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## **Increasing the sense of maternal achievement from overcoming parental control challenges using human versus digital resources: A cross-sectional survey**

### **Abstract**

Research evidence on parenting in a digital society has not kept pace with the growing use of digital resources by mothers (e.g., smartphones, the internet), along with human resources (i.e., partners, family members, friends), to overcome parental control challenges. Overcoming these challenges helps mothers attain a sense of maternal achievement. This study explored the effects of using human and digital resources to address parental control challenges on the sense of maternal achievement. A survey was conducted with a random sample of 373 mothers of 3-year-old children, who were more likely to face parental control challenges. The questionnaire focused on participants' characteristics, human and digital resource use, and maternal achievement. An exploratory factor analysis confirmed the validity of an original scale to measure resource use in addressing control challenges. Multiple regression analysis was then used to examine its effects on the sense of maternal achievement. Significant main effects on sense of maternal achievement were found only for partner support but not for digital resources. A moderating effect was identified between digital resources and family support, with digital resources being unrelated to a sense of maternal achievement in situations of high family support. In contrast, digital resources predicted a lower sense of maternal achievement in situations of low family support. Consequently, digital resources may play a limited role as a complement or substitute for human resources. Therefore, even in a digital society, it is desirable for parents to focus on human resources in the context of overcoming parental control challenges.

*Keywords:* maternal role; sense of achievement; parental control challenges; human resources; digital resources; parenting support

### **Introduction**

For mothers, mastering the diverse developmental task of parenting is a turning point in the development of their maternal identity (Mercer, 2004). In the past, human resources surrounding parents, such as family and friends, were primarily used to overcome challenges in child-rearing. However, in this digital society, digital resources have come to be positioned as important resources (Harpel, 2018). In this study, digital devices (smartphones and tablets) and their functions (the internet and apps) that have the potential to provide support for child-rearing, such as parenting apps, online parenting forums, and social networking sites (SNS), are broadly termed as “digital resources.” Research on the impact of digital resources on the daily lives of young children and their families has failed to keep up with their rapid incorporation into all aspects of their daily lives (Radesky et al., 2015). The lack of evidence regarding the effects of digital resource use in overcoming parenting challenges has

been a cause for concern among both parents and professionals. A concerted effort is required to examine the impact of digital resources on parenting in different contexts (Modecki et al., 2020).

Therefore, this study explores the effect of digital resource use, in conjunction with human resources, on one of the outcomes of overcoming parental control challenges—a sense of maternal achievement—by focusing on mothers with infants.

### **Digital Resources and Parenting**

In today's digital society, digital resources are used in various parenting situations (Xie et al., 2021; Kulakci-Altintas, 2020). Most pregnant women and mothers seek information and support regarding parenting from the internet (Dworkin et al., 2013; Plantin & Daneback, 2009). There is an abundance of useful apps for pregnant women and those providing childcare (Lupton & Pedersen, 2016; Virani et al., 2019). Recent studies on the effects of electronic device use on children's health and development have reported associations between longer screen time and delayed social-emotional functioning (Wan et al., 2021), lower executive functioning (McMath et al., 2022), and increased intake of sugar-laden foods (Li et al., 2022). Parental screen time (Rai et al., 2022) and media-use motivation (Levine et al., 2019) have also been reported as determinants of children's digital resource use. Furthermore, technology disruption during parent-child interaction (technoference) has been associated with children's problem behaviors (McDaniel & Radesky, 2018) and poor quality of co-parenting (McDaniel & Coyne, 2016).

Findings that focus on the impact of digital resource use on parenting are limited and contradictory. For example, one study on the relationship between digital resource use and mothers' loneliness found that SNS use both decreased loneliness (Mandai et al., 2018) and improved social capital (Jang et al., 2017). In contrast, another study reported that SNS use contributes to isolation by arousing negative emotions through social comparisons with others (de los Santos et al., 2019) and by limiting face-to-face relationships (Strange et al., 2018). This discrepancy may be attributed to the fact that the impact of digital resources on parenting varies depending on the context (Modecki et al., 2020). Expanding knowledge on the effectiveness of digital resources in diverse parenting contexts will address this scientific gap.

### **Parental Control Challenges and the double ABCX model**

Among the contexts in which digital resources are used to address a variety of parenting issues, this study focused on the issue of parental control by mothers. Parental control refers to the act of determining and enforcing children's actions in line with what parents believe is good for them, regardless of the child's will (Baumrind & Black, 1967). The developmental task for mothers with children aged 2–5 years includes resolving conflicts of intentions with their children and adapting to their negativism by exerting parental control (Galinsky, 1981). Focusing on overcoming parental control challenges in various contexts is meaningful because it provides suggestions for challenges typically faced by parents with young children. According to Onishi et al. (2019), the stress contents faced by mothers are “the struggle with the child's negativism” and “confusion in seeking the right way to parent.” Mothers attempt to address and resolve the two stress-producing issues by utilizing a variety of

resources. In the process of problem-solving, they gain a sense of achievement in their maternal role by reconstructing their own authentic view of parenting.

In order to position digital resources in the process of overcoming parental control challenges and to examine their function, this study used the double ABCX model by McCubbin & Patterson (1983). This theory models the process by which maladaptive families experiencing stress cope with the challenges and adapt, as shown in Figure 1. Families face a crisis (X) when they are unable to cope with an encountered stressor (A) using existing resources (B) and stressor evaluation (C). The crisis (X) becomes a pile-up of demands and stressors (aA) for the family. In response to Aa factor, the family attempts to cope with the stressor by utilizing expanded resources (bB) and reevaluating the stressor (cC), leading to adaptation or maladaptation (xX). Based on this theory, the present study examines the contribution of digital resources to overcoming parental control challenges faced by families, from the mother's perspective.

Applying the double ABCX model to the process of overcoming parental control challenges, the X factor is clashing with a child's will, the aA factor is the parental control challenge ("the struggle with child's negativism and confusion" and "seeking the right way to parent"), the bB factor is human and digital resources, and the xX factor is a sense of achievement in the maternal role.

Human resources in this study included the mother's partner, other family members, friends and parenting peers, who are expected to contribute resources in the context of overcoming parental control challenges. This assumption is based on evidence that social support from these relationships influences a mother's coping with stress in parenting (Lavenda & Kestler-Peleg, 2017) and improves parenting self-efficacy (Gao et al, 2014).

[Figure 1 near here]

### **Displacement-interference-complementarity (D.I.C.) framework**

To theoretically capture the process of digital resources located in the bB factor (utilizing expanded resources) in the ABCX model on the xX factor (sense of achievement in the maternal role), this study uses Kushlev & Leitao's (2020) displacement-interference-complementarity (D.I.C.) framework. This framework provides a multidimensional and comprehensive understanding of the psychological effects of digital devices on people, highlighting that there are three patterns in the process by which digital devices affect people's well-being: the displacement hypothesis, interference hypothesis, and the complementarity hypothesis. The displacement hypothesis refers to digital devices substituting for other human activities, while the interference hypothesis refers to digital devices interfering with other simultaneous human activities. These two hypotheses suggest that digital devices negatively affect people's well-being when they substitute or interfere with activities that are essential to well-being (e.g., sleep), or face-to-face activities that are sources of well-being. In contrast, the complementarity hypothesis states that digital devices have a positive impact on people's well-being by enabling access to information and activity that is not otherwise available, and by providing benefits that are not available through face-to-face activities. Based on this framework, it is assumed that in the context of coping with parental control challenges, depending on whether digital resources serve to displace, interfere with, or complement

human resources, they will have different effects on the mother's sense of achievement in the maternal role as an outcome of overcoming challenges.. This model captures the impact of digital resources on the process of overcoming parental control challenges, while considering interactions with human resources.

### **Research Goals and Hypothesis**

The theoretical framework of this study is shown in Figure 2. It describes the process of overcoming parental control challenges from a mother's perspective, based on the integrated framework of the double ABCX model and the D.I.C. framework.. The research goal of this study is to explore the relationship between mother's use of human and digital resources in coping with parental control challenges and one of the outcomes of overcoming challenges – the sense of maternal role achievement. Three research hypotheses were formulated to achieve this goal. The first hypothesis states that the use of human resources in coping with parental control challenges predicts higher maternal role achievement. The second hypothesis states that higher digital resource use predicts higher maternal role achievement when the level of human resource use is high. In situations with abundant human resources, digital resources are expected to function in a complementary manner and have a positive impact on overcoming parental control challenges. The third hypothesis states that higher digital resource use predicts lower maternal role fulfillment when the level of human resource use is low. Situations with limited human resources are predicted to be cases where digital resources function in the pattern of the displacement or interference hypothesis. In the case of limited benefits of human resources, digital resources may negatively impact the overcoming of parental control challenges.

[Figure 2 near here]

## **Methods**

### **Study Design**

A cross-sectional observational research design was adopted. A checklist for reporting of survey studies (CROSS), developed by Sharma et al. (2021), was used to ensure the quality and transparency of this study.

### **Operational Definitions**

In this study, human resources refer to “the partner, family members other than the partner, and friends who may provide face-to-face or online support for the mothers addressing parenting challenges,” while digital resources are “the digital devices (smartphones and tablets) and their functions (the Internet and apps), which may provide support from strangers or multiple services for the mothers addressing parenting challenges. “Partner” includes the person who is in either a marital or common-law relationship. Family members other than partners include parents, siblings, and all other persons that the mother considers to be family.

### **Participants**

The participants comprised mothers with 3-year-old children, living in Japan. As 3-year-olds are in a developmental stage in which rebellious behavior toward primary caregivers is common, their mothers are often faced with parental control challenges. Mothers who exclusively cared for children other than 3-year-olds and non-mother caregivers were excluded. The sample size was calculated using G-power (Faul et al, 2009), with an effect size ( $f^2$ ) of 0.15 (moderate), an  $\alpha$  error probability of 0.05, power of 0.8, and predictors of 12, confirming that the required sample size needed to be 127 or greater. Note that the  $\alpha$  error and power settings were based on Cohen's (1988) criteria.

### **Recruitment and Collection**

The recruitment procedure for participants is shown in Figure 3. Considering that the collection rate of similar surveys in Japan is approximately 50%, we approached 800 mothers with 3-year-olds to ensure the required sample size. We recruited participants via stratified random sampling, utilizing the city's residence registration system as follows. First, five wards were chosen randomly from ten administrative divisions of the city in which the participants resided. Second, mothers with children between the age of 3-3.5 years, as of June 1, 2020, were randomly selected using the Basic Resident Register of the area. Permission to use the Basic Resident Register was obtained through a written request to the Family Registration and Resident Division of the five wards.

All data were collected through a self-administered questionnaire. We mailed these directly to the homes of 800 mothers. The mothers who agreed to participate in the study returned the questionnaires using the self-addressed envelope provided. Using the above procedure, this study reports the data of part of the survey on "Parenting efforts of mothers with three-year-old children in a digital society" that was conducted from June to July in 2020.

[Figure 3 near here]

### **Questionnaire**

The questionnaire focused on participants' characteristics, sense of achievement in their maternal role, and use of human and/or digital resources to address parental control challenges. The following strategies were used to ensure the content validity of the survey items. First, the logical validity of the questionnaire was confirmed by a public health nurse with experience in childcare support and by three of the authors with extensive practical and research experience as public health nurses. The authors also ensured that there were no common errors, such as double questions, confusing questions, or leading questions. Second, the face validity of all survey items was verified by a preliminary survey of 12 mothers with children aged 3 years and above. The questionnaire can be found in S1.

### ***Participant Characteristics***

Information about participants' age, number of children, cohabiting family, years of residence, occupational status, educational status, subjective economic status, and subjective health status was collected. Additionally, participants were asked about their digital devices (e.g., smartphones and tablets).

### ***Sense of Maternal Achievement***

This study used the Sense of Achievement in the Maternal Role Scale (Dohi et al., 1990). This measures a mother's degree of awareness about the rewards of her maternal role (e.g., self-growth and good parent-child relationship). This scale, developed in the Japanese context, is based on the Maternal Role Experience scale created by Barnett and Baruch (1985). The reliability of the scale has been confirmed in several surveys in Japan (e.g., Nakamura et al., 2016). It consists of 10 items and responses are scored on a five point-Likert scale. The score ranges from 10–50 points, with a higher score indicating a higher sense of maternal achievement. In this study, the Cronbach's  $\alpha$  for the scale was 0.84.

### ***Use of Human and/or Digital Resources to Address Parental Control Challenges***

As no appropriate scales existed, we developed a scale to measure mothers' use of resources for specific situations regarding parental control challenges. First, based on an interview survey with mothers of 3-year-olds (Onishi et al., 2019), we created a situation involving parental control challenges. Second, we created items to measure the degree of actual experience with the situations. Third, we created an item that measures how the participants had used human resources (“partner,” “family members other than partner,” and “friends and parenting companion”) and digital resources to address the situation. To grasp the variation in their strategy, four ways of resource use were suggested using the classification of social support (instrumental, emotional, informational, and appraisal side) from a previous study (Langford et al., 1997). Finally, a total of 16 items were created to measure mothers' degree of use of the four resources in each of the four aspects. Each item had six response options: 1) strongly disagree – 6) strongly agree. The participants were asked to choose the item “0) Not applicable” in case the set resources in this study were not applicable to them (e.g., the participant is a single mother). We converted “0) Not applicable” to “1) strongly disagree” during the analysis because both responses indicate that the participants did not have experience relying on those resources.

## **Statistical Analysis**

### ***Preliminary Analyses***

Descriptive statistics were performed on participant characteristics and maternal use of resources to address parental control challenges. This was followed by an exploratory factor analysis, utilizing the maximum likelihood method, Promax rotation, to confirm whether the assumed structure of maternal use of resources was appropriate. We assumed four factors consisting of four items for each resource (i.e., partner, family, friends, and digital resources). The number of factors was determined based on the scree plot, and an eigenvalue of more than 1. Items with a factor loading of  $> 0.40$  were included. Cronbach's  $\alpha$  was calculated to evaluate reliability. These analyses confirmed the factorial validity and reliability of our proposed original scale.

### ***Primary Analyses***

Multiple regression analyses were conducted to test the association between the sense of maternal achievement and use of resources to address parental control challenges. A multiple regression model was created

that consisted of the three types of human resource use, digital resource use, interaction terms consisting of the combination of each human and digital resource, and covariates. The variables that formed the interaction terms were centered to prevent multicollinearity issues.

Five checks were made to verify that some of the necessary assumptions for the application of a multiple regression analysis were met. First, values of skewness and kurtosis of the dependent variable were checked to ensure that there was no influence on the analysis due to non-normality. Second, a visual evaluation with scatter plots was performed to confirm the linear relationship between the dependent and independent variables. Third, to confirm the independence of the observed values, we confirmed that the Durbin-Watson ratio was around 2. Fourth, to confirm the normality and equivariance of the errors, we visually evaluated the normal Q-Q plots for the residuals and the Studentized residuals. Fifth, to confirm multicollinearity, we checked that the VIF of the independent variables was less than 2.

Finally, simple slope analysis (Aiken et al., 1991) was performed for the significant interactions, by plotting values for sense of maternal achievement with low and high levels of use of digital resources at low (-1 SD) and high (+1 SD) levels of use of human resources. JMP Pro 15.0 was used for statistical analyses. The significance level was set at  $p < 0.05$ .

### **Ethical Considerations**

We provided written explanations in the survey outline to all participants about their right to refuse to answer, anonymity, and how their personal information would be handled. Participation in the survey was voluntary. If the participants returned the completed questionnaire, it was understood that they had consented to participate in the study. This study followed the guidelines set out by the 1975 Helsinki Declaration (2008 revision). It was approved by the Ethics Review Committee of the institution to which the authors are affiliated.

## **Results**

### **Preliminary Analyses**

#### ***Descriptive Statistics***

A total of 440 (55.0%,  $N = 800$ ) questionnaires were returned. Of them, we excluded 30 participants who did not answer all the survey items and 37 who answered that they never experienced challenges related to parental control. Thus, 373 participants were included in the analysis (valid response rate: 46.6%). Table 1 presents the descriptive statistics of participant characteristics. Participants' average score on the sense of achievement in their maternal role was 45.25 ( $SD = 4.04$ ), with a skewness of -0.99 and kurtosis of 0.39. If the absolute value of the skewness is greater than or equal to 2 and the absolute value of the kurtosis is greater than or equal to 7, the analysis results may be affected by non-normality (West et al., 1995). Considering this criterion, we determined that this score was robust against the effects of informality.

[Table 1 near here]

### ***The Factor Structure of Maternal Use of Resources***

The descriptive statistics of maternal use of resources to address parental control challenges are shown in S2. A four-factor structure composed of 16 items was confirmed in the exploratory factor analysis (Table 2). In line with the items they consisted of, Factor 1 was termed as “use of partner support,” Factor 2 as “use of family support,” Factor 3 as “use of friend support,” and Factor 4 as “use of digital resources.” Cronbach’s  $\alpha$  was 0.844 for the overall scale, 0.955 for Factor 1, 0.937 for Factor 2, 0.886 for Factor 3, and 0.840 for Factor 4. The mean score ( $\pm$  SD) was 55.77 ( $\pm$  13.45) for all items, 17.34 ( $\pm$  5.84) for Factor 1, 13.55 ( $\pm$  5.71) for Factor 2, 12.91 ( $\pm$  5.22) for Factor 3, and 11.97 ( $\pm$  4.99) for Factor 4.

[Table 2 near here]

### **Primary Analyses**

Table 3 shows the results of the multiple regression analysis including the interaction term. A significant model explaining sense of maternal achievement with each resource use and covariate was constructed ( $F(19, 353) = 5.913, p < 0.001$ ). The  $R^2$  of the model was 0.24 and the *Adjusted-R<sup>2</sup>* was 0.20. A significant main effect was identified for the use of partner support ( $b = 0.13, SE = 0.03, \beta = 0.19, p < 0.001$ ), but not for the use of other human and digital resources. Thus, Hypothesis 1 was partially supported.

Within each human and digital resource interaction, a significant interaction was identified only between the use of family support and digital resources ( $b = 0.02, SE = 0.01, \beta = 0.20, p < 0.001$ ). A simple slope analysis of this interaction showed that when the use of family support was high (+1SD), the use of digital resources was not associated with the sense of maternal achievement ( $b = 0.09, SE = 0.05, \beta = 0.11, p = 0.110$ ). In contrast, when the use of family support was low (-1SD), the use of digital resources was associated with a lower sense of maternal achievement ( $b = -0.20, SE = 0.06, \beta = -0.24, p < 0.001$ ) (Figure 4).

From these results, no significant main effect of digital resource use on maternal role achievement was identified. Furthermore, the interaction was significant only for support from non-partner family members; the results of the simple slope analysis did not confirm that digital resources were associated with a sense of maternal achievement when the level of family support was high. Thus, hypothesis 2 was not supported. Hypothesis 3 is partially supported by the results as the simple slope showed that, when mothers use less family support and more digital resources, they are less likely to feel a sense of maternal achievement.

[Table 3 and Figure 4 near here]

### **Discussion**

Hypothesis 1 was supported only for partner support. The results suggest that partner support is particularly important among human resources in helping mothers deal with parental control challenges. Marital relationships are a defining element of parenting for mothers (Taraban & Shaw, 2018), and their partner shares the parental responsibility. Because of the aspect of parental control as a responsibility imposed on parents by society (Onishi et al., 2019), it may have been essential to have a partner with whom to share parenting responsibilities. More than 90% of the participants in this study were part of a nuclear family, consisting solely

of their children and partners. Since parental control is a parenting issue that requires a direct response to the child in each situation, support from cohabiting family members might be considered a more important resource.

Hypothesis 2 was not supported i.e.; higher digital resource use might be not able to predict higher maternal role achievement when the level of human resource use is high. Thus, the complementarity hypothesis (Kushlev & Leitao, 2020) may not be valid in the context of parental control challenges. The reason for this might be the limitation of digital equipment as a resource in addressing parental control challenges. For example, in addressing such challenges, digital resources can be used as a tool to divert the attention of fussy children (Kulakci-Altintas, 2020). This can be seen, at first glance, as a complement to the parent's efforts to scold their noisy children. However, in serious situations regarding parenting issues set up by this study, it is inferred that ad hoc parental control using digital resources was limited in its effectiveness and did not sufficiently contribute to overcoming the challenge. Additional reasons might be due to the fact that information obtained from digital resources can be general in nature and, as such, may not be as helpful in addressing specific parenting situations when compared to personalized support from human resources.

Hypothesis 3 was supported only for the relationship between digital resources and family support resources. Digital resources may work negatively in overcoming parental control challenges in situations where there is little family support outside of the partner. This negative function can be explained by the displacement hypothesis of digital devices (Kushlev & Leitao, 2020). Based on the displacement hypothesis, digital resources would be positioned as an alternative to limited family support. The main non-partner family members who support mothers in raising their children in Japan are the children's grandparents, and problems in the parent-grandparent relationship may underlie the lack of support. Grandparents are a key element in the smooth functioning of the family system in raising children (Zhang et al., 2022). On the other hand, controlling involvement and over-interference from grandparents is a stressor for parents (Hoang & Kirby, 2020). Mothers who did not receive much family support, especially from their parents, may have refrained from requesting support and substituted that with digital resources to avoid stress from their parents.

Parents, particularly maternal figures, play a crucial role in shaping a mother's identity, serving as primary role models. However, mothers with limited support from their own parents might turn to digital resources, adopting the idealized mother image portrayed online as their main role model in developing their maternal identity. This online ideal mother image can lead to negative emotions arising from social comparisons between themselves and others (de los Santos et al., 2019). Mothers with less family support in this study may have found it difficult to navigate parental control challenges due to the confusion caused by the ideal mother model seen online. This struggle can impede their ability to achieve a sense of maternal role accomplishment.

Additionally, this study found no significant interaction between partner support and digital resource use. In the context of overcoming parental control challenges, partner support may not be substituted or complemented by digital resources. Marital quality and co-parenting with their partner can enhance a mother's parental self-efficacy (Merrifield & Gamble, 2013), and partners are special to mothers. Although digital resources displace, interfere with, and complement human face-to-face activities in diverse contexts of life (Kushlev & Leitao, 2020), the exception here may be the role of partners, which is irreplaceable across contexts.

## **Implications**

One of the contributions of this study is that it grants new evidence on the limited role of digital resources in overcoming parenting control challenges, specifically in the parenting of 3-year-olds. This suggests that digital resources are not particularly influential in critical aspects of parenting, such as overcoming developmental tasks. The second contribution is the corroboration of findings on the difficulties of substituting human resources with digital resources in the context of such challenges. The results of this study suggest that the substitution of human with digital resources in this context may cause distortions in problem-solving. These contributions help address a scientific gap by extending prior research on the effectiveness of digital resources in parenting.

The theoretical contribution of this study is that it proposes an idea that integrates the double ABCX model and the D.I.C. framework to theoretically understand the process of family adaptation of parenting issues in a digital society. The double ABCX model is useful in that it has long been used to understand the process of family adaptation to stress, but it does not model the process of the impact of various bB factors (adaptive resources) on the xX factor (adaptation). In a digital society, digital resources are added to classical human resources as external resources in solving family problems, and their functions are complex. Assimilating the D.I.C. framework will help sort out both positive and negative impacts of digital resources on the xX factor. The theoretical framework of this study may have applicability in the context of parenting issues other than parental control challenges.

Based on our findings, parenting support professionals and policy makers can focus on preventing isolation and building stable family relationships so that mothers do not rely solely on digital resources. In particular, improving the quality of marital and co-parenting relationships may be important in helping mothers and their partners navigate and overcome the complexities inherent in parenting challenges.

## **Limitations**

Although this study significantly contributes to knowledge on the use of digital resources for parenting, it has limitations. First, since this was a cross-sectional study, we could not identify a causal relationship. Second, the validity of the scale on maternal use of human and digital resources was not sufficiently established. Although the content validity (including logical and surface validity) and factorial validity of the scale were confirmed, construct validity and criterion-related validity were not. Third, the possibility of recall bias could not be ruled out. For mothers, parental control challenges have been assumed to be influential experiences. However, there is no guarantee that they would recall the experience accurately. Fourth, since various digital resources were integrated into one category, we could not verify the differential effects of each technology and their functions (e.g., smartphones, the internet, parenting applications, and online forums) in the context of parental control. Fifth, only Japanese mothers were recruited; thus, the results may reflect sociocultural features of Japan. In that sense, further research is required for the generalization of results to international contexts. Finally, the theoretical framework developed in support of the double ABCX model in this study does not incorporate one of the elements of this model, cC factor (family appraisal of situation). It was difficult to conduct an analysis that considered the mother's interpretation of the parental control challenges.

In light of these limitations, it is expected that future research will accumulate knowledge on the effectiveness of digital resources in additional contexts of parental problem-solving. Evidence of the effectiveness of digital resource use in diverse contexts will provide additional insight for parents and supporting professionals in a digital society. Thus, this study provides a foundation for extending digital resource research to other parenting contexts.

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**Table 1***Participant Characteristics*

		<i>N</i> = 373		
		<i>n</i>	%	
		<i>M</i> ( <i>SD</i> )		
Age (years)		35.53 (4.92)	-	
Number of children	One	114	30.6	
	Two	208	55.8	
	Three	44	11.8	
	Four	7	1.9	
Cohabiting family	Only children	15	4.0	
	Partner	355	95.2	
	Mother's parents, brother, or sister	13	3.5	
	Partner's parents, brother, or sister	7	1.9	
Years of residence	Less than 1 year	34	9.1	
	1 to < 3 years	79	21.2	
	3 to < 5 years	82	22.0	
	5 to < 10 years	107	28.7	
	Over 10 years	71	19.0	
Occupational status	Full-time worker	100	26.8	
	Part-time worker	83	22.3	
	Homemaker	159	42.6	
	On maternity or childcare leave	31	8.3	
Educational status (highest educational qualifications)	Junior high school / High school graduate	78	20.9	
	Junior college / Vocational school graduate	164	44.0	
	University / Graduate school graduate	131	35.1	
Subjective economic status	Very concerning	13	3.5	
	Somewhat concerning	140	37.5	
	Slightly concerning	190	50.9	
	Not concerning at all	30	8.0	
Subjective health status	Very good	107	28.7	
	Somewhat good	235	63.0	
	Slightly good	26	7.0	
	Not good at all	5	1.3	
Having digital device by the mother	Having only smartphones	236	63.3	
	Having only tablets	3	0.8	
	Having both smartphones and tablets	134	35.9	
	Not having smart devices	0	0.0	
	(Reproduced)	Having smartphone	370	99.2
		Having tablet	137	36.7
Sense of achievement in their maternal role		45.25 (4.04)		
Experience of difficulties with parental control	Usually	100	26.8	
	Sometimes	150	40.2	
	Rarely	123	33.0	

*Note.* Digital device possession is reiterated in the "Having smartphone" and "Having tablet" categories.

**Table 2***Factor Analysis: Maternal Use of Human and Digital Resources to Address Parental Control Challenges*

N=373

Statements	Factor loading			
	1	2	3	4
Factor 1: Use of partner support				
2 I will use emotional support from my partner to deal with this situation	<b>0.92</b>	0.08	0.06	-0.02
1 I will take the advice of my partner to deal with this situation	<b>0.92</b>	0.10	0.06	0.00
4 I will consider the feedback of my partner on my actions in this situation	<b>0.91</b>	0.10	0.00	0.07
3 I will accept practical help from my partner to deal with this situation	<b>0.90</b>	0.09	0.03	-0.05
Factor 2: Use of family support				
5 I will take the advice of my family members to deal with this situation	0.13	<b>0.90</b>	0.19	0.01
6 I will use emotional support from my family members to deal with this situation	0.11	<b>0.88</b>	0.19	0.03
7 I will accept practical help from my family members to deal with this situation	0.03	<b>0.84</b>	0.12	0.06
8 I will consider the feedback of my family members on my actions in this situation	0.12	<b>0.84</b>	0.15	0.13
Factor 3: Use of friend support				
9 I will take the advice of my friends and parenting companions to deal with this situation	0.06	0.15	<b>0.93</b>	0.07
10 I will use emotional support from my friends and parenting companions to deal with this situation	0.02	0.10	<b>0.90</b>	0.07
12 I will consider the feedback of friends and parenting companions on my actions in this situation	0.04	0.15	<b>0.71</b>	0.14
11 I will accept practical help from my friends and parenting companions to deal with this situation	0.03	0.28	<b>0.53</b>	0.20
Factor 4: Use of digital resources				
14 I will use emotional support from the Internet and apps to deal with this situation	-0.02	0.03	0.11	<b>0.86</b>
16 I will use the Internet and apps to get feedback on my action in this situation	-0.06	0.08	0.07	<b>0.80</b>
13 I will seek advice from the Internet and apps for dealing with this situation	-0.01	0.05	0.17	<b>0.78</b>
15 I will take practical help from the Internet and apps to deal with this situation	0.06	0.04	0.05	<b>0.55</b>

**Table 3***The Effect of Maternal Use of Human and Digital Resources on the Sense of Maternal Achievement*

	<i>b</i>	<i>SE</i>	95% <i>CL</i>		$\beta$	<i>P</i>
			<i>LL</i>	<i>UL</i>		
Intercept	5.02	1.97	1.15	8.90	0.00	0.011
Use of partner support	0.13	0.03	0.07	0.20	0.19	< <b>0.001</b>
Use of family support	0.06	0.04	-0.01	0.14	0.09	0.096
Use of friend support	0.05	0.04	-0.03	0.13	0.07	0.207
Use of digital resources	-0.06	0.04	-0.13	0.02	-0.07	0.171
Use of digital resources $\times$ Use of partner support	0.00	0.01	-0.02	0.01	-0.02	0.685
Use of digital resources $\times$ Use of family support	0.02	0.01	0.01	0.04	0.20	< <b>0.001</b>
Use of digital resources $\times$ Use of friend support	0.00	0.01	-0.02	0.01	-0.01	0.825

*Note.* *b* = Estimate; *SE* = Standard error; *CI* = confidence interval; *LL* = lower limit; *UL* = upper limit;

$\beta$  = standardized estimate. Dependent variable: sense of achievement in their maternal role.

All models contained following covariates: age, the number of children, residence years, occupational status, educational status, subjective economic status, subjective health status, possession of a tablet device, the degree of the actual experience of challenges with parental control.

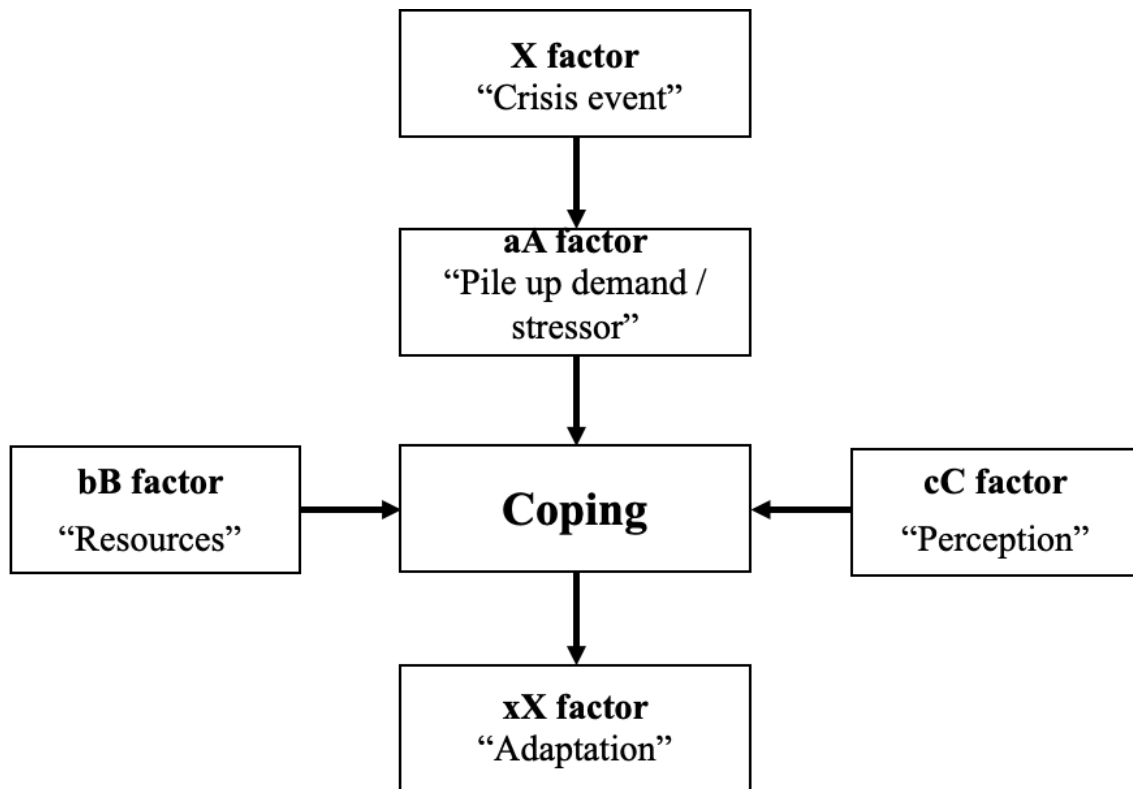
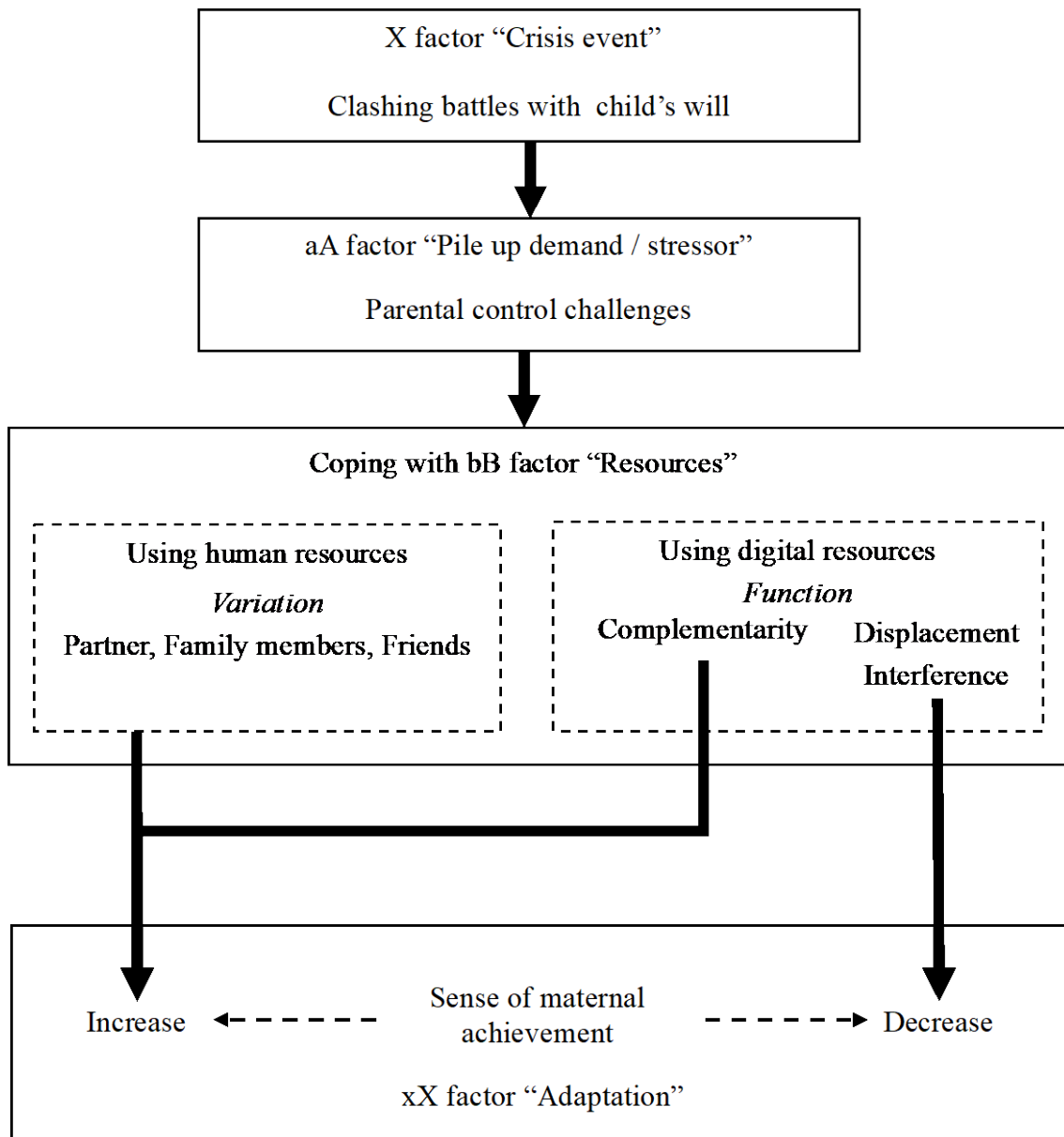
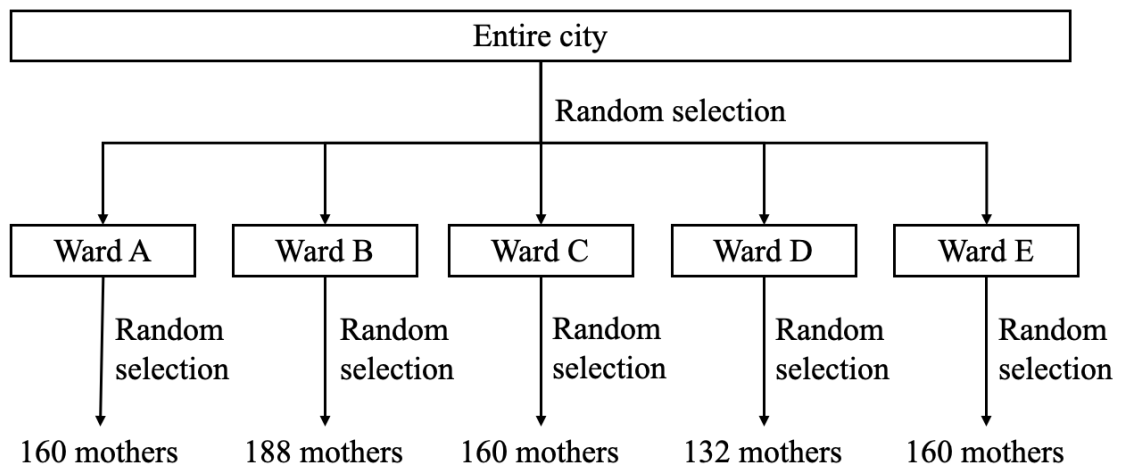


Fig. 1 The Double ABCX model (McCubbin & Patterson, 1983)

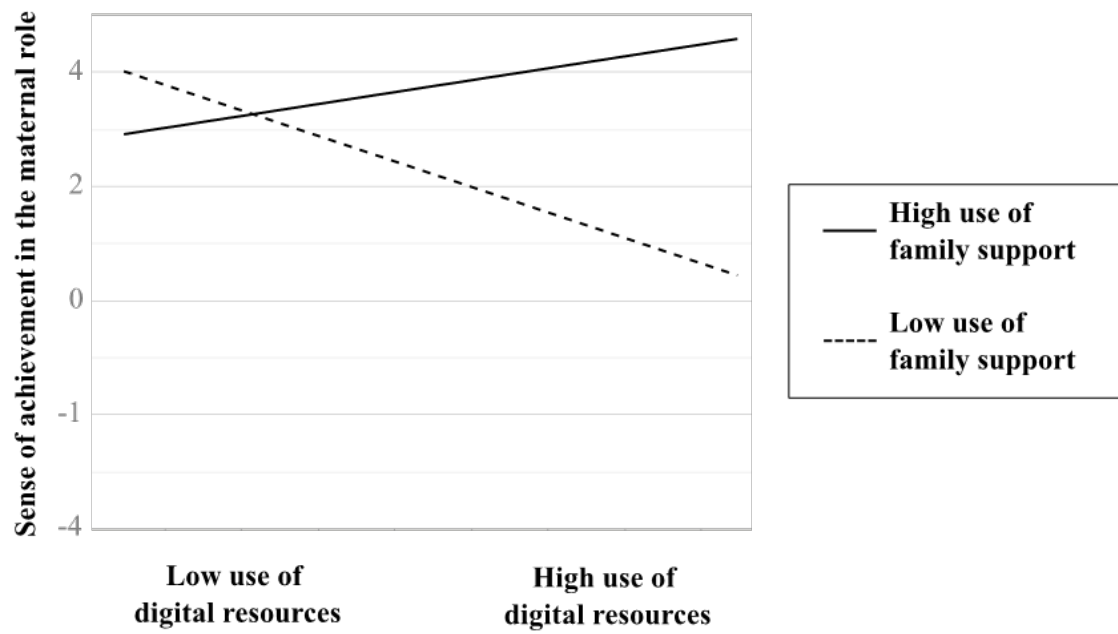


**Fig. 2 Theoretical framework: Process for overcoming parental control challenges using human/digital resources**

*Note. This conceptual model was created by integrating the Double ABCX model with the DIC framework. The solid arrows indicate the process by which mothers face and resolve or unresolve crisis events related to parental control. Dashed arrows indicate the direction of increase or decrease in sense of maternal achievement.*



**Fig. 3 Stratified random sampling process**



**Fig. 4 Simple slope analysis**

*Note. The simple slope indicates the interaction of maternal use of family support and digital resources, predicting a sense of achievement in the maternal role. Each independent and dependent variable is centralized.*