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## An exploratory cross-cultural study: fathers' early involvement with infants

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### ABSTRACT

This research study recruited 107 fathers from the United States ( $n = 31$ ), Taiwan ( $n = 36$ ), and Thailand ( $n = 37$ ) to examine fathers' involvement in daily caregiving and engagement tasks, as well as fathers' accessibility to their infant(s) during weekdays and the weekend. Results indicated that the most influential demographic variables on father involvement were the interaction between fathers' education and income, number of children in the household, as well as country between the U.S. and Thailand regardless of living area, fathers' age, education and income alone. Additionally, fathers showed different involvement during weekdays and the weekend. Father's education level, number of children in the household, and the interaction between education and income had a combined effect on father involvement during the week and on the weekend. Fathers in the United States showed higher involvement in infant caregiving during the weekend when compared to fathers in Taiwan and Thailand.

### ARTICLE HISTORY

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### KEYWORDS

Father involvement with infants; Taiwan; Thailand; United States

## Introduction

There has been a steady increase in research on fathers' interaction and involvement with their young infants (Pancsofar, Vernon-Feagans, & Family Life Project Investigators, 2010). This increased emphasis on fathers is rooted in the changing roles of fathers in modern society as increasing numbers of mothers move into the workplace, and with the increasing cultural and linguistic diversity of fathers (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000). A growing body of research also supports the notion that fathers' engagement and relationship with their infants is related to the prediction of infants' overall development (Duursma, Pan, & Raikes, 2008; Zhang, 2013).

Despite an increased focus on father involvement and studies that indicate positive benefits for increased involvement, there is still much that is not known about the factors that influence involvement. Additionally, very little research has examined father involvement with infants from different cultural and educational perspectives. Currently, there are few family life education programmes that specifically target fathers (Holmes, Galovan, Yoshida, & Hawkins, 2010) and relatively few parents and family life education programmes target expectant parents or parents of infants (Akabas, 2016). Understanding the factors that influence father involvement is important to guide parent education

efforts and target groups of fathers who can most benefit from parenting education programmes. Therefore, the purpose of this research study was to examine the ways in which fathers are involved in infant caregiving and engagement tasks, their involvement on weekdays and weekends, as well as which predictor demographic variables (fathers' education, income, age, country, area of living, and number of children under two in the family) are the most influential on father involvement.

### ***Contextual factors and father involvement***

Early research by Lamb (1997) on the role of fathers in the lives of their infants indicated parental warmth, nurturance, and closeness were associated with positive child outcomes regardless of parent gender; that is, individual parental characteristics play a more important role than the gender of a parent. Fathers play a variety of paternal roles including financial provider, caregiver, playmate, and teacher, and it is not surprising that the attributes of each role contribute to the quality of these relationships (Cabrera, Aldoney, & Tamis-LeMonda, 2013; Cabrera, Fagan, Wight, & Schadler, 2011; Johnson, LaVoie, & Mahoney, 2001; Zhang, 2013). Regardless of specific role, positive father involvement has been found to enhance infant development (Black, Dubowitz, & Starr, 1999; Jackson, Brooks-Gunn, Huang, & Glassman, 2000). Father involvement is linked with infant's psychological well-being and health; infants with fathers who are involved and engaged experience more positive cognitive, social and emotional achievement than those infants with less involved fathers (Bronte-Tinkew, Carrano, & Guzman, 2006; Cowan, Cowan, Pruett, Pruett, & Wong, 2009). It is important to understand how fathers engage with their infants and the factors that predict variation in the levels of engagement (Cabrera, Hofferth, & Chae, 2011). A father's involvement with his child during infancy can lead to long-term effects on children's development (Cabrera, Fagan, & Farrie, 2008; Lamb, 2004; Lamb & Lewis, 2004).

Father involvement has been diversely hypothesized in a variety of contextual factors and predictors which may vary in different cultural and social contexts, such as: father characteristics (e.g. age, ethnicity, socio-economic status), relationship with partners, maternal characteristics (e.g. employment status, education), and child characteristics (e.g. age, gender, number of children) (Capps, Bronte-Tinkew, & Horowitz, 2010; McBride & Rane, 1998; Yeh, 2014). Although these research studies have revealed potential factors that might impact father involvement, no single variable is reported as a predominant predictor (Pleck & Masciadrelli, 2004). Fathers living in different regions/countries/areas across the globe may be living in different social contexts, which may demonstrate different levels of father involvement in caregiving responsivity, engagement, and accessibility.

### ***Father involvement in a cultural context***

Cross-cultural studies can be challenging because of limited data and cultural assumptions that are influenced by western cultures. Additionally, immigration issues and migration within societies add to the challenge of understanding cultural influences on fatherhood. This trans-cultural identity is shaping father's involvement in many cultures, and assumptions about the father's role in the twenty-first century are being challenged (Seward & Stanley-Stevens, 2014; Shwalb, Shwalb, & Lamb, 2013).

Approaches to fathering may vary in different cultures and in different countries. Since the early 90s most of the research conducted on father involvement suggested that culture, family values, socio-economic status, and region might impact father involvement (Seward & Stanley-Stevens, 2014; Tulananda, Young, & Roopnarine, 1994). Newland, Chen, and Coyl-Shepherd (2013) posited that father involvement was associated with fathers' beliefs and based on their perceptions of fatherhood. These beliefs and perceptions regarding fatherhood are defined largely through cultural context and through membership in a particular society and/or the specific subgroups within the society (Seward & Stanley-Stevens, 2014). Therefore, it is necessary to explore fathers' cultural and social contexts and values in order to explore their distinctive roles in child rearing and nurturing

practices. Unfortunately, much of the current evidence is from one cultural point of view with limited data. The majority of research on father involvement is based on western cultures, especially in North America, and very little is known of Thailand and/or other Asian countries (Chivanon & Wacharasin, 2012; Sansiriphun, Kantaruksa, Klunklin, Baosuang, & Jordan, 2010).

The limited research that has been done indicates some differences. For example, in a longitudinal study, researchers examined fathers' engagement with infants for Chinese and Mexican immigrant families and suggested that Chinese fathers were less involved compared to Mexican fathers (Capps et al., 2010). Another research study on immigrant and non-immigrant Latino fathers' involvement found that first generation immigrant fathers were more involved with their infants compared to non-immigrant fathers (D'Angelo, Palacios, & Chase-Lansdale, 2012). A comparison of father involvement in the United States and in Taiwan found that fathers in the US were more involved with their infants compared to their counterparts in Taiwan (Newland et al., 2013).

Overall, equality is the main essence of the father's role in the United States, and fathers demonstrated more shared responsibilities with mothers/partners and toward gender equality with three core ideals: equity and freedom (shared ideals), economic opportunities due to the free market capitalist system, and cultural variations/cultural diversity (McFadden & Tamis-LeMonda, 2013; Seward & Stanley-Stevens, 2014).

Contrary to the U.S., the Republic of Taiwan, like other East Asian countries, has been influenced by Confucian philosophy (Ho, Chen, Tran, & Ko, 2010). Beliefs centre around traditional gender roles and emphasize 'strict father, kind mother' (Ho, Ko, Tran, Phillips, & Chen, 2013; Shwalb, Nakazawa, Yamamoto, & Huun, 2004). In Taiwan, fathers are traditionally considered as working professionals, educators, and the person in a family unit who imposes discipline and is less engaged with children in the family. Taiwan has experienced socioeconomic changes because of an increase in the number of women who have received higher education and have entered the workplace, along with a diminishing birth rate. Taiwan has been reported as one of the lowest birthrates in the world (Ho et al., 2013). This economic growth and educational reform are resulting in the roles of Taiwanese fathers shifting toward being more liberal and egalitarian and moving away from traditional Chinese gender roles (Beckert, Strom, Strom, & Yang, 2006).

Thailand is located in South East Asia and the main religion is Buddhism (Tapanya, 2011). People in Thailand place a high value on maintaining family connections. Extended families are very common in rural areas and two thirds of the Thai population live in rural areas. Mothers from higher-income families are more responsive in infant care than mothers from lower-income families, most likely because of the stress and challenges associated with living with limited economic resources or in poverty. Research shows that Thai fathers are less involved in direct childrearing compared to their counterparts in metropolitan areas of Thailand (Chivanon & Wacharasin, 2012).

Both Taiwan and Thailand are facing family structure and paradigm transformations, moving from primarily agrarian economies toward expansion as industrial countries (Chivanon & Wacharasin, 2012; Sriyasak, Almqvist, Sridawruang, & Häggström-Nordin, 2015). Several reforming policies about gender equity and parent education have been initiated in Taiwan since 2002, such as the 2-year parental leave policy, the Gender Equality in Employment Act and the opening of parent education centres (Ho et al., 2013; Yeung, 2013). Thailand has also initiated similar policies in promoting parental involvement in which they introduced parental classes (Sriyasak et al., 2015). These constitutional changes in Taiwan resulted in new generations of fathers becoming more involved with their children (Shwalb et al., 2004).

Exploring father involvement in a cross cultural/ country setting has posed challenges. Although some studies have compared different aspects of father involvement, these studies recruited a limited number of participants and most of them compared father involvement between two groups, such as U.S. and Thailand (Chivanon & Wacharasin, 2012), or Chinese and Mexican immigrant fathers (Capps et al., 2010). It is important to expand these types of studies to reveal the complexity of father involvement regardless of cultural context. This current study contributes to the current literature on predictors of father involvement.

## **Demographic variables on father involvement**

Many studies have examined fathers from a low-income and/or rural social context and their involvement with children (Castillo, Welch, & Sarver, 2013; Coates & Phares, 2014; Pancsofar et al., 2010). Fathers' financial status is one predictor for father involvement that could potentially increase the likelihood of negative and aggressive reactions toward interaction with children (Yeh, 2014). Fathers' income might be associated with their workload and in turn, their working hours may impact their engagement with infants. Therefore, it should be taken into consideration when exploring father involvement. Fathers' education and income were often considered significant predictors in their involvement and practice with their youth (Castillo et al., 2013; Ihmeideh, 2014). Bronte-Tinkew et al. (2006) also emphasized fathers' social demographic characteristics, such as education and socioeconomic status, which can have a direct impact on their involvement with children. The other important father characteristic is age. The National Institute of Child Health and Human Development (2000) discovered that older fathers, when compared with younger fathers, assumed more caregiving responsibilities and reported more sensitivity with their children during play. Castillo, Welch, and Sarver (2011) also examined fathers' age and discovered that older and more educated fathers tend to be more highly involved with their children. Additionally, when considering children's characteristics and father involvement, Davis and Perkins (1996) revealed that the number of children in the household should be taken into consideration. Normally, fathers with fewer children in the household spent more time involved in child care responsibilities (Davis & Perkins, 1996).

With the above in mind, the current research study was an effort to expand the existing literature on father involvement from a cross-cultural perspective, and to test the effects of selected demographic variables on father involvement.

## **Methodology**

A survey research design was used to answer three research questions: (1) In what ways are fathers involved in infant's daily care (especially in caregiving and engagement tasks)? (2) Which predictor variables (country, residential area, number of children under two in the family, fathers' education, income, interaction between education and income, and fathers' age) are the most influential on father involvement? (3) Does fathers' involvement during the week and on the weekend differ based on country, education, income, and number of children under two in their household?

The analyses were based on the two critical dimensions of father involvement, which included overall engagement and caregiving responsibility, as well as accessibility (Capps et al., 2010; D'Angelo et al., 2012). Engagement was defined as being vigorously involved with a variety of activities in which fathers directly interact with their own children, such as rough and tumble play, storytelling, learning activities, etc. Caregiving responsibility included bathing, feeding, diapering, and other daily caregiving tasks. Accessibility is focused on the availability of the father to be involved with his own child (Capps et al., 2010). Descriptive analysis, a paired-samples t-test, multiple regressions, and MANOVA were utilized to answer the three research questions.

## **Measures and data collection procedures**

Fathers who currently had at least one infant under the age of two in their household in the United States, Taiwan, or Thailand were recruited to complete the survey. The first section of the survey requested demographic information about the fathers, such as age, number of children at home, residential area (urban or rural), employment status, marital status, nature of employment, income, and education level.

The second section contained a child-related tasks subscale from the 'Who Does What?' questionnaire (Cowan, Cowan, Coie, & Coie, 1978) This questionnaire has a reported Cronbach's alpha of .95 and Spearman-Brown's split-half reliability over .92 for all subscales (Burns, 2005; Cowan & Cowan,

1988). The current research study used the revised version of Cohen's study (2003) to explore fathers' overall involvement with their infants in different time periods (e.g. morning, afternoon, weekday, and weekend). This version of the instrument included 23 items and each item used a 9-point Likert scale ranging from 'She does it all' (1), 'We both do this about equally' (5), to 'He does it all' (9). The average mean scores represent the level of father involvement. Higher scores represent a higher level of father involvement (Cohen, 2003).

Overall, the instrument was comprised of two sections, including caregiving responsibility, which emphasized daily tasks, and accessibility by weekday and weekend. Caregiving responsibility was measured with eight questions about daily caregiving tasks (e.g. feeding the baby, changing the baby's diapers) and three questions about engagement/entertaining tasks (e.g. playing with the infant, taking infant out, choosing toys for the infant). There are two subscales with six questions in each scale that measured fathers' accessibility during weekdays and weekends. Both subscales measured how fathers self-reported their own involvement for different time periods during the week (e.g. getting up/feeding/dressing baby, morning: 9:00 AM–1 PM., afternoon, dinner/playtime/bedtime, evenings to midnight, and middle of the night needs). The weekday subscale was measured from Monday through Friday; the weekend subscale assessed fathers' accessibility during Saturdays and Sundays.

The Cronbach's alpha was .94 for the overall sample across the three countries in this current study, with .89 for Taiwanese fathers, .95 for U.S. fathers and .95 for Thai fathers. The instrument was translated from English into Mandarin for the Taiwanese sample and from English into Thai for the Thai sample. The researchers, who are native speakers in the languages into which the instrument was translated, translated the instrument into Mandarin and Thai and also back-translated the questionnaire. Two professionals (a native speaker and a linguistic expert) who were native speakers checked the translation and back translation to ensure accuracy of the instrument.

The questionnaire was set up through the website Psychdata.com. The digital invitation flyers included the research purpose, the online survey website and link, and the e-mail contact information of the principal investigator, and were distributed by the research team in Taiwan, Thailand, and the United States. A purposive and snowball sampling method was used to recruit participants.

Two Taiwanese doctoral candidates who studied in the United States were the main contacts to recruit participants in Taiwan. The invitation flyers and survey link were sent to preschool and K-12 teachers from the west region of Taiwan, who were asked to forward the survey link to any fathers they knew of who had infants between birth and 2 years old. One public high school teacher from the central Thailand region and two university instructors from the northern part of Thailand were the three main contacts to recruit participants in Thailand. Two doctoral candidates and one university professor from a Southwest Central state in the United States were the main contacts to recruit U.S. participants. The invitation flyers and survey link were sent to one Head Start center and a few K-12 teachers from the Southwest Central state. Researchers also contacted people they knew personally and sent them the invitation flyers via e-mail and social network sites including Facebook, Tumblr and Ning to increase the number of participants.

## **Participants**

The final sample included 107 fathers ranging in age from 25 to over 56 years old, with 32 from the United States, 36 from Taiwan, and 39 from Thailand. Approximately 88% of fathers reported that they were married and lived with their spouse, 0.9% reported that they were single, 10.3% reported that they were co-resident, and 0.9% reported that they were divorced. Most fathers (81.3%) had a full-time job, 8.4% were freelance/independent, 7.5% had part time jobs, and 1.9% reported that they were unemployed. With regard to education, 36.4% of fathers had less than a bachelor's degree, 30.8% of fathers completed their bachelor's degree, and 32.7% of fathers had a master's degree or above. Based on self-report of their income, approximately 65.4% identified as average income, 22.4% identified as above average, and only 12.1% of fathers reported that they were

earning below average. About 65% of fathers reported that they had only one child under the age of two and 35% of fathers reported that they had more than one child age 2 or under at home.

## Results

### Caregiving responsibility

Caregiving responsibility involved caregiving tasks and engagement/entertaining tasks from the first section of the questionnaire (See Table 1). The overall mean scores and standard deviation are provided in Table 1, which was organized from the least involved items to the highest involved items in fathers' caregiving responsibilities based on the overall mean scores of father involvement. Fathers in this sample demonstrated moderate involvement with slightly below average scores in their daily tasks which were very similar across three countries.

A one-way analysis of variance (ANOVA) was conducted to determine the mean scores of father involvement in the eleven caregiving and engagement tasks by three countries. Among eleven infant caregiving and engagement tasks, there was only one statistically significant difference on Bathing the infant across three countries,  $F(2, 104) = 4.81, p = .01$ . Dunnett's T3 Post hoc test result revealed that fathers in Thailand ( $M = 3.15, SD = 1.81$ ) demonstrated statistically significantly lower involvement in bathing the infant comparing to fathers in the U.S ( $M = 4.69, SD = 2.47$ ).

A paired-samples *t*-test was conducted to compare the overall father involvement in the caregiving tasks and engagement tasks. There was a significant difference in the scores of the caregiving tasks ( $M = 3.90, SD = 1.23$ ) and engagement tasks ( $M = 5.05, SD = 1.27$ );  $t(106) = -8.16, p < .001$ . Fathers demonstrated higher involvement in the 'engagement' daily tasks such as playing with the infant, as compared to caregiving tasks like 'doing the infant's laundry,' and 'feeding infants.'

There are a few trends that can be observed through this descriptive summary table. As noted above, fathers demonstrated higher mean scores in the 'engagement' daily tasks compared to other caregiving tasks. The following daily task items displayed higher average scores across three countries, including the highest task based on the overall average scores by each task: taking the infant out, walking or driving them around ( $M = 5.29$  overall;  $M = 4.84$  in U.S.;  $M = 5.56$  in Taiwan;  $M = 5.41$  in Thailand); playing with the infants ( $M = 5.07$  overall;  $M = 5.13$  in U.S.;  $M = 5.08$  in Taiwan;  $M = 5.00$  in Thailand); and choosing toys for infants ( $M = 4.79$  overall;  $M = 4.94$  in U.S.;  $M = 4.67$  in Taiwan;  $M = 4.77$  in Thailand). These average scores are above 4.5, which means that fathers and mothers share the responsibility equally (with higher scores indicating higher father involvement). Fathers in the U.S. showed the highest average scores on playing with the infants.

**Table 1.** Means and standard deviations of daily tasks.

Father Involvement	U.S. ( <i>n</i> = 32)		Taiwan ( <i>n</i> = 36)		Thailand ( <i>n</i> = 39)		Overall	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<b>Daily Tasks (DT)</b>								
<b>Caregiving tasks</b>	4.08	1.40	3.92	0.99	3.73	1.30	3.90	1.23
Doing the infant's laundry	3.66	2.28	3.14	1.94	3.33	2.36	3.36	2.19
Feeding infants	3.59	1.76	3.86	1.46	3.74	1.74	3.74	1.65
Bathing the infant	4.69	2.47	3.64	2.03	3.15	1.81	3.78	2.17
Keeping track of when infant needs to be fed	3.59	1.78	3.97	1.77	3.90	1.65	3.83	1.72
Responding to the infant's crying in the middle of the night	3.94	2.0	3.67	2.0	4.08	1.98	3.90	1.98
Changing the infant's diapers; dressing the infant	4.47	1.57	4.03	1.52	3.54	1.68	3.98	1.63
Deciding whether to respond to the infant's cries	4.53	1.37	4.47	1.61	4.41	1.88	4.47	1.64
Dealing with the doctor regarding the infant's health	4.16	1.85	4.56	1.32	3.74	1.83	4.14	1.70
<b>Engagement tasks</b>	4.97	1.42	5.10	1.04	5.06	1.36	5.05	1.27
Choosing toys for the infant	4.94	1.74	4.67	1.87	4.77	1.71	4.79	1.76
Playing with the infant	5.13	1.36	5.08	1.27	5.00	1.30	5.07	1.30
Taking the infant out: walking, driving, visiting, etc.	4.84	1.73	5.56	1.76	5.41	2.02	5.29	1.86
<b>Average</b>	4.32	1.25	4.24	.80	4.10	1.12	4.21	1.06



Fathers in Taiwan and Thailand demonstrated the highest average scores for the items involving taking the infant out and walking or driving them around compared to other task items.

Second, some daily tasks had the lowest reported involvement across three countries, including doing laundry for their infants ( $M = 3.36$  overall;  $M = 3.66$  in U.S.;  $M = 3.14$  in Taiwan;  $M = 3.33$  in Thailand) and feeding infants ( $M = 3.74$  overall;  $M = 3.59$  in U.S.;  $M = 3.86$  in Taiwan;  $M = 3.74$  in Thailand). Fathers from the three countries demonstrated similar trends on the highest and lowest daily task items.

### ***Analysis of fathers' accessibility during weekdays and weekends***

Two sub-scales, weekday and weekend, had six items each to assess how fathers are involved in infant caregiving during different time phases. Father's involvement on weekdays showed lower mean scores compared to their involvement on weekends. During the weekday, the average scores of father involvement are very similar across three countries ( $M = 3.70$  overall;  $M = 4.01$  in U.S.;  $M = 3.36$  in Taiwan;  $M = 3.77$  in Thailand). During the weekend, fathers in the U.S. demonstrated higher average scores compared to fathers in Thailand and Taiwan ( $M = 4.39$  overall;  $M = 4.91$  in U.S.;  $M = 4.25$  in Taiwan;  $M = 4.08$  in Thailand).

### ***The effect of demographic variables on fathers' involvement***

To meet the assumption of multiple regression, the test of normality was used and reported in this study. According to the results of descriptive statistics, Skewness is 0.185 (Std. Error = 0.234) and Kurtosis is 0.415 (Std. Error = 0.463). When Skewness and Kurtosis values of residuals were between  $-1$  and  $1$ ; there was no violation of normality assumption (Meyers, Gamst, & Guarino, 2006). A multiple regression was conducted to determine which variables would be the best predictors of fathers' involvement. Seven variables were included as predictors in this study, including income, education (EDU), interaction between income and education, residential area (urban or suburban/rural), number of children in the household, country, and fathers' age. In this analysis, country was entered as a categorical variable with three levels. Two dummy variables have been created as Taiwan-U.S. and Thailand-U.S. Regression results showed that this model accounted for 17% of variance in fathers' involvement ( $R^2 = 0.23$ ,  $F(8, 98) = 3.64$ ,  $P < 0.05$ ).

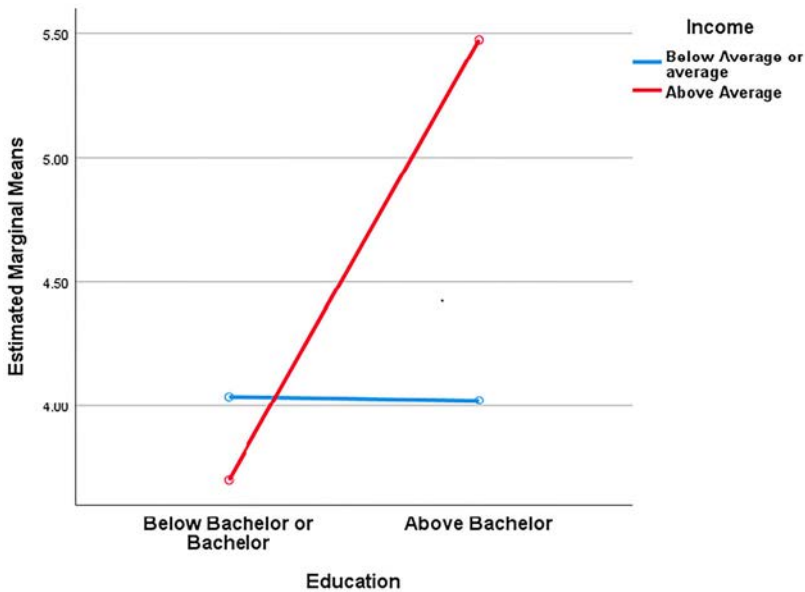
The Coefficients Final Model showed that three variables, including (1) the number of children, (2) the interaction between fathers' income and education, and (3) country (Thailand-U.S.) were significant predictors of father involvement, with the level of father involvement in Thailand significantly lower when compared with the United States (See Table 2). Fathers who had only one infant were more involved with their infant for caring and nurturing compared to fathers who had more than one child in their family. For those fathers whose income is below average or average, father involvement scores remain the same regardless of their education levels. However, those fathers with higher income and higher education levels demonstrated higher father involvement when compared to those fathers with bachelor's degrees or less (See Figure 1).

**Table 2.** Coefficients for final model.

Model	B	SE	$\beta$	$t$	$p$	95.0% Confidence Interval for B
Fathers' Income	-0.41	0.35	-0.14	-1.19	0.24	0.28
Fathers' Education (EDU)	-0.15	0.27	-0.06	-0.54	0.59	0.39
Interaction between income and EDU	1.82	0.54	0.44	3.38	0.001**	2.89
Areas	-0.25	0.24	-0.10	-1.04	0.30	0.22
Number of Children	-0.65	0.24	-0.26	-2.73	0.008**	-0.18
Taiwan-U.S.	-0.48	0.29	-0.19	-1.64	0.10	0.10
Thailand-U.S.	-0.58	0.28	-0.23	-2.08	0.04*	-0.03
Fathers' Age	0.17	0.16	0.11	1.07	0.29	0.49

Note: \* $p \leq 0.05$  \*\*  $p \leq 0.01$ .





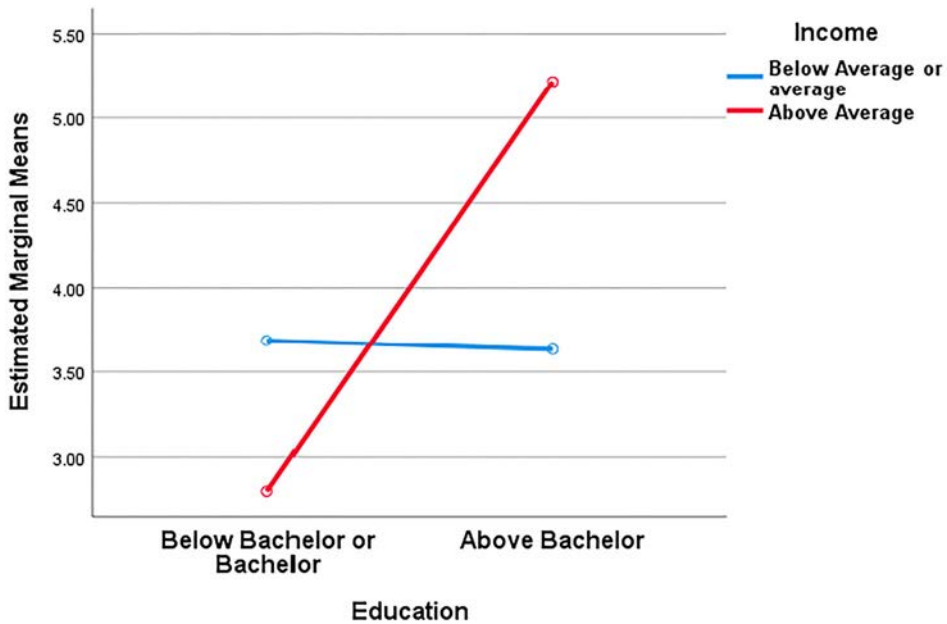
**Figure 1.** The interaction between fathers' income and education.

### ***Effects of country, education, income, and the number of children on father involvement during weekdays and weekends***

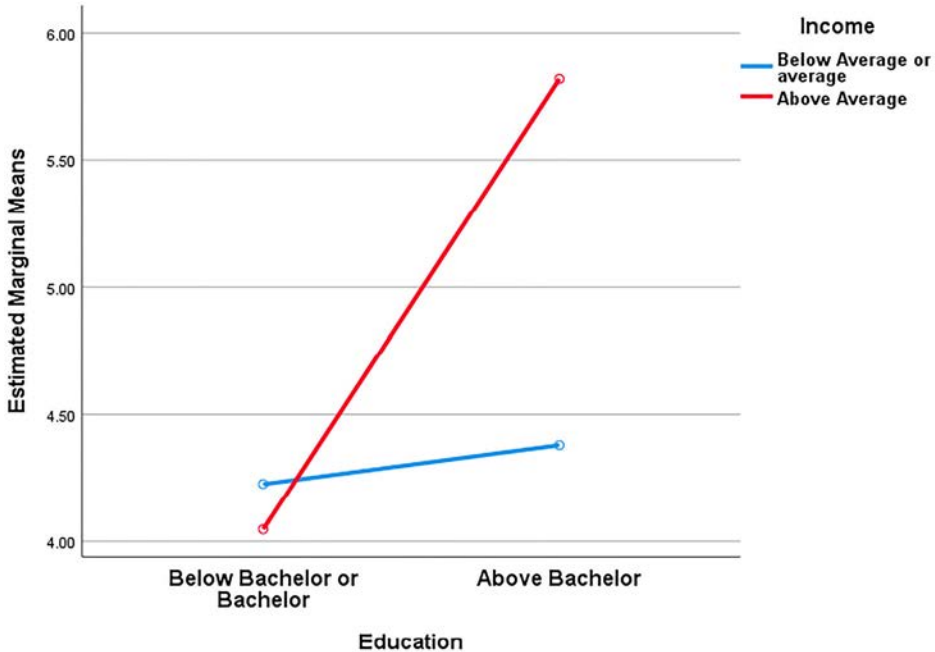
A Pearson Correlation was computed to explore the relationship between daily tasks, weekdays, and weekends. These three components were significantly related to each other. Daily tasks were significantly associated with weekdays,  $r(107) = -0.78, p < 0.00$  and with weekends,  $r(107) = 0.70, p < 0.00$ . Weekdays demonstrated a positive association with weekends,  $r(107) = 0.65, p < 0.00$ .

Based on the results of the Coefficients Final Model, a MANOVA was conducted to see the effect of country, education, income, and the number of infants on father involvement during weekdays and weekends. According to the assumptions of Multivariate Analysis of Variance (Mertler & Vannatta Reinhart, 2016), the dependent variables should have a minimal degree of association and not be highly correlated. Maxwell (2001) suggested that moderate correlations between development variables ( $r = .3$  to  $r = .7$ ) are eligible for the Multivariate Analysis of Variance. However, Daily Tasks was highly associated ( $r \geq 0.70$ ) with the two other subscales (Weekday and Weekend). Therefore, this research study only included weekday and weekend (two subscales) as dependent variables in the MANOVA analysis and excluded the daily tasks (subscale) from the MANOVA analysis.

The main effect of education (Wilk's  $\Lambda = 0.90, F(2, 99) = 5.30, p < 0.05, \eta^2 = 0.09$ ), number of infants (Wilk's  $\Lambda = 0.94, F(2, 99) = 3.25, p < 0.05, \eta^2 = 0.06$ ), and interaction between education and income (Wilk's  $\Lambda = 0.89, F(2, 99) = 6.32, p < 0.05, \eta^2 = 0.11$ ) were significant, which indicates that education, number of children, and the interaction between education and income significantly differs for the combined father involvement on weekdays and weekends. However, country (Wilk's  $\Lambda = 0.91, F(4, 198) = 2.30, p = 0.06, \eta^2 = 0.04$ ) and income (Wilk's  $\Lambda = 0.97, F(2, 99) = 1.69, p = 0.19, \eta^2 = 0.03$ ) did not show a significant effect on the combined Father Involvement Subscales (weekdays and weekends). The interaction between fathers' income and education on father involvement during weekdays and weekends also demonstrated a similar pattern to the overall involvement (Figures 2 and 3). Fathers with lower income demonstrated similar involvement during weekdays and weekends regardless their education level; whereas, fathers with above average income showed a different degree of involvement during weekdays and weekends based on their level of education.



**Figure 2.** The interaction between fathers' income and education (EDU) on father involvement during weekdays.



**Figure 3.** The interaction between fathers' income and Education (EDU) on father involvement during weekends.

Univariate ANOVA results indicated that education significantly differs for both father involvement during weekdays,  $F(1, 100) = 10.33, p < 0.05, \eta^2 = 0.09$  and weekends,  $F(1, 100) = 5.89, p < 0.05, \eta^2 = 0.06$ ; number of infants differed significantly on both father involvement during weekdays,  $F(1, 100) = 3.96, p < 0.05, \eta^2 = 0.04$  and weekends,  $F(1, 100) = 6.19, p < 0.05, \eta^2 = 0.06$ ; interaction

**Table 3.** Means and standard deviations of father involvement by country, education, number of infants under age two, and income on weekday and weekend.

Father Involvement	Weekday		Weekend	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<b>Country</b>				
U.S. ( <i>n</i> = 32)	4.01	1.71	4.91	1.79
Taiwan ( <i>n</i> = 36)	3.36	1.51	4.25	1.55
Thailand ( <i>n</i> = 39)	3.76	1.50	4.09	1.61
<b>Education</b>				
Below Bachelor or Bachelor ( <i>n</i> = 72)	3.51	1.57	4.19	1.63
Above Bachelor ( <i>n</i> = 35)	4.08	1.54	4.79	1.68
<b>Number of infants</b>				
1 child ( <i>n</i> = 69)	3.89	1.56	4.63	1.57
More than 1 child ( <i>n</i> = 38)	3.36	1.60	3.96	1.76
<b>Income</b>				
Below Average or average ( <i>n</i> = 83)	3.67	1.46	4.27	1.50
Above Average ( <i>n</i> = 24)	3.81	1.98	4.78	2.13

between education and income differed significantly on both father involvement during weekdays,  $F(1, 100) = 12.77, p < 0.05, \eta^2 = 0.11$  and weekends,  $F(1, 100) = 5.00, p < 0.05, \eta^2 = 0.05$ . Although the country did not show the significant main effects on the combined father involvement on weekdays and weekends, a univariate ANOVA results revealed that country significantly differs on father involvement during weekends,  $F(2, 100) = 3.26, p < 0.05, \eta^2 = 0.06$ , but not weekdays,  $F(2, 100) = 1.66, p = 0.20, \eta^2 = 0.03$ . The mean scores and standard deviations of father involvement by country, education, number of infants under age two, and income on weekdays and weekends have been presented in Table 3.

## Discussion

Based on the descriptive analysis, fathers across all three countries demonstrated a similar pattern of less involvement in infant caregiving tasks and more participation in some engagement/entertaining tasks.

Although bathing the infant revealed different levels of involvement across the three countries in this study, some caregiving tasks like doing the infant's laundry and feeding infants remain predominately the work for mothers across all countries. Bathing babies seems a challenging task compared to other caregiving tasks for fathers. First-time fathers might have been hesitant to bath their babies while their babies were very young; whereas, fathers who have more than one child might have had more opportunities to practice this task. The number of children in the household might be a factor that influences the division of these caregiving tasks. Most American fathers have more than one child in their household, but most fathers in Taiwan and Thailand were first-time fathers who had only one child in their household in this current study.

In addition, gender ideology could be an important factor in the division of these infant caregiving tasks (Thomas & Hildingsson, 2009). The majority of fathers from Thailand believe their traditional gender role is as the primary financial support for the family; therefore, mothers remain the primary caregiver role in the family (Tapanya, 2011). In contrast, fathers from other countries may be more willing to share these child caring tasks while their partners work full-time (Thomas & Hildingsson, 2009). In particular, American mothers are more likely to retain a full-time working status and reflect more egalitarian attitudes in sharing infant caregiving responsibilities (McFadden & Tamis-LeMonda, 2013).

In relation to engagement tasks, Goldberg, Tan, and Thorsen (2009) asserted that fathers frequently are involved in play and physical activities with their children. Although overall, fathers demonstrated moderate involvement in many child-rearing daily tasks in this study, traditional

gender roles were revealed in these daily tasks. Fathers spend more time in engagement tasks, such as physical play activities with their children, playing with infants, and taking infants out. These engagement activities may be seen as more socially acceptable for fathers rather than caregiving and nurturing activities such as feeding and responding to midnight crying. Giallo, Treyvaud, Cooklin, and Wade (2013) similarly discovered that fathers engaged in more physical play and less caregiving activities than mothers. Lamb and Lewis (2004) also found that fathers spend less time engaged in caregiving roles than mothers and involved more in play with infants. Although fathers' involvement in child nurturing activities has dramatically increased in the recent years, mothers are still spending more time nurturing and caring their children compared to fathers (Craig, 2006). In many cultures, fathers often consider themselves as bread winners, while mothers in the early years are expected to provide more child rearing and caring roles, such as feeding and doing baby's laundry and responding to children's needs and cries during the middle of the night.

Additionally, the findings from the multiple regression were consistent with previous studies that fathers' education levels influenced their involvement with children (Castillo et al., 2013; Ihmeideh, 2014). Although income was not a strong predictor on fathers' involvement in the current study, the interaction effect between education and income was significant. Future research studies should consider education and income as an integrated lens to determine their socioeconomic impact, rather than viewed as a segregated variable. Furthermore, father's age was not a predictor in this study. Previous research found that fathers' age matters in terms of their sensitivity and willingness in their involvement with children (Castillo et al., 2011; NICHD, 2000); however, the findings of this current study did not reflect this research trend. It might be that the previous study focused on involvement with older children rather than with infants only. Additionally, there was limited variation in an age in the current study with few participants younger than 25 or older than 45.

Fathers in the United States were more involved compared to fathers who lived in Taiwan and Thailand, especially on weekends. This is similar to the findings of McFadden and Tamis-LeMonda (2013) who found that many North American fathers shared in parenting roles and responsibilities. Another study that examined fathers from four European countries including fathers in U.S. also indicated that fathers spend more time with their children on weekends rather than on weekdays. However, fathers demonstrated markedly more time on weekdays caring for their children when their partners were working full-time (Hook & Wolfe, 2012). Mothers in the United States are the most likely to work full-time which might account for higher weekday involvement. It also may be that Western cultural beliefs reflect a more egalitarian division of parenting responsibilities.

The other possible factor to consider might be the work characteristics, such as weekly working hours and the length of weekend. Long working hours have been observed in many of Asian countries (Yamashita, Bardo, & Liu, 2016). These work context factors might change and/or influence father involvement in general and how they engage with these caregiving roles for their infants. Although most European and Western countries have adopted a two-day weekend, some countries still retain a one-day weekend depending on the industry.

Weekly working hours can be another consideration. Hewison and Tularak (2013) reported that a majority of workers are required to work long hours in many workplaces in Thailand. The average working hours per week is between 48 h in some manufacturing areas and up to 54 h in some trade and service industries (Kelly et al., 2010). A study investigating weekly working hours in China, Japan, South Korea and Taiwan found the range of weekly working hours to be between 38.8 and 49.7 h and the average working hours per week was 49.41 h in Taiwan (Yamashita et al., 2016). Another study indicated that more than half of employed fathers work over 40 h and over 52% of fathers' work between 40 and 60 h and around 17% reported over 60 h per week in Taiwan (Wu, 2018). In contrast, the average weekly working hours for men in the U.S. was 42.6 h, with about 9% working over 50 h per week (Wirtz, Lombardi, Willetts, Folkard, & Christiani, 2012) and 20% working 39 h or less (Hook & Wolfe, 2012).

Overall, the average work week in the two Asian countries tends to be longer than the typical work week in the U.S. Additionally, many small and medium sized industries and companies might still follow a five- and half-day work schedule with employees required by law to have at least one weekly holiday in Thailand (Chen & Wang, 2011). Although these long working hours have been observed in the two Asian countries, caution should be used to in making comparisons and to avoid using the same cultural and social standards of parenting to evaluate fathers in different cultures.

There are a variety of factors which may impact father involvement, such as cultural values, gender roles, cultural expectations, father's work load, types of jobs, and socioeconomic status. Some other possible factors, such as sociodemographic factors, should also be considered when studying fathers' involvement across countries. In Asia, traditional gender norms and values dictate that fathers are the breadwinners and should financially support their families (Yeung, 2013). In traditional Chinese societies, fathers and mothers play very different roles in parenting. Mothers show more warmth and develop more emotional bonding with their children, but fathers focus more on economic support, discipline, and moral instructions (Chao & Tseng, 2002). There is a need for more cross-cultural studies on fathers' involvement with larger samples to reveal more complex social context characteristics and their impact on fathers' involvement across cultures and countries.

### **Conclusions and implications**

The results of this research study add new data about fathers' involvement in caregiving and engagement in daily tasks, and their accessibility and involvement during weekdays and on weekends. Most importantly, this study supports the ongoing understanding of the factors that influence father involvement so as to inform future educational programmes and interventions.

In order to increase father involvement in caregiving responsibilities, parenting education classes for fathers may be beneficial. Parent education programmes targeting expectant parents or parents of infants might increase fathers' willingness to be more involved in their child's life (Dolan, 2014). Men may have a lack of knowledge about being a father and how to engage in basic infant care, especially in caregiving and nurturing tasks. Including fathering courses with childbirth training in hospitals and offering caregiving support services for fathers might increase their awareness and willingness to engage in these caregiving tasks.

The differences between the demographic characteristics and social-cultural values among the United States, Taiwan, and Thailand can support and inform changes in father involvement practices over time. Exploration of recent reform policies in Taiwan and fathers' perspectives about these policies might yield information that can guide best practices and increase fathers' involvement with their infants.

Results of this research study revealed the importance of cultural competencies when working with fathers in cross-cultural settings. Traditionally, father involvement has often been defined as providing economic support with few other expectations for being a good father. It is important to continue to recognize financial support of children as an important role of parents, but it is also crucial to offer ideas to expand involvement and support beyond strictly being an economic provider. Practitioners should examine cultural definitions and expectations of involved fathering and incorporate these cultural expectations into their programming.

### **Limitations**

There were a few limitations observed by researchers in this research study. The small sample size limited analyses and generalizability of results. Additionally, researchers also observed that every country has different cultural values and ethics, resulting in different caregiving patterns and scopes in different countries. As a result, researchers cannot generalize these cultural values with other countries while conducting any research. Future research in this area might further investigate

through qualitative data and/or can be used a mixed research design or observation analysis which might provide some interesting vignettes of how fathers in various cultures/countries interact with their infants in these daily caring giving and engagement tasks. These types of qualitative and observational data could further demonstrate the pervasive differences or similarities across culture settings and how these cultural, gender ideology, and work characterizes have influenced their involvement with their infants.

Residential status and gender of the child have been found to influence father involvement (Shears, 2007) and should be included in future research. Participants in this research study used an online platform to complete the survey which might have excluded certain populations who do not have a computer at home and/or internet access. Additionally, most of fathers in this sample were married living with their partners; involvement would be very different when examining single fathers. Finally, since the study was self-reported by fathers only, future studies may benefit from including both partners in the research study.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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