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Factors Affecting Maternal Uneasiness With Child-Rearing Comparative Study of Mothers With First-Born Children And Second-Born or Later Children Who Received 3-Month Health Check-Up

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Abstract

Objectives: It is important to note that until now most of the Japanese government services for maternal welfare and child-rearing are for mothers of first children. However, as the number of children increases, the burden of care increases. Therefore, this study aimed to determine the factors that affect child-rearing uneasiness of mothers with their first child and those with two or more children, by analyzing data obtained from mothers at the 3-month health checkup after delivery in Japan.

Study design: Cross-sectional design

Methods: From April 2005 to December 2009, 2552 infants underwent health checkups designed for infants. The questionnaire included the following maternal factors: maternal age at delivery, birth order, fatigue, disturbed sleep, anorexia, depression, low energy, loneliness, uneasiness, irritation, large gap between reality and perception, financial anxiety, child-rearing support, individuals who can provide advice concerning child-rearing.

Results: It was found that in the first child group, maternal uneasiness was affected by fatigue (OR=3.843), disturbed sleep (OR=2.155), mothers' loneliness (OR=3.016), feeling a large gap between reality and perception (OR=2.875), feeling irritated (OR=2.093) and financial worry (OR=2.493) and experience of child's sickness (OR=1.259). On the other hand, in the second or later child group, maternal uneasiness was affected by fatigue (OR=3.781), mothers' loneliness (OR=3.321), feeling irritated (OR=2.397) and financial worry (OR=2.675), experience of child's sickness (OR=1.390) and mothers' deliveries pathologies (OR=1.396).

Conclusions: It is likely that maternal uneasiness with the first child and with the second or later child was affected same factors except a few factors. In Japan, efforts to create a society where parents can give birth and raise children without worry have started. It is very important for families with children to be able to choose and utilize support and services suited to them.

Keywords: Maternal uneasiness; Birth order; Child-rearing and 3-month health checkup after delivery

Introduction

The rapidly declining birthrate, the current situation of people's reduced desire to be married, have children, and raise them, inadequate support for children and childcare in terms of both quality and quantity, and an increased sense of isolation and burden of childcare are serious problems in Japan [1]. There is a review that compared folk theories and empirical evidence about the influence of parenthood on happiness and life satisfaction in Western societies [2]. The review reported the "costs of children hypothesis" as follows. First, parenting has psychological costs in terms of worries, fatigue, sleep deprivation, and sacrifice and loss of personal freedom. Second, raising children can have "marital costs" (e.g., cause marital discord and dissatisfaction) that are either direct (by reducing sex, affection, and time spent together) or indirect (via psychological distress). Third, children can have substantial financial costs. Fourth, parenthood can have marked opportunity, costs in terms of career, income, and education, especially in women in gender-egalitarian Western societies. In Japan, emergency measures to overcome the declining birthrate crisis were decided by the 13th meeting of the Council on Measures to cope with a Society with a Declining Birthrate on June 7, 2013 [3]. 'Childcare support', 'work style reform' and 'marriage, pregnancy, and child delivery support' have been set forth as a new pillar of the measures. The new system, called "Support System for Children and Child-Rearing", focuses on providing seamless services from birth through the various stages of development. The health and welfare section of local government provides health services such as a visiting guidance program for mother and child and a visiting program for all families with infants. During the period from the return home after delivery to the medical checkup for 3-month-old infants, a visiting midwife or nurse will visit the infant's home to confirm the health condition of the infant and mother (or guardian), and provide counseling and guidance regarding child-rearing. In addition, an infant medical checkup program is provided. Checkups are held for infants of 3 months and 18 months and also at three years. Depending on the results, child development consultations and detailed examinations are offered as necessary. In Japan, the percentage of local governments providing some form of child-rearing support in conjunction with the timing of child health checkup services has increased from 64.4% in 2001 to 91.8% in 2009 [4].

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Regarding child-rearing anxiety, less attention has been paid to maternal depression. A recent cross-sectional study found that in Japan, "child-rearing anxiety" is the more commonly used term, and child-rearing anxiety and parenting stress are considered to be very similar concepts that are often used without clear definition [5]. Arimoto and Murashima [5] explored the variables associated with child-rearing anxiety in 371 mothers of children who underwent the 18-month health checkup. As a result, mothers with higher child-rearing anxiety had less childcare satisfaction and more depressive symptoms, were more worried about the child, and received less spousal and social support. Recent study that was published in 2013 has shown that child-rearing anxiety could be classified into four categories: (a) sense of stagnation and sacrifice, (b) fatigue, (c) lack of confidence, and (d) dissatisfaction in Japan [6]. The child-rearing anxiety scale for mothers of a 1-2 month old child is part of a questionnaire developed in Japan [7]. In this questionnaire, child-rearing anxiety is defined as "a lack of confidence or anxiety associated with child-rearing, feeling of fatigue in communicating with the child, desire to escape from child-rearing, and feeling of isolation from society due to child-rearing." Previous research has shown the association of the presence of advisors on child-rearing with maternal anxiety and depressive symptoms in Japanese women when their infants were 3-4 months old and 9-10 months old [8]. Multivariate logistic regression analysis revealed that a close advisor (including family and relatives) and a professional advisor are required at two points (3-4 months and 9-10 months), while the companionship of other child-rearing individuals is required more at 9-10 months than at 3-4 months. Previous research that was published in 2012 has indicated that the criterion-based validity of a single question about child-rearing anxiety by comparing maternal responses to that question with responses to potentially related questions about child-rearing burden and maternal QOL in Japan [9]. It was found that child-rearing anxiety and child-rearing burden were very closely correlated, and child-rearing anxiety was also closely related to maternal QOL as measured by the WHOQOL-26. The research suggested that the response to a single question about child-rearing anxiety can be used to identify mothers who are experiencing stress or burden of child-rearing and relatively poor QOL.

Until now most of the Japanese government services for maternal welfare and child-rearing are for mothers of first children. In particular, prenatal classes and child-rearing classes and home-visit childcare support services are provided for first children on a priority basis. However, as the number of children increases, the burden of care increases. This study aimed to determine the factors that affect child-rearing uneasiness of mothers with their first child and those with two or more children, by analyzing data obtained from mothers at the 3-month health checkup after delivery in Japan.

Methods

From April 2005 to December 2009, 2552 infants underwent health checkups designed for infants. Of these, data on 2536 children, excluding 16 infants with unknown birth order, were used for analyses. Though 16 infants received check-ups, we couldn't include analysis because their birth orders were unknown. This sample included 1350 first-born children (53.2%), 915 second-born (36.1%), 239 third-born (9.4%), 28 fourth-born (1.1%) and 4 fifth-born (0.2%). We categorized first-born children as 1 (first child group) and second-born or later children as 0 (second or later child group). As a result, the first-born children group comprised 1350 children (53.2%) and the second or later children group comprised 1186 children (46.8) in this sample. As for the gender of children, there were 1308 boys (51.6%), and 1228 girls (48.4%). This study was conducted in F-ward of O city. O City has divided its area into 24 wards including F-ward. The F-ward developed as a commercial district close to the O city center. Transport is very convenient, with main highways and trains such as the JR Line, the municipal subway, and the Hanshin Line all running through major parts of the ward [10]. The population of F-ward was 60,959 on October 1, 2005, and 67,290 on October 1, 2009. Birth numbers was 575, (birth rate per 1000 people was 8.4) in 2005, and 661 (birth rate per 1000 people was 10.2) in 2009. The birth rate per 1000 people was about the same as in O city and the whole of Japan in 2009, but was higher than those in 2012. The proportion of children (aged 15 or less) was 11.3% in 2009 [11].

In Japan, health checkups for infants enable examination of all children in a region when they are 3-4 months, 18 months, and 3 years old. In O city, all families of infants receive information on the availability of health check-up by mail, and more than 98% of infants receive the 3-4 months examination. Table 1 summarizes the questionnaire. To measure uneasiness with child-rearing, we used the following question based on the previous article which has indicated that the criterion-based validity of a single question about child-rearing anxiety related questions about child-rearing burden and maternal QOL in Japan. "Do you have uneasiness with child-rearing?" and participants answered "yes" or "no".

We used chi-squared test to determine the significance of differences between various variables related to maternal factors and birth order. Univariate logistic regression analysis was used to assess the association between maternal uneasiness (dependent variable) and maternal factors (independent variables). In addition, we used multivariate ordered logistic regression models to determine the odds ratio (OR) of maternal uneasiness. We used SPSS (Version 20.0) for all analyses. All p-values presented are two-sided. The 5% significance level was used in the statistical tests.

Ethics

This study had the approval of the Ethics Committee of the School of Medicine, Osaka City University.

Table 1: Summarizes the questionnaire.

Mother's age (years old)
Morning sickness (absent/present)
Toxemia of pregnancy (absent/present)
Length of gestation (weeks)
Imminent abortion (absent/present)
Threatened abortion (absent/present)
Premature rupture of membranes (absent/present)
Child's age (months)
Child's sex (male/female)
Body length at birth (cm)
Body weight at birth (g)
Household members (people)
Type of home (apartment or detached house).
Maternal age at delivery (years old)
Birth order (first/second/third/fourth/fifth)
Fatigue (absent/present)
Disturbed sleep (absent/present)
Anorexia (absent/present)
Depression (absent/present)
Low energy (absent/present)
Loneliness (absent/present)
Uneasiness (absent/present)
Irritation (absent/present)
Large gap between reality and perception (absent/present)
Financial anxiety (absent/present)
Child-rearing support (absent/present)
Individuals who can provide advice concerning child-rearing (absent/present).

Table 2: Descriptive statistics for variables related to. first-born and second-born or later children.

	First-born children			Second-born or later children			
	N	Mean	SD	N	Mean	SD	p-value
Mother's age (years)	1333	29.2	4.7	1180	31.5	4.3	***
Length of gestation (weeks)	1302	39.1	1.9	1158	38.6	1.9	***
Body weight at birth (g)	1345	2974.7	414.4	1181	3020.7	432.1	**
Body weight (g)	1334	6638.5	764.4	1178	6716	819.2	*
Body length (cm)	1337	62.8	2.5	1178	62.7	2.8	n.s.
Head circumference (cm)	1335	41.1	1.6	1178	41.2	2.1	n.s

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

Table 3: Variables related to mothers' background (χ^2 test for independence).

	First-born children Positive	Second-born or later children Positive	p-value
	N (%)	N (%)	
Total sample (n=2536: 100%)	1350 (53.2)	1186 (46.8)	
Employed (n=1205: 47.5%)	789(65.5)	416(34.5)	***
Mothers' deliveries pathologies (n=854: 33.7%)	482(56.4)	372(43.6)	***
Severe morning sickness (n=217: 8.6%)	126 (58.1)	91 (41.9)	***
Imminent abortion (n=119: 4.7%)	59 (49.6)	60 (50.4)	n.s.
Threatened abortion (n=202: 8.0%)	102 (50.5)	100 (49.5)	n.s.
Toxemia of pregnancy (n=100: 3.9%)	75 (75.0)	25 (25.0)	***
Experience of child's sickness (n=395: 15.6%)	150(38.0)	245(62.0)	***
Child-rearing support: friend (n=460: 18.1%)	190 (41.3)	270 (58.7)	***
Child-rearing support: neighbor (n=176: 6.9%)	44(25.0)	132(75.0)	***
Child-rearing advisor: friend (n=1311: 51.7%)	692(52.8)	619(47.2)	n.s.
Child-rearing advisor: neighbor (n=282: 11.1%)	92(32.6)	190(67.4)	***

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

Results

Table 2 shows descriptive statistics (mean, SD, variance) for the variables related to birth order. The mean age of the mother of the first child group was 29.2 ± 4.7 years old and that of the mother of the second child group was 31.5 ± 4.3 years old. The mean gestational age was significantly longer and birth weight was significantly lower in the first child group than in the second or later child group. Whether the mother had severe morning sickness, imminent abortion or threatened abortion during pregnancy was not significantly different. Mothers of first children were more frequently diagnosed with toxemia of pregnancy.

Tables 3 and 4 show variables related to mothers' background (χ^2 test for independence) (Table 3) and mothers' feelings (Table 4). Mothers of first-born children more frequently responded mothers' deliveries pathologies. On the other hand, mothers' of two or more children more frequently responded the experience of child's sickness. For child-rearing support, mothers of two or more children more frequently responded that friends and neighbors provided child-rearing support. In addition, regarding individuals who can provide advice on child-rearing, mothers of two or more children more frequently responded that neighbors provided advice on child-rearing. Disturbed sleep, loneliness, a large gap between reality and perception, feeling serious and irritation were associated with mothers' anxiety. We examined the associations of each maternal factor with maternal uneasiness, using bivariate logistic regression models. Factors that had significant associations with maternal uneasiness in the bivariate logistic regression models were then taken forward to multivariate models (Table 5).

Regarding maternal uneasiness, in the first child group, mothers who felt fatigue showed a positive influence (OR=3.843; 95%CI: 2.792-5.289). In addition, mothers with disturbed sleep showed a positive influence (OR=2.155; 95%CI: 1.165-3.984), mothers who felt lonely showed a positive influence (OR=3.016; 95%CI: 1.709-5.323), mothers who felt a large gap between reality and perception showed a positive influence (OR=2.875; 95%CI: 1.427-5.793), mothers felt irritated showed a positive influence (OR=2.093; 95%CI: 1.380-3.174), mothers who felt financial worry showed a positive influence (OR=2.493; 95%CI: 1.475-4.216), and mothers who have the experience of child's sickness showed a positive influence (OR=1.259; 95%CI: 1.009-1.572).

In the second or later child group, for maternal uneasiness, mothers who felt fatigue showed a positive influence (OR=3.781; 95%CI: 2.329-6.138), mothers who felt lonely showed a positive influence (OR=3.321; 95%CI: 1.067-10.333), mothers who felt irritated showed a positive influence (OR=2.397; 95%CI: 1.525-3.766) and mothers who felt financial worry showed a positive influence (OR=2.675; 95%CI: 1.371-5.222), mothers who have the experience of child's sickness showed a positive influence (OR=1.390; 95%CI: 1.096-1.763), and mothers who have deliveries pathologies showed a positive influence (OR=1.396; 95%CI: 1.114-1.750).

Discussion

In this research, it was found that in the both first child group and second or later child group, maternal uneasiness was affected by fatigue, mothers' loneliness, feeling irritated, financial worry and experience of child's sickness. In Japan, child-rearing support such as the home visiting service and motherhood classes are mainly provided to mothers with their first child; however, there is room for future investigation of child-rearing support for mothers who have two or more children. On the other hand, only in the first child group, maternal uneasiness was affected by disturbed sleep, feeling a large gap between reality and perception. In particular, it is difficult to imagine the life with a newborn. Lack of sleep due to crying at night would be a burden. The lack of prospects for the development of children would make mothers anxiously. In addition, only in the second or later child group, maternal

Table 4: Descriptive statistics for variables related to mothers' feeings.

	First-born children Positive	Second-born or later children Positive	p-value
	N (%)	N (%)	
Total sample (n=2536: 100%)	1350 (53.2)	1186 (46.8)	
Worry about child-rearing (n=95: 3.7%)	60(4.4)	35(3.0)	*
Fatigue (n=825: 32.5%)	422(31.3)	403(34.0)	n.s.
Disturbed sleep (n=93: 3.7%)	56(4.1)	37(3.1)	n.s.
Anorexia (n=16: 0.6%)	7(0.5)	9(0.8)	n.s.
Depression (n=171: 6.7%)	83(6.1)	88(7.4)	n.s.
Low energy (n=59: 2.3%)	31(2.3)	28(2.4)	n.s.
Loneliness (n=81: 3.2%)	63(4.7)	18(1.5)	***
Irritation (n=435: 17.2%)	159(11.8)	276(23.3)	***
Large gap between reality and perception (n=55: 2.2%)	42(3.1)	13(1.1)	***
Poor health (n=93: 3.7)	53(3.9)	40(3.4)	n.s.
Financial worry (n=150: 5.9%)	84(6.2)	66(5.6)	n.s.

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

Table 5: Logistic regression models of maternal uneasiness.

	First-born children Odds ratio (95%CI)	Second-born or later children Odds ratio (95%CI)
Fatigue	3.843(2.792-5.289) ***	3.781(2.329-6.138) ***
Disturbed sleep	2.155(1.165-3.984) *	n.s.
Loneliness	3.016(1.709-5.323) ***	3.321(1.067-10.333) *
Feel large gap between reality and perception	2.875(1.427-5.793) **	n.s.
Irritated	2.093(1.380-3.174) **	2.397(1.525-3.766) ***
Financial worry	2.493(1.475-4.216) **	2.675(1.371-5.222) **
Experience of sickness (child)	1.259(1.009-1.572) *	1.390(1.096-1.763) **
Mothers' deliveries pathologies	n.s.	1.396(1.114-1.750) **
Mothers' age	n.s.	n.s.
Employed	n.s.	n.s.

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

uneasiness was affected by mothers' deliveries pathologies. Although the reasons why these factors significantly affect only in the second or later child group were not founded, there is room for argument on this point. In addition, there is no reference to comparing outcomes in this study to studies conducted in other countries.

Previous research has indicated the association between parenthood and subjective well-being using survey data obtained by the Japanese Government in March 2012 [12]. It was found that mothers who are not satisfied with the quality and availability of child-rearing are more likely to report that Ueda & Kawahara are unhappy compared to those who are satisfied with the existing childcare options. In Japan, to be able to raise healthy children with peace of mind, the prefectures provide specialized maternal and child health services (e.g., screening for congenital screening for inborn error of metabolism) and municipalities provide basic maternal and child health services (e.g., health checkups for expectant or nursing mothers, and infants and home-visit guidance for expectant or nursing mothers and newborn) [1]. A visit to all families with infants is a national project that began in 2007, in which all families with infants are visited within 4 months after childbirth to provide information on child-rearing support and assess the child-rearing environment. The purpose is the prevention of isolation and child-rearing uneasiness during child-rearing.

Previous review found that contrasts in cultural and institutional frameworks mirror contrasts in findings [2]. For example, the effect of parenthood on well-being is generally negative in the U.S. and Australia, but neutral or (among women) positive in Nordic countries. It was concluded that the finding that parents in countries at the forefront of both family-friendly policies and gender-equality derive the greatest emotional benefits from having children suggests that cultural and policy differences may shape the balance of rewards and costs associated with parenting (e.g., by alleviating work-family conflict). Moreover, recent study that was published in 2012 using data from the European Social Survey (SEE) across more than 20 European countries from 2002 to 2008 reported that parents are happier than non-parents, given that, even after controlling for individual and country characteristics, coefficients generally stay positive and significant [13]. When Aassve et al. [13] regressed happiness on the number of children together with a binary indicator indicating parenthood, the association between childbearing was positive and significant for men only. Additional children, after the first born, did not increase mothers' subjective well-being while they increased fathers' subjective well-being in European countries. They discussed that one explanation for fathers do not perceive the same child rearing difficulties with more than one child may be that mothers have in combining family and working careers. It was also found that mothers' level of happiness appeared to be more strongly affected by country of residence, by factors such as lack of welfare provision and lack of close family ties. In addition, it was found that a very strong interaction between happiness, partnership and child-rearing in European countries.In Japan, child care participation rate of fathers are very low as compared to the Western European countries. Rising fathers' awareness concerning their participation in childcare and the extent of their real involvement are useful to reduce the burden of mothers. As to the obstacles to their childcare participation, social factors in Japan such as longer working hours or difficulty in taking

holidays. It would be necessary to rethink work-life balance of parents raising children.

Previous study have overcame the limitations of existing analyses and showed that genetically happier personality traits may be positively associated with a higher likelihood of childbearing by using data on identical Danish twins in 2005 [14]. It was found that first-born children are an important source of happiness for women aged 25-45. Moreover, having additional children reduces the subjective well-being of women while not affecting the well-being of men. Kohler et al. [10] suggested that the influence of children on happiness may be partially nonlinear. Having children brings both positive and negative influences on well-being. We have no definite information on comparing outcomes in this study with a study of identical Danish twins.

As for financial worry, a child allowance based on the Child Allowance Act, with the aim of contributing to the stability of life in households caring for a child and improving the quality and health care of children, who will lead society in the next generation, will be provided to parents raising a child in Japan. The monthly allowance is 15,000 yen per child for children aged 0-3 years old, 10,000 yen for the first and second child for children aged 3 years old to the 6th grade of elementary school, 15,000 yen for the third child and above for children aged 3 years old to the 6th grade of elementary school, 10,000 yen per child for junior high school students, and 5,000 yen per child for individuals who exceed the income limit [1]. It is not only paid the allowance, enhancement the system in which mothers can work while raising children would also be necessary.

Recently, the key words, "children first" have been used in the Vision for Children and Childcare decided by the Cabinet on January 29, 2010 in Japan. This means "placing children at the center stage in society" [15]. In addition, "change in countermeasures against declining birthrate to child and childcare support" and "Work-Life-Childrearing balance" are also seen as basics of society to support children and child-rearing. In the Draft Act on Child and Childcare Support, Draft Act on Integrated Child Care Centers, Draft Act on Arrangement of Relevant Acts Incidental to Enforcement of the Action Child and Childcare Support, and the Act on Integrated Child Care Centers decided by Cabinet and three draft acts related to new child and childcare systems were submitted to the Diet on March 30, 2012 and were approved in August 2012 after being revised in the course of deliberations at the Diet [1]. Now, Japan is in the process of building a new system for child-rearing support.

The purpose and main points of the three Acts related to children and childcare are (1) creation of common benefits across certified child care centers, kindergartens, and day-care centers, (2) improvement of the certified child care center system and (3) enhancement of child and childcare support according to the actual situation in individual regions. This Act was constructed from following two frames, "Benefits for Child and Childcare Support" and the "Community-based Child and Childcare Support Project" [1]. In Japan, efforts to create a society where parents can give birth and raise children without worry have started. It is very important for families with children to be able to choose and utilize support and services suited to them. These measures contain service support for each first-born child, second-born child and third or later-born child. Childcare needs to be supported by the entire society to realize individuals' hopes.

Limitations

This study was a population-based study utilizing questionnaires of the 3-months health checkup after delivery, and has the following limitations. First, these data were collected from the population of O City, and cannot be interpreted as applying to Japan as a whole. Second, mothers' feelings and child-rearing environment will greatly change after 3-months, and should continue to be checked. This study only analyzed data from the health-checkup records on infants aged 3-5 months. Further analysis at 18 months or 3 years old may be benefit to develop recommendations for ensuring effective support for childrearing woman.

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