noted that the parenting time pressure scale used in this study had a relatively low reliability. However, the Cronbach's alpha (.69) was slightly below the generally accepted level of .70 (Shelby, 2011) and even slightly higher than in the original study (.67 Roxburgh, 2006). Moreover, lower alphas are less of a problem with scales that encompass fewer items (Cortina, 1993). Little (2013) argues that underdeveloped measures are allowed if the theoretical propositions being tested are worthy of analysis. Future research may improve the parenting time pressure scale and consequently improve the quality of the structural circumstance factors included in the life logistics model.

Also, future studies should look at the predictive value of other attitude dimensions in the life logistics model. The attitudes toward television measure used in our study asked only about the educational value of television for children and may therefore not sufficiently test mothers' attitudes toward television as a mediator in the life logistics model. This is not a global attitude construct, which would tap into other relevant dimensions of attitude as well, as it is a multidimensional construct (Warren, 2003). Thus, while our study shows that the second alternative model finds no relationship between the attitude construct and children's television viewing, it is still possible that other dimensions of mothers'

attitudes would be predictive. For instance, parents' attitudes toward the value of television for parenting (e.g., occupying the child so the parent can do household chores, or using television as a reward for good behavior or as a punishment for bad behavior) may be more powerful predictors of children's television viewing in our life logistics model.

Conclusion

This study highlights the importance of adopting a life logistics perspective in research investigating children's television use. The life logistics model revealed important mechanisms linking mothers' structural life circumstances with children's television use. Overall, our study indicates that to the extent that mothers' work demands are beneficial for their well-being, children tend to watch less television. However, when mothers' work demands create parenting time pressure and thereby decrease their well-being, children watch more television.

Children's television exposure seems to be primarily determined by structural circumstances and not so much by their mothers' television attitudes or modeling of television use when integrated in the life logistics model. It is possible that the impact of parents' attitudes and television use observed in prior research (Barr, Danziger, et al., 2010; Bleakley et al., 2013; Vandewater et al., 2005) may be confounded by life logistics not investigated in previous studies.

This study offers a first important step to advance our empirical understanding of the role of mothers' life circumstances in children's television viewing and to build theoretical grounds for studying young children's media use. Continued research is needed on these and other predictors of children's television exposure.

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Tables

Table 1

Zero-Order Correlations

	Working Hours W1	Parenting Time Pressure W1	Well-Being W1	Child age	Mother's Education	Number of Children in Family	Television Attitudes	Mother's Television Time	Television Time W1	Television Time W2
Working Hours W1	1	.12*	.08	-.08	.16**	-.08	-.09^{+}	-.07	-.09^{+}	-.11^{+}
Parenting Time Pressure W1		1	-.36***	.02	.01	.13**	-.00	-.06	-.03	-.02
Well-Being W1			1	-.06	.13*	-.03	-.03	.05	-.03	-.13*
Child age				1	-.09^{+}	.16***	-.08	-.03	.40***	.25***
Mother's Education					1	-.01	-.06	-.28***	-.32***	-.32***
Number of Children						1	.05	-.13*	.02	-.04
Television Attitudes							1	.07	.15**	.15**
Mother's Television Time								1	.34***	.27***
Television Time W1									1	.70***
Television Time W2										1

Note. $^{+}p < .10$. $*p < .05$. $**p < .01$. $***p < .001$.

Table 2

Fit Indices and Model Comparison for the Life Logistics Model and Four Alternative Models

Model	CFI	RMSEA	GFI	AGFI	AIC	Rank	BIC	Rank	ECVI	Rank
1. Life Logistics Model	.97	.05	.96	.93	202.62	1	378.25	1	0.51	1
2. Life Logistics Model With Mothers' Television Attitudes	.96	.04	.95	.93	278.46	4	486.02	4	0.70	4
3. Life Logistics Model With Mothers' Television Time	.94	.06	.95	.91	265.00	3	452.60	3	0.66	3
4. Life Logistics Model With Curvilinear Relationship	.97	.04	.96	.92	221.35	2	404.95	2	0.56	2
5. Integrative Life Logistics Model	.96	.04	.95	.92	329.84	5	569.33	5	0.83	5

Note. AIC = Akaike information criterion (Akaike, 1987); BIC = Bayesian information criterion (Raftery, 1995); CFI = comparative fit index; ECVI = Expected cross-validation index (Browne & Cudeck, 1993); GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index; RMSEA = root mean square error of approximation

Rank indicates the order of the size of the AIC-, BIC-, and ECVI-values (1 = smallest value and 5 = highest value)

Figures

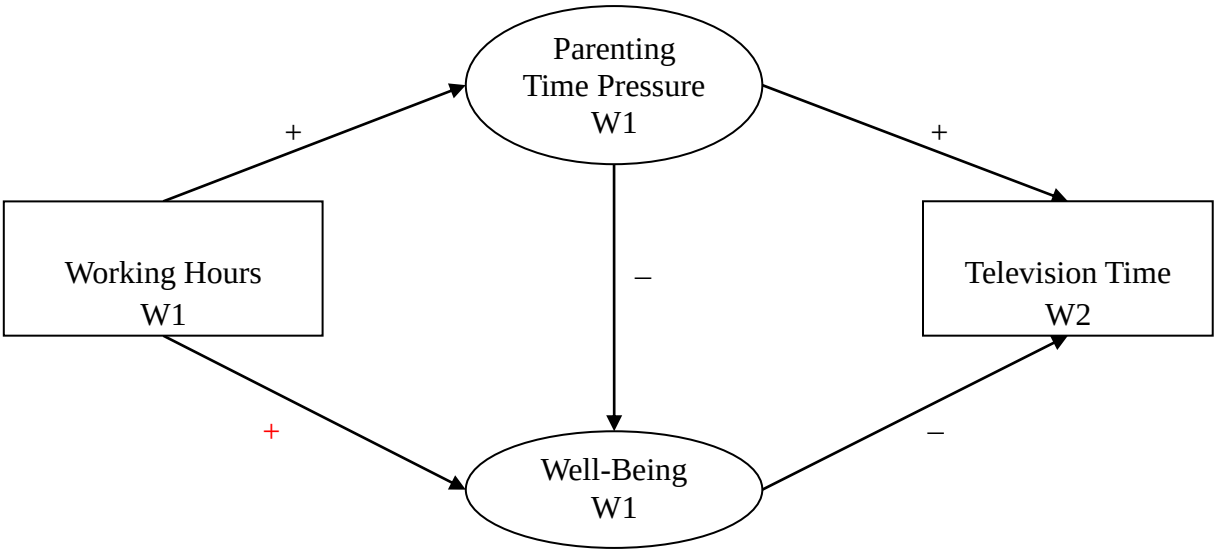

Figure 1. Hypothesized life logistics model

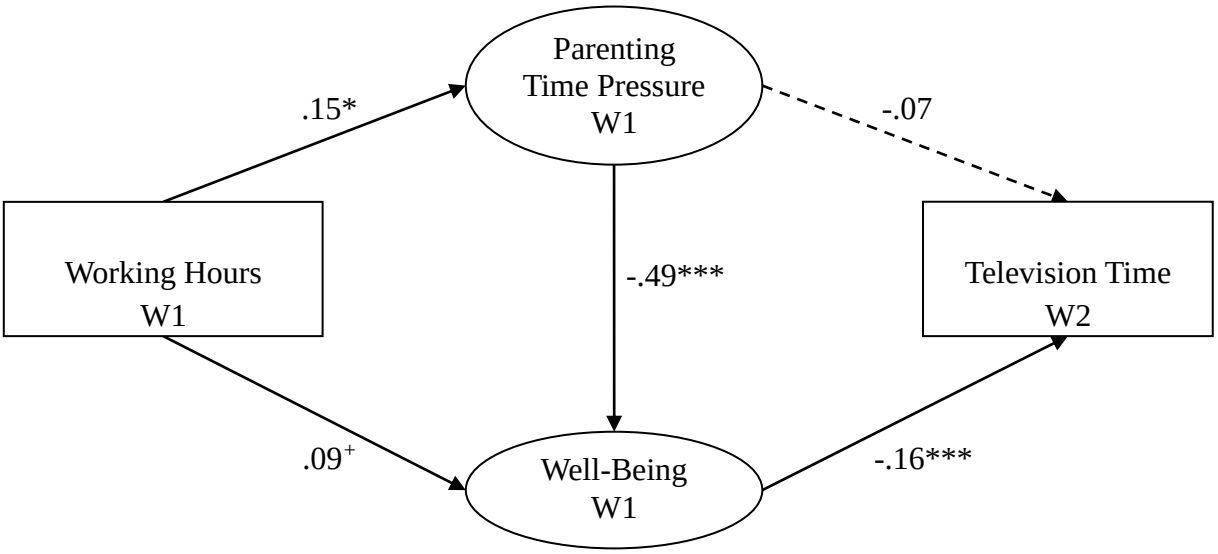

Figure 2. Observed life logistics model

Note: Path coefficients are presented in standardized form. Dashed lines represent insignificant paths. Ovals represent latent constructs. For clarity of presentation, control variables, observed indicators and error terms are not shown.

$^{+}p < .10$. $*p < .05$. $**p < .01$. $***p < .001$.

CFI = .97 RMSEA = .05 GFI = .96 AGFI = .93

$R^2 = .51$

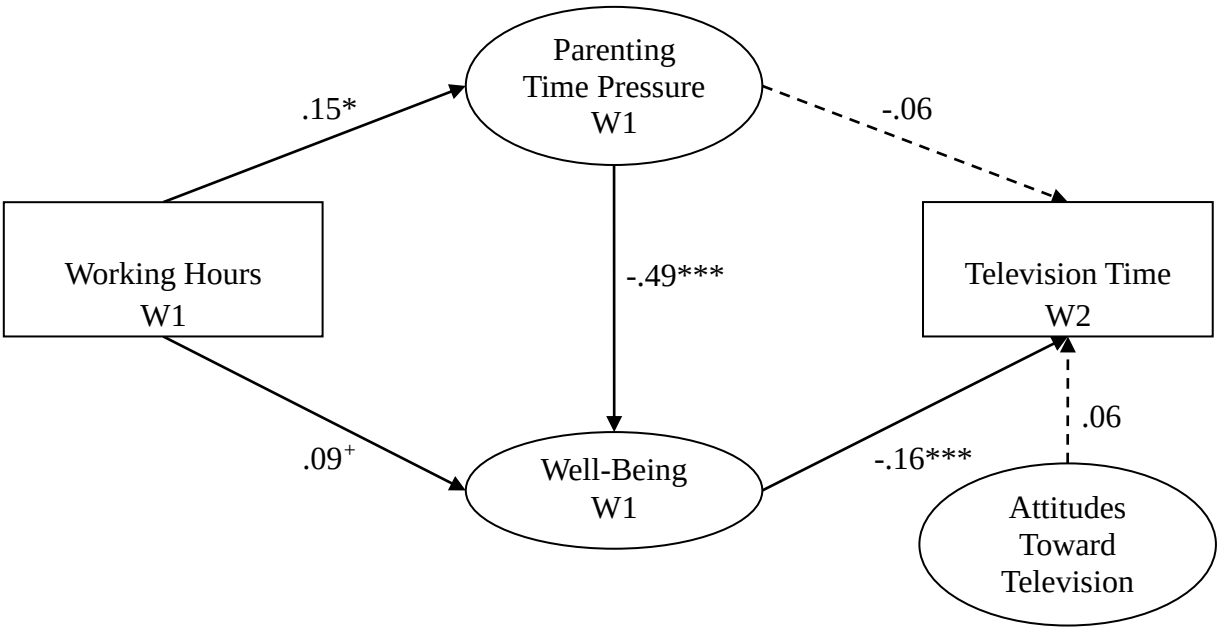

Figure 3. Observed life logistics model including mothers' television attitudes

Note: Path coefficients are presented in standardized form. Dashed lines represent insignificant paths. Ovals represent latent constructs. For clarity of presentation, control variables, observed indicators and error terms are not shown.

$^{+}p < .10$. $*p < .05$. $**p < .01$. $***p < .001$.

CFI = .96 RMSEA = .04 GFI = .95 AGFI = .93

$R^2 = .52$

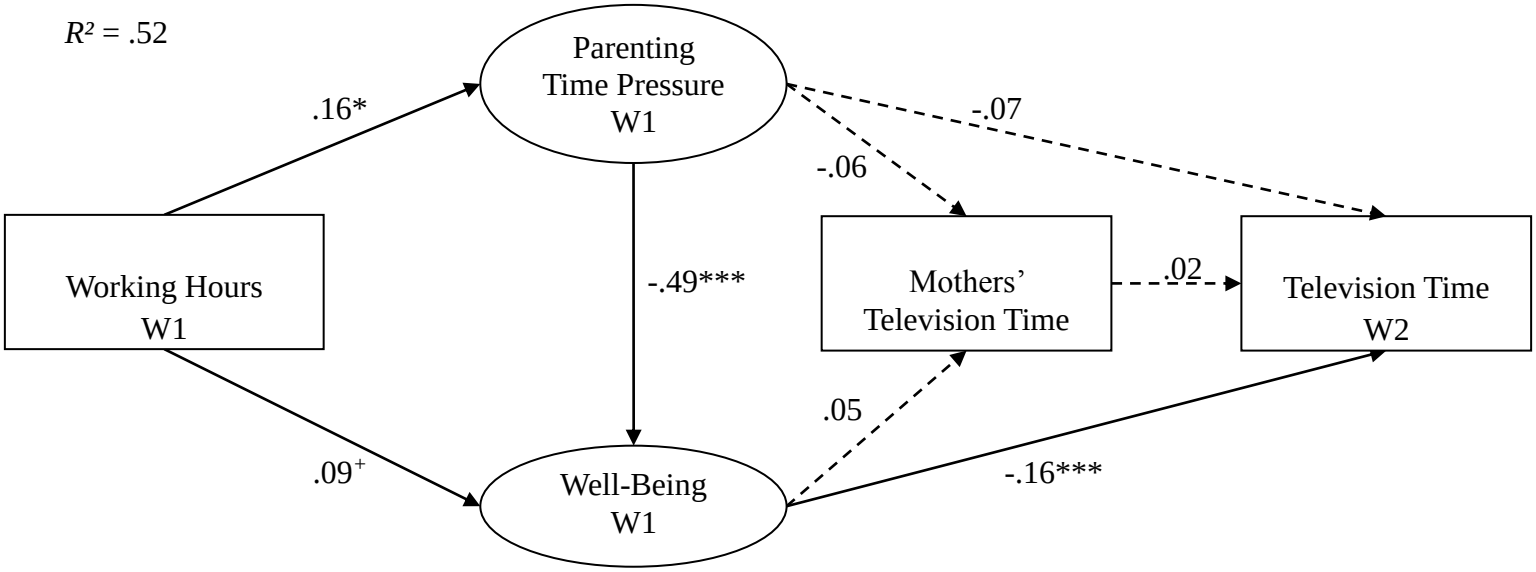

Figure 4. Observed life logistics model including mothers' television time

Note: Path coefficients are presented in standardized form. Dashed lines represent insignificant paths. Ovals represent latent constructs. For clarity of presentation, control variables, observed indicators and error terms are not shown.

$^{+}p < .10$. $*p < .05$. $**p < .01$. $***p < .001$.

CFI = .94 RMSEA = .06 GFI = .95 AGFI = .91

$R^2 = .51$