Sessions A-3 Childcare

Parental Care and Socio-Psychological Symptoms among Malaysian Preadolescents: The Effect of Cross-Gender Parent-Child Relationship

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1. Background of the study

At the beginning of 21st century, the increase of female participation in the labour force is one of the signs that indicated presence of gender equality in Malaysia. Over the past decade, national statistics found that there were 47.7% of female workers in year 2003 and the number increased to 52.4% in the year 2013 (Department of Statistics Malaysia, 2014). In addition, 61.8% of female labour forces are married women in the year 2013 while there was only 59.4% of female labor force are married women in the year 2009. Concomitantly, it may influence traditional family model. Typically, the traditional notion "breadwinning fathers and caregiving mothers" has long been deeply ingrained in the family model, particularly in Asia context. Nevertheless, this notion has been challenged in view of the existence of dual-earner families. Indeed, women nowadays challenge the boundaries of their domesticity in private sphere; while men engage in more active role within the private sphere. Mothers were found to be more actively engaged in the workplace, while fathers were found to involve in child care affairs (Farre & Vella, 2007; Maurer-Fazio, Connelly, Lan, & Tang, 2009; Maxwell, Scourfield, Featherstone, Holland, & Tolman, 2012). The emerging trend in parenting has shifted the division of care provision within family. Thus, care from parents and its effect on child developmental outcomes become uncertain.

In the process of growing up, children need to accomplish more age-appropriate developmental tasks that included educational attainment and social engagement. However, parents might take educational attainment as the only achievement of their children; and neglect the importance of psychosocial development. In order to get along and adapt in the social world, psychosocial development is vital for children. Preadolescents who are well-developed in language and cognitive explore social relationship in more depth and focus on maintaining friendship. Due to school engagement, their social network also becomes broader and they are exposed to greater social challenges. Erikson (1950) stated that preadolescents are expected to build and master responsibility and attitudes toward task accomplishment independently. Preadolescents are more self-conscious on their achievement and failure along the development process. Sense of competence and industry are essential skills for preadolescents to adapt and cope with daily life challenges (Erikson, 1963). Failure

in handling developmental tasks might lead to bad experiences on difficulty situation. Therefore, parents of preadolescents need to juggle between the role of nurturer and supporter at this developmental stage. Parents need to nurture and support their preadolescent child to accomplish psychosocial developmental tasks. Parents should encourage preadolescent child to be autonomy, regulative and socially active through promoting their responsibility and social skills. Both mother and father should keep up with preadolescents' development progress and be capable to provide assistance at any time.

Empirical studies revealed that child care from parents tend to influence children development in aspect of psychological and social behaviors (Respler-Helman, Mowder, Yasik, & Shamah, 2012; Ali & Frederickson, 2011; Simon & Conger, 2007). Within the family, fathers and mothers play different parental role. Generally, it is believed that mothers who spend more time with children will bring stronger effect on children development than fathers. However, the exact fathering effect may be overlooked by the society and thus not yet fully discovered. Past research found that mothers were more involved than fathers; but, paternal acceptance was more significant to predict children functioning (Collins, Laursen, Mortensen, Luebker, & Ferreira, 1997; Forehand & Nousianen, 1993; Wierson, Armistead, Forehand, Thomas, & Fauber, 1990). Child development will not only rely on the quantity of parental involvement; but also the quality of care from parents (Amato & Rezac, 1994). Numerous studies revealed the importance of fathers' role in the family. Prior studies reported that mothers generally engage in providing care and controlling behaviour of preadolescent child; while fathers often offer affection and promote social self-worth of preadolescent child (Brooks, 2011; Dekovic & Meeus, 1997). Over the decades, studies found that fathers are more involved in physical play and leisure activities with child (Brooks, 2011; Lamb, 1977; Shulman & Seiffge-Krenke, 1997). During preadolescence, fathers expect higher level of independence from preadolescent child and apply higher level of positive discipline than mothers (Hoff, Laursen, & Tardiff, 2002; Kim, Guo, & Koh, 2010); while mothers are more protective and hold stronger emotional ties with child (Nishikawa, Sundbom, Hägglöf, 2010; Huang, Someya, Takahashi, Reist, & Tang, 1996). Previous studies also supported that mothers tend to promote emotional well-being; while fathers are more responsible on social competency among children (Conger et al. 1995; Aunola & Nurmi, 2005). Based on the results of past studies, mothers and fathers tend to behave differently, for example fathers are prone to be socializers while mothers are the caregivers. During child rearing process, it is believed that these differentiated behaviors bring distinctive effect on child development.

2. Overview of current study

2-1. Theory application

Based on the Self-determination theory (Deci & Ryan, 1985; 2000), it is proposed that three basic psychological needs are important elements for better human development outcomes. As one of

the basic psychological needs, relatedness is essential to promote child development outcomes. Relatedness refers to individual's feelings of warm, affection and sense of belongingness with others. Relatedness can be developed from parental warmth. Care from parents provides encouragement and affection to motivate preadolescents in handling challenges and accomplishing developmental tasks. Preadolescents who obtained relatedness will be more competent in social relationship and capable to avoid difficulties symptoms, such as, problems in peer relationship, emotion and behavior. In order to promote optimal socio-psychological development outcomes, parents play a vital role to fulfill preadolescents' need for relatedness. The second proposition of Self-determination theory is the importance of care from parents on socio-psychological outcomes. This proposition asserted that extrinsic motivation occurs along the reciprocal interaction process between individual and other persons within their immediate environment. In the context of Self-determination theory, children are self-motivated to actively involve themselves in their development process, but socializers within their immediate environment will anticipate their development process beforehand. Therefore, it is proposed that parents as primary socialization agents provide proper care and nurturance to preadolescent child; thus influence their social competence and psychosocial outcomes. These two propositions explained that care from warm parents will provide needs for relatedness; thus influence socio-psychological outcomes among preadolescents. Empirical studies across the decades found that parental warmth are vital element to develop positive outcomes among children (Harlow, 1958; Slater, 1962; Rohner, 1976; Stewart, Rao, Bond, Mc-Bride-Chang, Fielding, & Kennard, 1998; Vahedi, Mostafafi, & Mortazanajad, 2009).

In addition to the role of socializers, this theory also posited that social-contextual factors, such as, social norms and beliefs, will influence the development process of a preadolescent. Fathers and mothers might practice different child care for male and female preadolescents due to the influence of their traditional perception on gender role. For example, parents expect the performance of independence from sons and prosocial from daughters. In other words, preadolescent child will also request different type of care from both fathers and mothers, such as, caring from mother and advice from fathers. Thus, Self-determination theory was applied to test the posited model that examined the effect of parental warmth on socio-psychological symptoms among sons and daughters.

2-2. Theoretical model on the relationship between parental warmth and socio-psychological outcomes

Over the years, parental warmth had been broadly discussed as affection, acceptance, love, involvement and caring from parents (Baldwin, 1955; Slater, 1962; Rohner, 1976; Skinner, Johnson & Snyder, 2005). Parental warmth as positive parenting dimension is responsive towards children developmental outcomes (Grolnick, Deci, & Ryan, 1997). As aforementioned, quality of parenting is more important for children development as compared with quantity of time spending with children.

Fathers as breadwinner might spend lesser time with their child than mothers. In order to build strong father-preadolescent relationship, the issue of "How father utilize their time with children" might run over the effect of "How much time that father spend with their children". Thus, it is suggested that caring is the essential characteristic of paternal warmth rather than involvement without the element of care for children. Past studies found that only paternal warmth influence psychological adjustment (Veneziano, 2000), adjustment difficulties and social competence (Chen, Liu, & Li, 2000; Grimes, Klein, & Putallaz, 2004) and youths' aggression (Veneziano, 2003) while maternal warmth is not significant contributor for these outcomes.

The traditional role of a female within family is a caregiver and nurturer who offer day-care and guidance for children. Thus, warm mothers tend to provide nurturance, sense of security, and support to their children (Campo & Rohner, 1992; Davies & Cummings, 1994). A study by Alegre and Benson (2014) revealed that maternal warmth lead to higher level of emotional security; lower level of internalizing and externalizing problems among preadolescents. With the support and responsiveness from warm mothers, children tend to have more appropriate emotional expressiveness and better emotion regulation skills. In a comparison test of the effect between paternal and maternal warmth, only maternal warmth was significantly related to emotional adjustment and depression among preadolescents when paternal warmth is taken into account (Chen et al., 2000). Past studies as discussed above revealed that both paternal and maternal warmth are significant contributors for preadolescents' developmental outcomes. Due to recent changes in parenting dynamics between fathers and mothers, it is crucial to disentangle the difference of care provided by fathers and mothers and its effect on children development. Thus, further study is needed to distinguish the effect of paternal and maternal warmth on the development of socio-psychological symptoms, especially for preadolescents who are experiencing social challenges in this stage.

During preadolescence, successful psychosocial development is determined by their development in social roles and skills, sense of industry and responsibility for their personal behaviour (Bigner, 2002). In other words, preadolescents who failed in accomplishing developmental tasks are more prone to have low level of self-efficacy and self-esteem, afraid of social participation, and even psychological problems. Thus, social competence plays a vital role for building healthy psychological development. Social competence can be defined as individual's ability to use suitable emotional and behavioural strategies in order to obtain social goals; build and maintain social relationship (Odom, McConnell & Brown, 2008; Rubin, Bukowski & Parker, 2006). Socially competent preadolescents can adjust themselves in social challenges; and can better engage in social relationship through showing their cooperation and caring on others (Mirabile, 2010; Parker, Rubin, Erath, Wojslawowicz, & Buskirk, 2006). With high level of social competence, confident preadolescents can attain a sense of accomplishment and positive self-feelings (Springer & Philips, 1997). Parents provide the assistance and guidance to their preadolescent child during this social interaction process.

Preadolescents with warm parents feel more secure and can trust others; thus they will be more active in social participation and formation of social relationship. Past studies showed parental warm was positively predicted social competence among children (Lengua, Honorado & Bush, 2007; Zhou, Eisenberg, Losoya, Fabes, Reiser, Guthrie, & et al., 2002).

Difficulties symptoms refer to children's problems in aspects of behavioural, emotional and peer relationships (Goodman, 1997). Preadolescents who experienced high level of difficulties symptoms have higher tendency to meet mental health disorders (Goodman, 1997; Goodman, Ford, Simmons, Gatward, & Meltzer, 2000). During this development stage, failure in accomplishing developmental tasks will increase victimization among preadolescents. In addition, they might experience greater challenges and exposure to risky behavior during the transition process from preadolescence to adolescence. Occurrence of difficulties symptoms caused children to be more vulnerable to developmental risks in future (Kessler, Davis, & Kendler, 1997). In the developmental stage, encouragement and care provided by warm parents are important to support preadolescents in handling difficulties and social problems. Previous studies also revealed that preadolescents who received parental warmth are less likely to experience difficulty symptoms, such as, hyperactivity and problematic behavior (Buschgens, van Aken, Swinkels, Ormel, Verhulst, & Buitelaar, 2010; Skinner et al., 2005).

Therefore, social competence and avoidance of difficulties symptoms are important to ensure preadolescents' healthy development (Lee, Hankin, & Mermelstein, 2010; Mirabile, 2004). As discussed above, parents who are primary socializers for preadolescents have significant impact on preadolescents' socio-psychological development. Thus, this study aimed to examine the relationship between paternal/maternal warmth with socio-psychological outcomes among preadolescents.

2-3. Gender role of preadolescents and cross-gender parent-child relationship

Gender of preadolescents and parents might influence children developmental outcomes. Prior study showed girls are more likely to engage intimate parent-child relationship than boys (McGue, Elkins, Walden, & Iacono, 2005). This may be explained by the inclination of girls dealing with people; while boys are more object-oriented (Galambos, Berenbaum, & McHale, 2009). Due to traditional gender role and stereotype, mothers and fathers will perform gender-differentiated behaviour to male and female preadolescents. Past studies reported that care from parents varies due to children's gender (Molden, Hipwell, Vermeiren, & Loeber, 2011; Gryczkowski, Jordan, & Mercer, 2010; Young, Miller, Norton, & Hill, 1995). In specific, mothers and fathers tend to provide various types and levels of child care to daughters and sons.

Regarding the gender of parents and preadolescents, the issue of cross-gender parent-child relationship also arises. Result of cross-gender parent child relationship study can provide clearer pictures for explaining the father-daughter/mother-son relationship and its effect on children

development. Prior studies also revealed the cross-gender parent-child relationship and its effect on socio-psychological symptoms among male and female preadolescents. A study in Thailand by Putnick and colleagues (2012) found that fathers to girls and mothers to boys provide higher level of warm as compared with fathers to boys. Dissatisfaction in father-daughter relationships caused negative psychosocial outcomes for female adolescents (Coley, 2003). In addition, daughters who perceived low level of paternal acceptance are more likely to involve in behavioural problems and depression (Maggio & Zappulla, 2014; Ramírez Garcia, Manongdo & Ozechowski, 2014). Moreover, girls with involved fathers will be more self-confident and less likely to experience negative emotions (Brody, 1997). A study by Webster, Low, Siller and Hackett (2014) also found that paternal warmth contributed to higher level of social competence for young girls, but not boys.

In terms of maternal warmth, past study reported maternal warmth only showed significant effect on socio-emotional functioning among boys (Davidov & Grusec, 2006). A study by Trentacosta and colleagues (2011) also found that boys with warmer mothers tend to engage better peer relationship as compared with boys with lower level of maternal warmth. In other study, boys who experienced maternal harsh practices are more vulnerable in depression as compared to girls (Manongdo & Ramirez Garcia, 2007). However, a study by Marshal and Chassion (2000) found that male preadolescents with supportive mothers are more susceptible in peer influence of substance abuse compared to female preadolescents. The trends of cross-gender parent-child relationship transformed the concept of traditional gendered parenting practices and effects, such as, close father-son relationship, but no intimate father-daughter relationship. Care from mothers may bring bigger effect on sons' development, but not daughters; while fathers also contribute significantly to certain developmental outcomes among daughters only. Thus, it is essential to examine cross-gender parent-preadolescents relationship and its effect on socio-psychological symptoms among preadolescents.

2.4. Research objectives

Based on the discussion above, fathers and mothers who provide warm care bring distinctive socio-psychological outcomes for their preadolescent child. The rise of father involvement in child care also alters the traditional concept in child care. In addition, gender of preadolescent also moderates the relationship between parental warmth and socio-psychological outcomes. However, limited studies on related field were conducted within Malaysia context. The issues arise some research questions which are 1) To what extent paternal and maternal warmth significantly related to socio-psychological outcomes among Malaysian preadolescents, 2) Do the contributions of paternal and maternal warmth on socio-psychological outcomes vary across preadolescents' gender. Therefore, current study aimed to examine the 1) contributions of fathers and mothers and, 2) effect of cross-gender parent-child relationship on socio-psychological outcomes among Malaysian preadolescents.

3. Methodology

3-1. Respondents and location

A total of 852 preadolescents aged between 9 and 12 (M= 10.96; SD= .60) and their parents were randomly selected as respondents by using Multistage Probability Proportionate-to-Size Cluster sampling technique. In order to obtain the ethnic balance, preadolescents from three main races (e.g., Malay, Chinese and Indian) in Malaysia were recruited as respondents. Respondents were recruited from sixteen Malay-medium, six Chinese-medium and six Tamil-medium primary schools from three states (Selangor, Kuala Lumpur and Perak) of Malaysia. Only one class of students was selected as respondents from each school.

Results of descriptive analysis reported the characteristics of respondents and their parents. Respondents for current study consisted of 350 (41.08%) males and 502 (58.92%) females. Most of the respondents are Malays (n= 410, 48.12%), followed by Chinese (n= 249, 29.23%) and Indian (n= 193, 22.65%). Based on the collected data, fathers aged between 29and 68 years old; while the age range of their mothers were between 27 and 63 years old. For employment status, 752 (88.26%) fathers were employed as full time workers or self-employed; only 338 (39.67) mothers were employed as full time workers and 364 (42.7%) were housewives. A total of 277 (32.5%) fathers and 317 (38.1%) mothers reported 11 years of formal education and graduated with Malaysian Certificate of Education (secondary school) as their highest education level; 197 fathers and 193 mothers graduated from advanced diploma, degree or postgraduate level.

3-2. Data collection procedures

Self-administered questionnaire was used to collect information from the primary school students and their parents. To increase respondents' comprehension, the questionnaire was prepared in both English and respondent's mother tongue language (i.e., Malay, Chinese or Tamil). Prior to data collection, official consent was obtained from the Ministry of Education, the State Education Department, and the school headmasters. Data collection was conducted during class periods and the trained enumerators were also present at the site to provide assistance to respondents. Respondents were given 35 to 45 minutes to complete the questionnaire. To collect parents' data, preadolescent respondents were asked to hand over the envelope which attached with parent version of questionnaire, explanation sheet and consent form to their parents. School teachers provided the assistance in collecting the parent-version of questionnaire from preadolescent respondents. Respondents were informed that the anonymity and confidentiality are guaranteed.

3-3. Instrument Translation

The selected instruments for the current study were originally prepared in English language. In order to increase the respondents' comprehension on questionnaire, original instruments were

translated into three languages which are Malay, Chinese and Tamil language with the permission from authors. Translation work was conducted with few procedures. First, experts in research related field translated the questionnaires from English language to the targeted languages (i.e., Malay, Chinese and Tamil). Second, back translation procedures were implemented to ensure the identical meaning of translated questionnaire. Third, three focus groups which consisted of 5 Malays, Chinese and Indians respectively were formed to revise the translated questionnaires in the aspects of understanding, cultural appropriateness, language clarity, and relevancy to respondents' experience in real life situation (Haynes, Richard & Kubany, 1995; Rubio, Berg-Weger, Tebb, Lee & Rauch, 2003; Vogt, King & King, 2004). The focus group members were undergraduates and post-graduate students who studied in related field. Then, leader of focus group discussed the revised questionnaires with researchers. Lastly, the revised questionnaires were distributed to selected respondents.

3-4. Instruments

Parental warmth. Paternal and maternal warmth were measured with warmth subscale from Children version of Parents as Social Context Questionnaire (PASCQ) (Skinner, Johnson & Synder, 2005). This subscale evaluated the extent to which preadolescent respondents' perceived of affection, caring and involvement from mother and father with 4 items for each measurement. Respondents responded the items with four-point likert scale (1=Not at all true, 2=Not very true, 3=Sort of true, and 4=Very true). Examples of items are "Mother/father let me know she/he loves me" and "Mother/father enjoys being with me". Higher average scores indicated greater level of paternal/maternal warmth perceived by respondents.

Difficulties symptoms. Difficulties symptoms were assessed by summing up the scores of emotional symptoms, conduct problems, hyperactivity and peer problems subscales from Strength and Difficulties Questionnaire (Goodman, 1997). Difficulties symptoms reflected the level of psychological difficulties experienced by preadolescent respondents. Each subscale has 5 items and respondents need to respond their presence of specific behaviour over the last six month with 3 point Likert scales (0=not true, 1=somewhat true, 2=certainly true). Measurement of emotional symptoms was used to assess emotional problems, such as I worry a lot; conduct problems used to evaluated their misconduct and temper, such as I am often accused of lying or cheating; hyperactivity subscale represented restless and inadequate of attention, such as I am easily distracted; and peer problems examined relationship problem between preadolescents and peer, such as other children pick on me. Higher scores represented high level of difficulties symptoms experienced by respondents.

Social competence. Eighteen items of social competence subscale of Individual Protective Factors Index (Springer & Phillips, 1997) was used to evaluate the preadolescents' social ability to engage in interpersonal relationship that included assertiveness, confidence and cooperation. Assertiveness assessed the respondents' ability in asking help or express own feeling without shyness,

such as “If I disagree with friends, I tell them’ and “If I don’t understand something, I will ask for an explanation”. Confidence scale was used to evaluate respondents’ sense of belonging and companionship to society. Examples of item are “I get along well with other people” and “It is hard for me to make friends”. Cooperation subscale measured their cooperative manner and willingness on social engagement, such as “Being part of a team is fun”, and “It is important to do your part in helping at home”. Preadolescents responded items with four-point likert scale (1=strongly disagree; 2=disagree; 3= agree; 4=strongly agree). Higher average scores represented higher level of social competence.

3-5. Data Analytic Plan

Structural equation modelling with Analysis of Moment Structure (AMOS version 20) used to examine the extent to which maternal and paternal warmth influence social competence and difficulties symptoms and how preadolescent gender differentiate the path of parenting on social competence and difficulties symptoms. Prior to model testing, confirmatory factor analysis (CFA) was applied to confirm and verify all of the variables to get better model fit. In order to determine model fit, fit indices in this study comprised of chi-square estimate of model fit, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Normed Fit Index (NFI) and root square error of approximation (RMSEA). According to Hu and Bentler (1999), acceptable values for CFI, TLI, and NFI is.90 and above; while RMSEA value need to be below .060. In order to test the gender effect on the relation of paternal/maternal warmth on social competence and difficulties symptoms, gender have been accounted in multigroup analysis.

4. Results

4-1. Preliminary results

Exploratory Data Analysis was initially conducted to examine preliminary assumptions such as normality, linearity, and homoscedasticity using Predictive Analytics Software (PASW version 20). Exploratory Data Analysis was executed to meet the data analysis assumptions. Based on the results, all the preliminary assumptions were met.

Descriptive analysis was implemented to describe the levels of paternal/maternal warmth, social competence and difficulties symptoms. Results of descriptive analysis showed that the average scores of paternal and maternal warmth perceived by preadolescent respondents were 3.442 (SD= .583) and 3.47 (SD=.575) respectively; while scores ranged from 1 to 4. After deleted 5 items that followed by Confirmatory Factor analysis, the average scores of social competence was 3.282 (SD= .385) while the minimum and maximum scores were 1.70 and 4.00 respectively. After the items were deleted, the mean scores of difficulties symptoms was .481 (SD= .301); while minimum and maximum scores in the current study were 0 and 1.50. All of the variables have acceptable skewness

and kurtosis values. Thus, data was normally distributed.

Table 1: Descriptive analysis on the level of paternal/maternal warmth, social competence and difficulties symptoms (N=852)

Variable	Mean	SD	Minimum	Maximum	Skewness	Kurtosis
Paternal Warmth	3.442	.583	1.000	4.000	-1.377	2.008
Maternal Warmth	3.471	.575	1.000	4.000	-1.456	2.224
Social competence	3.282	.385	1.700	4.000	-.479	.334
Difficulties Symptoms	.481	.301	.000	1.500	.806	.353

Note. SD= Standard deviation

4-2. Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) was applied to test the construct validation of the study variables (Harrington, 2005). Both of the paternal and maternal warmth obtained model fit. Fit indexes of paternal warmth reported as X^2 (2) = 5.105, p < .078, CFI = .996, TLI = .989, NFI = .994, root mean square error of approximation (RMSEA) = .043. Maternal warmth with 4 items also provided a good model fit with X^2 (2) = 1.766, p < .414, CFI = 1.000, TLI = 1.000, NFI = .998, root mean square error of approximation (RMSEA) = .000.

For social competence with 18 items, first order analysis comprised of three factors (assertiveness, confidence and cooperation) was performed. Five items from social competence with factor loading magnitude less than .4 were omitted from the scale (Comrey & Lee, 1992; Tabachnick & Fidell, 2001). The deleted items were two items from assertiveness factor; one item from cooperation factor; and two items from confidence factor. After modification index was utilized, a good fit model provided for first order of social competence. Furthermore, second-order analysis was also performed and yielded a good model fit, X^2 (62) = 165.451, p < .000, CFI = .927, TLI = .908, NFI = .889, RMSEA = .044.

In the case of difficulties symptoms, first order analysis was performed for four factors (emotional symptoms, conduct problems, hyperactivity and peer problems). One item from conduct problems and two items from peer problems were deleted from the construct due to low factor loading magnitude. Difficulties symptoms with 17 items yield a better model fit after utilization of modification index. Thus, second order analysis of difficulties symptoms was conducted and provided a marginally fit model, X^2 (114) = 301.893, p < .000, CFI = .898, TLI = .878, NFI = .847, root mean square error of approximation (RMSEA) = .044.

Prior to structural model testing, measurement model which specify the relationships between indicators and latent variable was implemented. Study variables that included paternal/maternal warmth, social competence and difficulties symptoms were included in this measurement model.

Results showed a good measurement model fit, X^2 (77) = 291.186, p < .000, CFI = .966, TLI = .953, NFI = .954, RMSEA = .057. Based on the model fit provided by measurement model, it was statistically proven that all of these study variables are appropriate and equivalent for the sample size in the current study. Thus, structural model can be developed to test the relationships between variables.

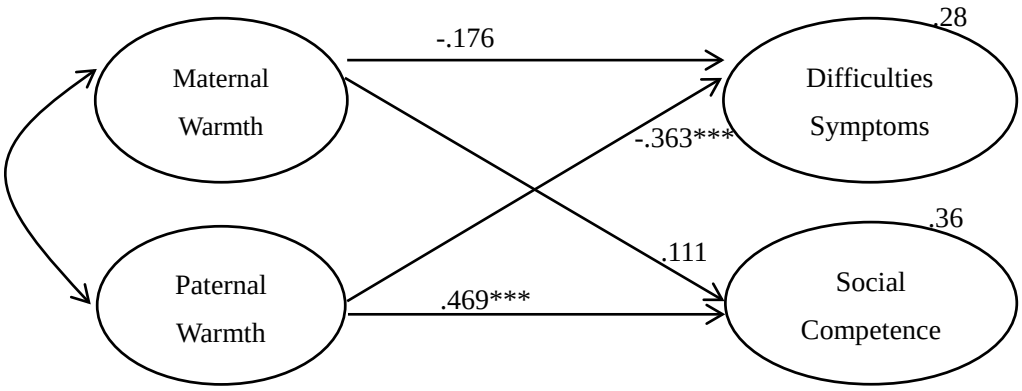
Table 2: Fit Indexes for the Paternal/Maternal Warmth, Social Competence and Difficulties Symptoms (N=852)

Scale	CFI	TLI	NFI	RMSEA	X^2/df
Paternal Warmth	.996	.989	.994	.043	2.552
Maternal Warmth	1.000	1.000	.998	.000	.883
Social Competence (second-order)*	.927	.908	.889	.044	2.669
Difficulties Symptoms (second-order)*	.898	.878	.847	.044	2.648

Note. *First order analysis for social competence and difficulties symptoms were performed and met model fit before second order analysis conducted.

4-3. Structural Model for the Parental Warmth and Socio-Psychological Symptoms

As displayed in Figure 1, the structural model yielded a good fit, with X^2 (77) = 291.186, CMIN/df= 3.782, p < .000, CFI = .966, TLI = .953, NFI = .954, RMSEA = .057. Paternal warmth was positively linked to social competence (B= .469, p < .001) and negatively linked to difficulties symptoms (B= -.363, p < .001). Indicatively, preadolescents who perceived higher level of warmth from fathers tend to experience higher level of social competence and lower level of difficulties symptoms. However, maternal warmth was not significantly related to social competence (B= .111, p> .05) and difficulties symptoms (B= -.176, p> .05). In total, 28% of the variance in difficulties symptoms and 36% of the variance in social competence was explained.

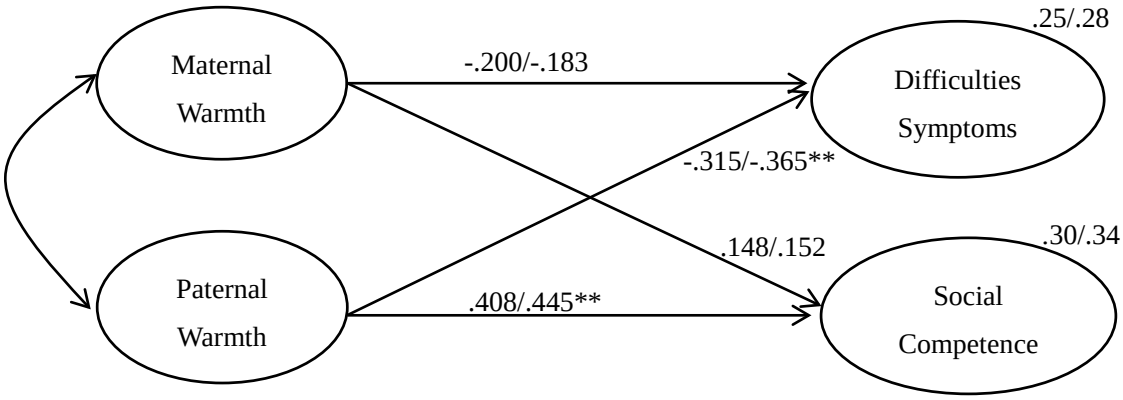


[Figure 1: Structural Model for the Parental Warmth and Socio-Psychological Symptoms (N=852)]

Note. Standardized beta values and their significance levels are given; *p< .05, **p <.01, p< .001***

4-4. Multigroup Analysis

Figure 2 reported the findings of multigroup analysis for testing gender effect on the relationships between paternal and maternal warmth with social competence and difficulties symptoms among Malaysian preadolescents. The results of multigroup analysis also explained the cross-gender parent-child relationship and its outcomes. This model accounting for gender provided a good model fit, X^2 (154) = 412.192, CMIN/df= 2.677; p < .000, CFI = .959, TLI = .944, NFI = .936, RMSEA = .044. For male preadolescents, none of the direct path was significant. For female preadolescents, paternal warmth had significant negative correlation with their difficulties symptoms (B= -.365, p< .01) and positive relationship with social competence (B= .445, p< .01). Results can be explained that there is no gender difference on the path from maternal warmth to socio-psychological outcomes among male and female preadolescents. Based on the findings, it can imply that gender was a moderator on the relationship between parental warmth and socio-psychological symptoms. Female preadolescents who reported higher level of paternal warmth tend to experience higher level of social competence and also lower level of difficulties symptoms.



[Figure 2: Multigroup Analysis examining the gender role on the Relationship between Parental Warmth and Socio-Psychological Symptoms (N=852)]

Note. Standardized beta values and their significance levels are given: **p <.01; Separate estimates by gender are showed as: Male/Female.

5. Discussion

5-1. Results discussion

Initial findings reported that only paternal warmth has significant effect on social competence and difficulties symptoms among preadolescents. The results of the initial model explained that preadolescents who perceived higher level of warmth from fathers tend to report higher level of social competence and less likely to experience difficulty symptoms. In this study, maternal warmth was not a significant predictor for social competence and difficulties symptoms after paternal warmth is taken into account. These findings echoed past studies whereby only paternal warmth predicting affects socio-psychological symptoms when both paternal and maternal warmth are taken into account (Chen et al., 2000; Grimes et al., 2000). Results of the current study suggest that preadolescents may take maternal warmth for granted. Therefore, respondents might neglect or not appreciate the contribution of maternal warmth in their development.

Within multigroup analysis model, the effect of paternal warmth on social competence and difficulties symptoms was only apparent among girls, while maternal warmth was not a contributing factor for socio-psychological symptoms of both boys and girls. These results suggest that the relationship between paternal warmth with social competence and difficulties symptoms was moderated by preadolescents' gender whereby paternal warmth directly influenced social competence and difficulties symptoms among female preadolescents only. However, socio-psychological outcomes of male preadolescents were not significantly affected by paternal warmth. Result of the present study was similar with findings of past studies (Putnick et al., 2012; Marshal & Chassin, 2000). This may suggest that boys might be less engaging in parent-child relationship compared with girls. Thus, paternal warmth does not have significant effect on them. Besides, male preadolescents may be

more sensitive to other fathering practices, such as, paternal autonomy support that can offer more autonomy and freedom to them. Thus, the insignificant effect of paternal warmth in the current study does not prove that care from fathers has no impact on others development outcomes of their sons.

5-2. Implications and suggestions for future research

Findings from this study revealed not only the prominent role of fathers, but also shed lights on the cross-gender effect of parenting on preadolescents' socio-psychological outcomes. Interventions should strengthen the specific father-daughter relationships to enhance socio-psychological development among girls. Through the implementation of intervention, fathers can increase their interaction and involvement with their daughters, this will in turn, foster better socio-psychological development. In accordance to the Self-determination theory (Deci & Ryan, 1985; 2000), preadolescents can only achieve successful development process when their three basic needs (i.e., relatedness, competence and autonomy) are fulfilled. Parents, both fathers and mothers, need to acknowledge that preadolescent child tend to have different needs compared to younger children. Other than basic needs such as food and clothes, preadolescent child needs to receive guidance, affection and support from parents. In addition, family-centered intervention is indispensable to strengthen parent-child relationship and enhance preadolescents' socio-psychological outcomes. Development of preadolescents is directly linked with family system. Within the family system, everyone play their roles to sustain the harmonious family relationship and maintain the strong family ties. Although findings of this study revealed that only care from fathers influences child development, but mothers' contribution in child development must not be neglected. Thus, intervention should be family-centered that include both of parents and children, not just either father or mother. Family-centered interventions can strengthen family bonding and thus contribute positive impact on preadolescents' developmental outcomes.

Warm fathers were found to promote on socio-psychosocial outcomes among their daughters. However, different types of cross-gender parent child relationship and its effect on child development remained unknown in recent research field. Future research can examine other types of cross-gender parent-child relationships that contribute to socio-psychological symptoms for both boys and girls. In order to find out specific parental factors on child development outcomes, future research can also highlight the different role of fathers and mothers.

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7. References

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Impact of the Number and Age of Children on Married Women's Time-use Pattern for Childcare and Housework in Korea

Revision of Master's Thesis
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1. Introduction

1-1. Aim of the Study

The aim of this study is to explore the impact of the number and age of children on their mother's time-use pattern on childcare and housework. Rearing children entails vast amount of parental time to care for them. The time that parents allocate on childcare today has not declined but even increased in spite of the decreased number of children today than in the past. Importance of the time input on childcare has been actively discussed in recent years[1]. Women especially have played a major role taking care of children in household and contributed to maintaining undeclined childcare time[2]. In this regard, this study investigates how much time mothers spend on childcare as well as housework(since rearing children also requires additional time input on housework) by the number and age of their children. This will allow us to find the time impact of children in specific configuration to their mother's childcare and housework time-use.

1-2. Background of the Study

Compared to the 1960s when baby boomers had a number of children, today's parents surprisingly spend as much time on child care as parents in the 1960s did, in spite of the decreased number of children in one household(Bianchi, Robinson, and Milkie, 2006). In the core of the reasons there lies a fact that values of children have changed over time. A moral transformation took place in our conception of the worth of children and in our notion of children of what they should be. (Zelizer, 1994; Bianchi, Robinson, and Milkie, 2006). Zelizer said (2006) children now are rather emotionally priceless but worthless economically. Once they were valued for labor in which they could contribute on their farm and household, factory, or on the streets of the city, but now their companionship matters more (Bianchi, Robinson, and Milkie, 2006).

Consequently, parents' attention moved to how to cultivate their children's talent instead to gain economic benefits from their children's labor (Bianchi, Robinson, and Milkie, 2006). As a result, time along with money parents spend on raising their children has increased (Folbre, 2008). Today, parents' role of substantial and constant invest on child care is ever emphasized, and recognized as good parenting (Aurini & Davies, 2005; Furedi, 2001; Quirke, 2006; Wall, 2010; Wall, 2004; Ehrenreich English 2005).

If the parental time on childcare has not decreased over time despite that number of children has reduced, how would parental time on childcare differ by the number of their children? There exists a question whether parents spend more time on child care when they have more children. According to the previous studies, mothers with children in pre-school age spend the most time on childcare (Moon & Cho, 1996; Joesch, 1997; Park & Baik, 1997; Folbre & Bittman, 2004; Bianchi, Robinson, Milkie, 2006; Lee & Lee, 2007; Craig & Bittman, 2008; Criag, Powell, and Smyth, 2014). Craig & Bittman (2008) devised their own frames of shaping children in different configuration and conducted a research about children's impact on adult time use in Australia.[3]

Configuration of children, specifically number and age, are important factors in determining childcare time that parents allocate. However, most of the studies on this topic have investigated time-use patterns in foreign countries, mostly Australia and the U.S[4]. It is rare to find how this relation is delineated in Korean family.

Time devoted to children is large(Ironmonger, 2004). Korea, in particular, is a country where heavy demand on parents over child rearing is markedly recognized among international societies. Koreans' educational zeal is notably well-known[5]. Parents' sacrifice to their children is justified widely in the society. Notion that one's success accounts for his or her parents' effort is prevalent (Kwon & Park, 1993; Kwon, Kim, Chun, & Eun, 1997).

Yet, such intense child rearing has become an enormous burden to the parents. In fact, heavy burden of child rearing has played a significant role in reducing the size of the family, leading Korean parents to have fewer children.[6] Korea joined the lowest low fertility rate countries in 2009 and now it ranks the bottom among OECD countries.[7] Thus, it is necessary to investigate how different structures of children result in different patterns of time-use on childcare in Korea.

This research is restricted to women as mothers are known as the major player in the household spending time for their children, and whose daily time-use pattern is significantly affected by their children (Craig & Bittman, 2008). In Korea, mothers' participation on child care is substantially higher than that of fathers (Kim, 2008; Eun, 2009; Song, 2011). Accordingly, this research analyzes mothers' time use on childcare by the configuration of their children.

Along with childcare, this research also examines housework time. When it comes to mothers' spending time taking care of their children, it not only includes the time directly caring for them but also time carrying out associated domestic work such as laundry, cleaning, preparing for meals, and so on (Craig & Mullan, 2010). This study therefore investigates both childcare and housework time-use patterns of mothers to grasp the wider impact of children regarding childcare.

Time-use data allow investigation into what activities individuals spend in their daily hours and how much they spend on these activities (Folbre & Bittman, 2004). Time-use data also include various demographic and socio-economic information of the sample. This allows to constructing a more accurate picture of the time-use pattern and the influence of various predictors. Thus, this study uses

time-use data 2009in Korea[8] to capture the time allocation of mothers on childcare and housework by the number and age of their children.

2. Methodology

This research assumes married women's time-use pattern on childcare and housework differs by the configuration of children, specifically by the total number of children and the age of the youngest child. The research is conducted separately by the employment status of mothers as the time-use pattern of women can differ significantly by their employment status (Heo, 2008; Lee, S. & Lee, Y., 2007)

< Question 1 > Time married women spend for childcare will differ by the number and age of children.

Hypothesis 1: As the number of children increases, childcare time married women spend will increase.

Hypothesis 2: As the age of children increases, childcare time married women spend will decrease.

< Question 2 > Time married women spend for housework will differ by the number and age of children.

Hypothesis 1: As the number of children increases, housework time married women spend will increase.

Hypothesis 2: As the age of children increases, housework time married women spend will decrease.

2-1. Data

This research uses the 2009 time use data. Time-use data is the data which investigate how Koreans use their time on a daily basis.[9]. Time-use survey is conducted in every five years. 2009 Time-use survey is the third time use survey in Korea.[10] The 2009 Time-use Survey includes samples over 8,100 household and members aged 10 years or older in each household was required to record the two-day time diary set. Around 20,263 individuals' records were collected in total, and the final data includes 40,521 days of time diary from these individuals, counting two days of each.

The sample is restricted to married woman who is currently living with her husband. The range of age is limited to 19 ~ 49. Childless married women and women with children under age 18 were selected. Under age 18 is the children with high school at maximum. College enrolled children were omitted from this research. The final sample includes 4,144 women. Among them 1,788 are unemployed and 2,356 are employed. Additional household data was included in the analysis along with the time use data to supplement the lacking information on the total number of children and the

demographic information on children between aged 7 ~ 9 because the official time use data only includes data of children either at pre-school aged over 10 years old.[11]

2-2. Measurement

Childcare time analyzed in this research is categorized according to the Table of Activities framed by the Statistics Korea, which includes 144 specified activities total. The Family Member Caring category consists of five sub-categories, and child care category for pre-school and elementary school ~ high school is used in this research to estimate time for childcare. Housework, another activity used in this research along with childcare counts time from the broad category of Home Management, which includes seven sub-categories; food preps, laundry, cleaning, house maintenance, shopping for products consumed for housework, home managing, and etc. These two activities, childcare and housework are the dependent variables in this research. Total time spent on each activity a day is estimated from individuals' time diary, which records at 10 minute intervals.

2-2-1. Independent Variables

Configuration of children is the independent variables, and it is divided more specifically to the number of children and the age group of children. Children under 18 years old are only included in this research. The range of total number of children goes up to five, but in this research total number of children is re-categorized into four groups; no child, one child, two children, three or more children. The childless group is the referent group and is omitted in the analysis. The rest three groups are dummy variables each; one child (yes=1); two children (yes=1); three or more children (yes=1). These three categories are used in the analysis as dummy variables.

The range of the age group of the youngest child in household consists of three groups; age of 0 ~ 6(pre-school), 7 ~ 12(elementary school), and 13 ~ 18(middle school and high school). If the age of the youngest child in the household is five, it belongs to the pre-school group. This only counts the age of the youngest, no matter how many children they have in their household. If there are three children, and their ages are six, fifteen, and seventeen, this household is counted as the pre-school group. The age of children does not count childless, thus the omitted category is selected from the rest of the other two groups. The referent group for age of children, however, differs for childcare time and housework time. For childcare time, the referent group is the middle school and high school category. For housework time, the referent group is the pre-school category.

2-2-2. Control Variables

Besides the two independent variables of the number and age of children, four factors are entered into the models as control variables; employment status, income, education, and paidwork time. Demographic data includes monthly income which is split into nine different categories by

500,000 won. In this research, income is included as a continuous variable. Degree of education attainment is categorized into four levels, middle school degree or lower, high school degree, university or community college degree, and master's degree or higher. In this research, two categories, university or community college degree and master's degree or higher, are combined. three categories of the degree of education attainment are entered into this analysis as dummy variables. The referent group is the middle school degree category, and is omitted from the models. The rest two categories are included as dummy variables; high school degree (yes=1), and college or higher degree (yes=1).

This research includes paidwork time as a control variable. Paidwork is an important factor which affects time-use pattern of individuals(citation). Paidwork time is captured on both unemployed and unemployed mothers. Even though the unemployed mothers are not officially employed, they are found to participate in paid work in various forms such as helping family business and part-time jobs. This is the reason some samples, but rare cases, marked as unemployed but have a monthly income.

OLS(Ordinary Least Square) regression coefficient modeling was used in this analysis to find the relationship between independent variables and dependent variables as well as to find the influence of control variables.

[Table1: Description of the Sample (N, %)]

N=4,144

		Unemployed	Employed
Total		1,788(43.15)	2,356(56.85)
Age of Sample	19 ~ 28	155(8.67)	83(3.52)
	29 ~ 38	838(46.87)	835(35.44)
	39 ~ 49	795(44.46)	1,438(61.04)
Configuration of Children			
Number	0(Childless)	199(11.13)	378(16.04)
	1 Child	478(26.73)	488(20.71)
	2 Children	920(51.45)	1,257(53.35)
	3+ Children	191(10.68)	233(9.89)
Age	0~6	793(44.35)	538(22.84)
	7~12	501(28.02)	731(31.03)
	13~18	295(16,50)	709(30.09)
Income(10,000)	No income	1,647(92.11)	228(9.68)
	Less than 50	39(2.18)	183(7.77)
	50~100	34(1.90)	692(29.37)
	100~150	14(0.78)	506(21.48)
	150~200	13(0.73)	346(14.69)

	200~250	8(0.45)	123(5.22)
	250~300	19(1.06)	99(4.20)
	300~350	6(0.34)	66(2.80)
	350~400	7(0.39)	53(2.25)
	400-500	0(0)	35(1.49)
	More than 500	1(0.06)	25(1.06)
Education	Middle school	108(6.04)	257(10.91)
	High school	989(55.31)	1,349(57.26)
	College	691(38.65)	750(31.83)
Paidwork (Mean(min), Std)		3.08(30.43)	437.87(185.87)

This table contains the demographic and socio-economic information of the sample. Less than 10 percent of the unemployed are 20s and the size of 30s and 40s are similar. Half of them have two children, and those who have one child followed next. Almost half of mothers have pre-school aged child(ren) and about 30 percent have child(ren) in elementary school age.

3. Findings

3-1. Childcare

Table 2 shows average daily time in childcare by the total number of children and by the age of the youngest child. Married women are divided into two groups by their employment status. .

[Table2: Daily Time in Childcare by the Number and Age of Children]

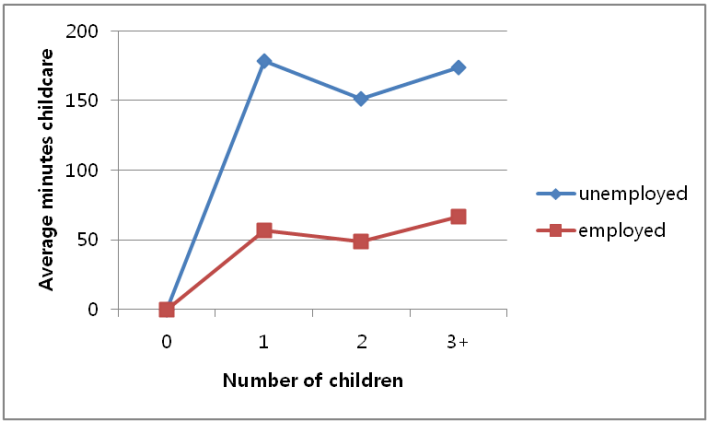
N=4,144

	Unemployed			Employed		
	Obs	Mean	Std	Obs	Mean	Std
Total number of children						
0 (no child)	199	0	0	378	0	0
1 child	478	178.452	139.147	488	56.496	69.832
2 children	920	151.609	130.043	1,257	48.504	64.608
3+ children	191	173.874	120.933	233	66.738	80.497
Youngest age of children						
0~6	793	249.344	117.991	538	116.171	84.199
7~12	501	102.734	81.693	731	41.299	47.638
13~18	295	29.796	40.514	709	16.078	27.077

3-1-1. Total Number of Children

Unemployed women allocate their time on childcare most when they have one child. Once they have a child they spend 178 minutes a day on caring for the child. When they have two children, their time on childcare decreases. But when they have three or more children, their childcare time increases again, up to almost the same amount as that of one-child mothers. Unemployed mothers' childcare time does not increase in sequence by the total number of children. One-child mothers spend the most time on childcare. Three or more-children mothers spend the second longest, and the two children-mothers spend the least.

For employed women, those who have three or more children spend the most on childcare. Employed women spend 56 minutes more when they have one child than the childless working women. Employed women spend a lot less on childcare than unemployed women once they have a child. Having a second child results in decease on childcare, dropping slightly by 8 minutes, and an additional child brings an increase again, resulting in the longest time among the groups. Unlike unemployed mothers, employed mothers' time on childcare is at most when they have three or more children.



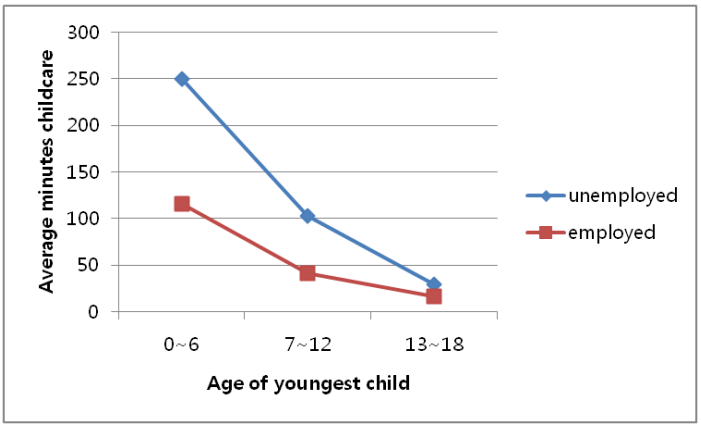
[Figure 1: Daily Time in Childcare by Number of Children]

3-1-2. Youngest Age of Children

When the youngest child in household is under pre-school age, unemployed mothers spend almost 250 minutes a day on childcare. It declines drastically when the child starts school. Childcare time decreases more than half when the child enters an elementary school. When the child starts middle school, the childcare time drops to only one third of that for the elementary school aged children. Unemployed mothers spend 29 minutes on children for middle school and high school aged children in Korea. Entering school creates a great change on mother's time use on childcare.

Employed mothers spend 116 minutes more than childless employed women. When the child enters school, childcare time decreases significantly. Entering middle school results in further decrease, 16 minutes a day on average. Employed mothers spend half less time on childcare than the unemployed mothers do in regards to the age of their youngest child. Both spend most when they have a pre-school

child in household, and it drops considerably when their child enters school. Childcare time drops more when the children are in middle school and high school education.



[Figure 2: Daily Time in Childcare by Age of Children]

Table 3 and table 4 show the results from two different data; one that includes the childless women in its sample, and the other that does not. On model 1 with the childless data, having one child increases 167 minutes on childcare than childless women(referent group). Then, it decreases when they have two children in the household, and increases again when they have three or more children. On Model 1 without the childless data, Compared to having one child(referent group), having two children leads to less time on childcare.

[Table 3: Regression Coefficients Daily Time in Childcare of Unemployed Mothers]

Variable	data with "childless"	data without "childless"		
	Model 1	Model 1	Model 2	Model 3
Total number of children				
1 child	166.06***			
	(10.36)			
2 children	140.43***	-26.33***		-7.47
	(9.67)	(7.27)		(5.52)
3+ children	166.07***	0.58		-14.64
	(12.37)	(10.98)		(8.33)
Youngest age of children				
0~6 (pre-school)			212.74***	213.68***
			(6.70)	(6.76)
7~12 (elementary school)			70.18***	72.29***

			(7.10)	(7.18)
Education				
High school	49.95***	74.78***	17.21	17.49
	(12.52)	(15.44)	(11.67)	(11.71)
College or higher	90.16***	119.57***	39.36**	38.95**
	(12.77)	(15.66)	(11.95)	(11.98)
Income	-7.87**	-9.42**	-3.78	-3.75
	(2.65)	(3.05)	(2.29)	(2.29)
Paidwork	-0.13	-0.29*	-0.19	-0.19
	(0.10)	(0.13)	(0.10)	(0.10)
Constant	-42.27**	100.95***	14.05	18.97
	(13.98)	(15.93)	(12.00)	(12.39)
R^2	0.19	0.07	0.48	0.48

*p<0.05, **p<0.01, ***p<0.001

Model 3 shows the result of the analysis on both number and age of children. No statistical significance was seen on the number of children. The age is found to influence on the childcare time. Having pre-school aged children brings additional 213 minutes a day compared to the middle and high school aged children. Elementary school aged children brings additional 72 minutes, which is very similar amounts from Model 2. When the number and age are entered together, the influence of number disappears and the influence of age remains.

[Table 4: Regression Coefficients Daily Time in Childcare of Employed Mothers]

Variable	data with "childless"	data without "childless"		
	Model 1	Model 1	Model 2	Model 3
Total number of children				
1 child	46.84***			
	(3.98)			
2 children	42.52***	-3.62		1.64
	(3.42)	(3.30)		(2.76)
3+ children	58.64***	12.29*		3.16
	(4.81)	(4.91)		(4.11)
Youngest age of children				
0~6 (pre-school)			90.48***	90.32***
			(3.04)	(3.07)

7~12 (elementary school)			70.18***	23.87***
			(2.70)	(2.73)
Education				
High school	14.02***	22.44***	8.40*	8.48*
	(3.99)	(5.08)	(4.22)	(4.23)
College or higher	37.24***	49.31***	17.00***	17.33***
	(4.43)	(5.54)	(4.69)	(4.72)
Income	-1.63*	-1.78*	-1.11	-1.10
	(0.64)	(0.74)	(0.61)	(0.61)
Paidwork	-0.11***	-0.13***	-0.11***	-0.11***
	(0.01)	(0.01)	(0.01)	(0.01)
Constant	40.04***	87.14***	60.57***	59.08***
	(5.37)	(6.50)	(5.09)	(5.49)
R^2	0.24	0.19	0.45	0.45

*p<0.05, **p<0.01, ***p<0.001

Model 1 with the childless data shows that the number of children influences on employed mothers' childcare time. Having one child results in spending 46 minutes a day than having no child. Having subsequent child leads to the decrease in time, 4 minutes less at two children, but then it increases again at three or more children.

Model 3 includes both number and age of children. Like the unemployed mothers' model, Employed mothers' childcare time is not affected by their number of children. Again, the age also matters for the employed mothers. Having child at age 0~6 leads to the highest increase, and those at age 7~12 results in 23 minutes increase, a lot less increase. Entering school drops mothers' childcare time one quarter of the pre-school age, which means entering school brings a significant change on employed mothers' time allocation to childcare.

3-2. Housework

[Table5: Daily Time in Housework by the Number and Age of Children]

N=4,144

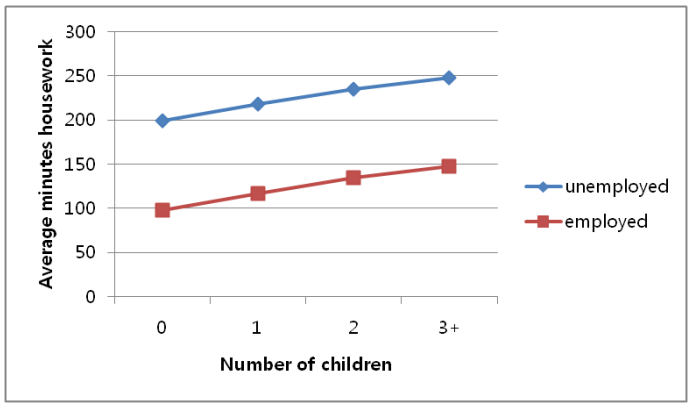
	Unemployed			Employed		
	Obs	Mean	Std	Obs	Mean	Std
Total number of children						
0 (no child)	199	198.844	90.650	378	97.910	76.983
1 child	478	217.699	88.250	488	116.271	81.572
2 children	920	234.717	88.065	1,257	134.192	77.490

3+ children	191	248.115	86..009	233	147.768	83.960
Youngest age of children						
0~6	793	212.068	79.134	538	127.211	82.170
7~12	501	246.767	87.872	731	141.244	77.836
13~18	295	256.237	100.744	709	148.180	91.184

3-2-1. Total Number of Children

Unemployed and childless housewives spend 198 minutes a day on housework. It increases when they have additional child. Addition of each child leads to longer time on housework. Having three or more children results in longest time. It means larger size of children takes more time for housework. Childless housewives spend 198 minutes a day, 19 minutes less than those with one child. The time gap between the childless and the one-child housewives is seen small.

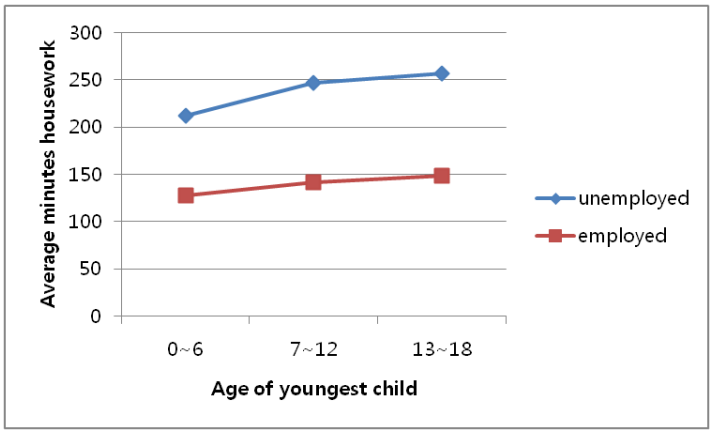
Employed and childless housewives spend 97 minutes a day on housework. It is about 100 minutes less than that of unemployed housewives. This changes once they have children. More children bring longer time on housework. Like the unemployed, having three or more children results in the longest housework time. This is still about 100 minutes less than the unemployed mothers with three or more children. Both unemployed and employed mothers' housework time increase as the number of children in their household increases.



[Figure 3: Daily Time in Housework by Number of Children]

3-2-2. Youngest Age of Children

When the youngest child in the household is under pre-school age, unemployed mothers spend almost 212 minutes a day on housework. Mothers spend more time on housework as their children grow. Unemployed mothers spend longest time when their youngest child is in middle and high school. The increased time with pre-school aged children to the elementary school-aged is higher than with elementary school aged to middle and high school aged children.



[Figure 4: Daily Time in Housework by Age of Children]

Employed mothers spend 127 minutes more than childless women. When the child enters school, the housework time increases. Middle school and high school entering result in more increase, and mothers with children at this age spend longest on housework. Employed mothers spend half less time than the unemployed mothers do. Both mothers spend most when they have their youngest child in age 13~18.

[Table 6: Regression Coefficients Daily Time in Housework of Unemployed Mothers]

Variable	data with "childless"	data without "childless"		
	Model 1	Model 1	Model 2	Model 3
Total number of children				
1 child	21.34**			
	(7.45)			
2 children	37.01***	15.38**		11.00*
	(6.96)	(4.95)		(4.91)
3+ children	50.85***	29.24***		32.10***
	(8.91)	(7.48)		(7.40)
Youngest age of children				
7~12 (elementary school)			33.94***	32.26***
			(4.93)	(4.97)
13~18 (middle/high school)			42.74***	45.44***
			(5.98)	(6.01)
Education				
High school	-27.93**	-23.63*	-11.94	-11.47

	(9.01)	(10.51)	(10.42)	(10.41)
College or higher	-39.57***	36.93***	-21.33*	-19.66
	(9.19)	(10.66)	(10.68)	(10.65)
Income	-5.76**	-4.84*	-5.82**	-6.05**
	(1.91)	(2.08)	(2.04)	(2.04)
Paidwork	-0.19**	-0.26**	-0.29**	-0.28**
	(0.07)	(0.09)	(0.09)	(0.09)
Constant	236.01***	253.12***	235.51***	224.66***
	(10.06)	(10.85)	(10.81)	(11.13)
R^2	0.04	0.03	0.06	0.07

*p<0.05, **p<0.01, ***p<0.001

Total number of children influences on unemployed mothers' housework time as seen on Model 1 with the childless data. Having one child increases unemployed mothers' housework time by 21 minutes. Having subsequent child keeps an increase. Two children results in 37 minutes increase, and three or more children in 50 minutes increase. Model 1 without the childless data shows a similar result. Compared to the one-child group(referent group), having additional child leads to an increase on housework time.

The youngest age of children also determines mothers' housework time-use. In the regression coefficient analysis for housework, the referent group for the age of children is the pre-school aged group. Model 3 analyzes the relationship of both number and age of children. Both number and age impact on mothers' housework time. Compared to having one child, having two children brings 11 minutes increase and having three or more children brings 32 minutes increase. Model 3 tells that having an older child leads to an increase in housework time. Compared to having a youngest child in pre-school, having an elementary school child leads to 27 minutes increase, and having a middle school and high school child leads to 45 minutes increase. Older aged child results in more time on housework.

Model 1 with the childless data in Table 7 shows that having an additional child results in constant increase in employed mothers' housework time. It is also seen on Model 1 without the childless data. Having two children leads to 13 minutes increase than having one child, and having three or more children leads to 28 minutes increase than having two children.

Both number and age of children affects on employed mother's housework time as seen on Model 3. Having subsequent child results in increasing time on housework, and so does having older age of children. Having an older child leas to undertaking more housework.

[Table 7: Regression Coefficients Daily Time in Housework of Employed Mothers]

Variable	data with "childless"	data without "childless"		
	Model 1	Model 1	Model 2	Model 3
Total number of children				
1 child	12.43***			
	(4.39)			
2 children	29.03***	16.88***		14.88***
	(3.77)	(3.34)		(3.31)
3+ children	35.13***	22.64***		25.59***
	12.43***	(4.97)		(4.93)
Youngest age of children				
7~12 (elementary school)			25.74***	24.11***
			(3.56)	(3.57)
13~18 (middle/high school)			30.04***	31.13***
			(3.67)	(3.68)
Education				
High school	-1.27	-1.96	2.27	2.83
	(4.40)	(5.14)	(5.10)	(5.08)
College or higher	-13.57**	-13.08*	-4.70	-2.09
	(4.88)	(5.61)	(5.67)	(5.66)
Income	-5.77***	-5.72***	-6.07***	-5.97***
	(0.70)	(0.74)	(0.73)	(0.73)
Paidwork	-022***	-0.23***	-0.24***	-0.23***
	(0.01)	(0.01)	(0.01)	(0.01)
Constant	228.00***	244.78***	237.25***	223.18***
	(5.92)	(6.57)	(6.49)	(6.91)
R^2	0.37	0.38	0.39	0.40

*p<0.05, **p<0.01, ***p<0.001

4. Discussion

4-1. Childcare

Total number of children does not affect on mother's childcare time. It showed the relationship when only the number itself was entered into the analysis, but when age was included jointly the relationship disappeared. Mother's time use on childcare does not change by the total number of children. This result was also found in the study by Bianchi, Robinson, and Milkie, (2006) that the

number of children often becomes insignificant when the age of the youngest child is taken into account. Number of children is not related with the time-use of mothers on childcare.

Age determines the patterns of mother's time use on childcare. Among three age groups having pre-school aged child increases time on childcare most, 213 minutes for unemployed mothers and 90 minutes for employed mothers. When the child enters a school(elementary school), childcare time drops sharply. Among three age groups of children, children in middle and high school age(13~18) take on least childcare time. As children age, childcare time mothers allocate decreases. Reason that longest childcare time is found on pre-school aged children is because children in this age requires most physical care from their mothers. As a number of previous studies have also found, mothers with pre-school aged children allocate their time on childcare most (Moon & Cho, 1996; Joesch, 1997; Park & Baik, 1997; Folbre & Bittman, 2004; Bianchi, Robinson, Milkie, 2006; Lee & Lee, 2007; Craig & Bittman, 2008; Criag, Powell, and Smyth, 2014)

Considering that children in middle and high school in Korea receive most condensed inputs on their education from their parents, the fact that this age group takes on least childcare time is an unexpected result. Although parents tend to put extensive efforts on their children's education and qualification in this period[12], the substantial time they spend on caring for them is not much. It is because children in this age are likely to spend time more outside their house, such as school, private institutions, etc. Therefore, mothers rarely engage in caring for them at home.

Childcare activity coded in time-diary includes physical care and non-physical care[13], Children in middle and high school age do not require mother's time input for physical care. And non-physical care, which is defined as helping with homework and reading books for them, is undertaken by the public and private institutions. Thus, mothers' time allocation to childcare declines significantly as their children grow when they start to be involved with more activities outside the home.

4-2. Housework

Mothers' housework time is determined by the total number of children. Having subsequent child leads to an increase in time for both unemployed and employed mothers. Having three or more children results in spending the most housework time. More members in household involve more work to do. Laundry would be heavier and preparing meals for additional members would take longer time. As the number of children increases, housework time mothers allocate increases.

Along with number, age also influences on mothers' time-use pattern on housework. Having older child results in spending more time on housework for both unemployed and employed mothers. Craig said (2006) that as children grow, mothers allocate proportionately more time to the associated unpaid work than into actual child care, and they increase doing other portions of domestic work. In case of Korea, it was found that mothers increase their time on doing more laundries and cleaning the house.[14]

Lastly, time-use patterns of mothers differ by their employment status. Unemployed mothers on average spend 100 minutes more on both childcare and housework than employed mothers. This shows that employed mothers spend less time on childcare and housework, in this research about 100 minutes less, due to their time commitment to paid work.[15]

5. Conclusion

This research investigates the time impact of the configuration of children, specifically number and age, on their mother's childcare and housework time. The results show that total number of children and the age of the youngest child in household draw different patterns on childcare time and housework time. Detailed outcomes are explained in the following paragraph.

First of all, total number of children is found to influence on housework time but not on childcare time. No relationship was found when the number was entered into the model with age variable together. For housework, having a subsequent child results in increasing housework time. Additional child means additional person for whom mother needs to undertake domestic work associated with caring. Thus, increase in number of children leads to increase in mothers' housework time.

Secondly, the age of the youngest child affects the patterns of mothers' time-use on both childcare and housework. As children age, mothers' childcare time decreases and housework time increases. This is interpreted as older aged children require less care, especially physical care from their mothers, thus leading to a decrease on childcare time but an increase on housework time due to the increasing domestic work in other portions that are associated with caring for children, such as doing more laundries.

Lastly, employment status of mothers generates a difference on time-use patterns for both childcare and housework. Unemployed women in general spend about 100 minutes more on childcare and housework than employed women because employed mothers' time-commitment to paid work reduces their available time to participate in other activities.

Caring for children includes a range of activities besides the activities categorized as childcare in time-use data. People often engage in several activities at once in any interval of time (Folbre & Bittman, 2004). Mothers can watch TV while watching on their children, or they can participate in outdoor activities with their children. These are categorized as leisure on time-use data, but they can also be understood as child care[16]. This, in fact, is marked as a "secondary activity" in the time-use data. Childcare time mothers allocate might be underestimated in this research as this research only included the childcare activities recorded as "primary activities" in the time-diary. Craig and Bittman in their research (2008) included both primary and secondary activities on childcare, and stated that the effect was crucial. In Ironmonger's research on childcare (2004), he said inclusion of the secondary activity resulted in a substantial increase in childcare. Yet, such effect was not found in Korean data

as counting secondary activities along with primary activities was conducted but difference was not remarkable. Reason for this could be the poor recordings of participants on time-diary. Discussions are necessary for making improvement on this issue for future time-use survey and research.

This research only included mothers in household. More thorough results of the impact of children over their parental time use can be conducted by investigating both mothers' and fathers' time-use pattern. Craig & Bittman (2008) analyzed the impact of children on their parental time in household level and by each gender. Yee's study (2012) also compared the times-use patterns on childcare between mothers and fathers[17]. It is recommended future studies on time impact of children in specific configuration on their parental time-use pattern include both mother and father. This enables to find time distribution on child rearing activities and its difference between gender.

Time is limited to 24 hours a day to everyone. Time is a scarce resource, and ways to use it efficiently have been the pivot in time-use studies since it had started in early 20th century.[18] Work and life balance issue, heavily debated for the past years, deals more about the time constraints than money resource (Craig, 2007). As time has a zero-sum function of which increasing time on one activity reduces time to spend on other activities. Married women in particular have struggled with work and life(family) conflict as in household they are usually required to commit to housework than man. Although the number of working mothers has increased, they still have primary obligations on taking care of domestic work, and this makes them have to take the second shift when they come back home from work (Song, 2014).Heavy and severe time impact of children on their mothers' daily time use will concern their well-being and quality of life. Since children is a strong determinant on mothers' time-use pattern, in-depth analysis of the influence of children in various configurations on mothers' everyday life will provide more thorough insight on life balance of mothers.

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Notes

[1] Yet, discussions on the significance of childcare time have mostly concentrated on the gender difference in time-use patterns. (Song, 2011; Yee, 2012).

[2] (Gershuny, 2000; Son, 2011)

[3] Different groups of children were created by combining both number and age; Youngest age 0~2 and 1) one child 2) two children 3) three or more children; Youngest age 3~4 and 1) one child 2) two children 3) three or more children; Youngest age 5~11 and 1) one child 2) two children 3) three or more children.

[4] 1) Lyn Craig has conducted research on the time cost of children over their parental time in Australia. 2) Nancy Folbre has conducted research on calculating the time cost of children in American family. 3)Bianchi et al. examined the time of American family.

[5] Child education is particularly considered as a fundamental passage for success in society, so parents are devoted not only financially but psychologically and physically to providing better education to

their children. They increase their invest on their children's education and well-being to upgrade their level of qualification (Kwon & Park, 1993; Kwon, Kim, Chun, & Eun, 1997)

[6] Heavy burden on investing in child rearing is known as one of the major factors for low fertility rate in Korea (Yoon, 2010).

[7] Korea entered into a low-fertility society in 1983 when the total fertility rate dropped to 2.08 which is the population replacement level. Low fertility has continued and declined even further to 1.30, a lowest low fertility rate, and placed 1.08 in 2005. It then increased a bit to 1.19 in 2009, 1.29 in 2012, and 1.19 in 2013 (Hong, 2013). Source from Statistics Korea website: http://kosis.kr/wnsearch/totalSearch.jsp, retrieved June 17, 2014 by Hong.

[8] Time-use data in Korea is collected by Statistics Korea every five years since 1999.

[9] This data allows to observe the average life style of Koreans and to estimate the quality of life. It serves as the base for the research in related fields or provides implications to the public policy making related to paid work, unpaid work, welfare, leisure, culture, and so on (Statistics Korea website: http://kostat.go.kr)

[10] First survey was conducted in 1999 and second survey was conducted in 2004 by Statistics Korea.

[11] Extra household data was provided by Statistics Korea by an individual request.

[12] Parents who have children in this age tend to pay extra efforts on child rearing; they concentrate on their children's education. It is because Korean high school students take a college entrance exam on their third grade in school which is only available once a year. In order to receive high score on this test, parents put extensive care on children in this age.

[13] According to the activity coding in time-use data, physical care includes feeding, dressing, and bathing. Non-physical care includes helping with school homework and reading books.

[14] OLS regression analysis on the impact of the youngest age over smaller categories of housework was conducted by the researcher of this study, and the result is as stated in the context. Housework includes activities of cooking, cleaning, laundry, house maintenance, home managing, and other.

[15] Employment is one of the major demographic predictor of decreased child care time (Bianchi et al, 2006)

[16] Previous study found that a number of leisure activities mothers engage are accompanied with their children. Marked as leisure activities on the time-diary as primary activities, mothers in fact spend time with their children. Leisure is found to be the time that also functions as childcare time (Folbre & Bittman, 2004).

[17] His research focused on children under age 3.

[18] (Gershuny, 2000).