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著者	Miyano Sachiko, Okamoto Rie, Yamada Yuko
著者別表示	宮野 幸子, 岡本 理恵, 山田 裕子
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The association between the interpersonal attitudes of mothers with infants in Japan and their desire for childcare support services

Sachiko Miyano¹⁾³⁾, Rie Okamoto²⁾, Yuko Yamada³⁾

Abstract

Purpose: It has been found that loneliness, burden of childcare and anxiety, which are factors in child abuse, can be impacted by a mother's internal working model (IWM) of attachment. However, no reports have been published to date regarding the association between mothers' IWM and their desire for childcare support services. The purpose of this study is to clarify the association between mothers' IWM, which is reported to be associated with feelings of loneliness, childcare burden and childcare anxiety, and their desire for childcare support services. Additionally, this study aims to formulate recommendations for childcare support that takes interpersonal attitude characteristics into account.

Method: An anonymous self-administered questionnaire survey was distributed to mothers who sought health check-ups for their 18-month-old children at public health or other health centers in prefecture 'A' in Japan from August to November 2020.

Results: Responses were obtained from 790 of the 2,375 women who fit the above criteria (33.3% response rate) and responses from 719 women were included in the analysis (91.0% of the women who returned surveys).

Mothers with ambivalent IWM and avoidant IWM scored higher in loneliness and childcare burden. Mothers with ambivalent IWM also scored high in sense of anxiety about childcare.

In terms of desire for childcare support services, many mothers with ambivalent type IWM desired consultation and temporary childcare services from community childcare support center programs, and few desired improvement of center environments and information. Few parents with avoidant type IWM desired parent-child group interaction.

Conclusion: We found that mothers' IWM was associated with loneliness, childcare burden, childcare anxiety, childcare positivity and, furthermore, with their desire for childcare support services. Therefore, we believe that childcare support services that consider the characteristics of mothers' interpersonal attitudes are necessary.

KEY WORDS

Inter Working Model, mothers of infants, childcare support services

Introduction

Amidst changes in the social environment in Japan, such as a declining birth rate, increasing number of nuclear families, and weakening of community ties, childrearing has become a heavier burden because of

increasing isolation, given the lack of individuals in the local community with whom mothers can consult¹⁾.

Loneliness, childcare burden and childcare anxiety are known factors in child abuse among mothers with infants²⁾. In response to declines in childcare functions,

1) Division of Health Sciences, Graduate School of Medical Sciences, Kanazawa University

2) Institute of Medical, Pharmaceutical and Health Sciences, Kanazawa University

3) Nagoya Women's University

the loneliness parents experience while raising children, and increased childcare-related burden and anxiety, the Japanese Ministry of Health, Labor and Welfare established Community Childcare Support Services in 2012 to provide and promote opportunities for parent-child group interaction and to provide childcare-related consultation as well³⁾. Furthermore, the Ministry of Health, Labour and Welfare commenced the establishment of the Comprehensive Support Centers for Families with Children in 2017 with the aim of providing integrated childcare support services (e.g. community child-rearing support projects) and mother-child health services (e.g. mother-child health projects)⁴⁾.

To date, community childcare support center program has included promotion of parent-child interactivity, that is, opportunities for interaction among different parents and their children, and implementation of childcare consultations, initiative which have been expanding to support all families in the community who have children³⁾. However, it has been reported that some mothers do not participate in community childcare support center program because of difficulties in interpersonal relationships and mismatched needs⁵⁾.

Previous studies have shown that mothers' loneliness, childcare burden, childcare anxiety, and childcare attitudes are influenced by environmental factors such as social support as well as by individual factors such as each mother's internal working model of attachment (IWM)⁶⁻¹⁰⁾. The IWM is a cognitive structure proposed by Bowlby¹¹⁾ in attachment theory that determines a person's relationship with others, as it is a mental representation of the attachment object and the self. It is a judgment on "the extent to which others respond to the desires of the self" and "the extent to which the self is accepted by others". A child's attachment relationship with his/her caregiver (mainly the mother) is fully established by the age of 2-3 years. The formed IWM becomes the prototype of interpersonal relationships and is said to remain relatively unchanged throughout life. Hazan and Shaver¹²⁾ identified a secure IWM type and two unstable types, avoidant and ambivalent/anxious, and developed a scale to measure IWM. Takuma et al.¹³⁾ then developed a Japanese version of the adult IWM scale and found that IWM is applied in various interpersonal relationships.

Previous research on IWM in mothers with infants reported that those with ambivalent and avoidant type IWM had high levels of loneliness^{7,8)}. It has been furthermore reported that mothers with ambivalent type IWM can have negative feelings about childcare⁹⁾, consider childcare highly difficulty¹⁰⁾, and have abusive childcare-related attitudes¹¹⁾. Moreover, it has been reported that even when mothers with ambivalent and avoidant type IWM have considerable experience consulting with experts, they find it difficult to consult with experts about their child-care related concerns⁹⁾. These findings suggest that mothers' IWM can influence their feelings of loneliness, childcare burden, childcare anxiety, and attitudes toward childcare and that mothers' expectations for childcare support services differ according to the characteristics of IWM. Thus, it is important for providers of childcare support services to include childcare support services that consider IWM characteristics and meet the needs of mothers with a high sense of loneliness, childcare burden, and anxiety. However, to date no studies have been published that explicitly analyse the association between mothers' IWMs and their desire for childcare support services. The purpose of this study is to clarify the association between mothers' IWM, which is reported to be association with feelings of loneliness, childcare burden, childcare anxiety, and their desire for childcare support services. Additionally, we aim to formulate recommendations for childcare support that take interpersonal attitude characteristics into account.

Method

1. Definition of terms

In this study, "interpersonal attitudes" refer to attitudes toward others. It is not a behaviour that superficially appears but rather a persistent way of thinking or feeling that determines an individual's behaviour toward a social object, or a tendency to react to that object.

2. Participants and survey methods

1) Participants

This study targeted the 2,375 mothers whose children underwent health check-up at 18 months old at seven public health centers or other health centers in prefecture 'A' in Japan. However, when fathers or grandparents attended the check-up with their children,

the survey was not distributed to them.

2) Survey distribution and data collection

A member of the research team requested permission from the head of the relevant department at each health check-up venue to distribute an anonymous self-administered questionnaire to certain mothers through the public health nurse. As per a statement accompanying the survey, return of the survey constituted consent to participate. Some forms were returned by mail and others were collected directly by the researchers at the health check-up venue.

3) Period of survey administration

The survey was administered from August to November 2020.

3. Survey items

1) Basic attributes

Age of mother, family structure, period of residence in the current area, household finances, employment status, status of childcare leave, sex of the child and birth order of child, status of admission to nursery school was requested.

2) Interpersonal attitude

Interpersonal attitudes were measured using the IWM scale¹⁴⁾. The IWM scale measures interpersonal attitudes based on awareness of the relationship between self and others and includes three classification types: secure, ambivalent, and avoidant, with six subscale questions for each type. Secure, ambivalent, and avoidant subscale scores range from 6 to 36 points. The higher the subscale score for each type, the stronger the respondent's interpersonal attitude characteristics for that type. The scale's reliability and validity have been confirmed^{13,15)}. In this study, the IWM type (subscales) with the highest sum of scores was defined as the participant's IWM. Additionally, because this study aimed to clarify the relationship between IWM characteristics and desire for childcare support services, surveys from respondents who scored the same on the IWM subscales were excluded from the analysis.

3) Loneliness

Loneliness was measured using the Japanese version of the 3rd edition of the UCLA Loneliness Scale¹⁶⁾. The scale comprises 20 questions, and total scores range from 20 to 80 points. The higher the total score, the greater the level of loneliness indicated. The reliability and validity of this scale have been confirmed^{16,17)}.

4) Childcare-related feelings

The strength of participants' childcare-related feelings was measured using the childcare emotion scale¹⁸⁾. The scale comprises 16 items, 6 on childcare burden, 6 on childcare anxiety, and 4 on childcare positivity. Scores range from 6 to 24 points for childcare burden and childcare anxiety and from 4 to 16 points for childcare positivity. The higher the total score, the stronger the emotion indicated. The reliability and validity of this scale have been confirmed^{18,19)}.

5) Status of housework and childcare helper and someone to talk to

Status of housework and childcare helper was measured through items on the following: necessity of housework and childcare helper, relationships with helper, and satisfaction with helper; need for childcare/housework someone to talk to, relationships with someone to talk to, and satisfaction with the person to talk to; availability of mom-friends with whom to interact and empathize.

6) Awareness and use of childcare support services and desire for community childcare support center program

Awareness and use of childcare support services were measured through items on awareness and use of childcare circles, family support services, parent-child classrooms, a childcare information websites that provides childcare assistance, and community childcare support center program.

Items on desire for community childcare support center program were drafted with reference to previous studies investigating desire for childcare support services^{20,21)} and the effects of childcare support services²²⁾. Three relevant items were included: environment and information, parent-child group interaction, and counselling and temporary childcare services, with 9 sub items.

4. Analysis method

1) Confirmatory factor analysis (principal component analysis, and Valimax rotation) was conducted on the 18 items comprising the IWM scale, and 3 factors (secure type, ambivalent type, and avoidant type IWM) were extracted.

2) With IWM as the dependent variable and age, loneliness scale score and childcare burden/childcare anxiety/childcare positivity scale score

as independent variables, one-way analysis of variance and Kruskal-Wallis test were conducted. When significant differences were observed, multiple comparisons were undertaken using Tukey's HSD test and the Bonferroni test. The test was two-tailed, and $p < 0.05$ was considered statistically significant.

- 3) With IWM as the dependent variable and basic attributes, status of childcare and housework collaborators, awareness and use of childcare support services, and request for community childcare support services as independent variables, χ^2 test and residual analysis were conducted. The test was two-tailed, and $p < 0.05$ was considered statistically significant.

The statistical package SPSS ver. 27 for Windows was used for the analysis.

5. Ethical considerations

This study was conducted with the approval of the Kanazawa University Medical Ethics Review Board (Review No. 965-2, May 2020). A survey participation request letter attached to the survey clearly stated that participation in the survey was voluntary, that anonymity was ensured, and that responding to and returning the questionnaires constituted consenting to participation.

Results

Responses were obtained from 790 of the 2,375

mothers who received the questionnaire (33.3% response rate).

Of these, 779 (32.8%) were valid responses, and 11 were excluded because of significant missing data.

Regarding interpersonal attitudes, 387 (49.7%) mothers had secure type IWM, 238 (30.5%) had ambivalent type IWM, and 94 (12.1%) had avoidant type IWM. Sixty respondents (7.7%) scored the same on all three IWM subscales and their responses were excluded. A total of 719 people (92.3% of respondents) were included in the analysis.

1. Overview of participants

1) Basic attributes (Table 1)

Mothers' mean age was 33.8 ± 5 years. Nuclear families comprised 88.9% of the sample, and 90.5% of the participants had resided in the current area for over one year. Further, 38.2% of the participants reported having little or almost no financial means, and 43.4% were unemployed. Among employed participants, 36.6% were taking childcare leave. This was the first child for 45.1% of all mothers, and 67.7% were not sending their child to nursery school.

2) Factor analysis of IWM (Table 2)

Factor analysis was performed on the 18 IWM scale items revealing a cumulative contribution rate by three-factor analysis of 60.3%. The Cronbach α coefficient was 0.918 for factor 1 (secure type IWM), 0.846 for factor 2 (ambivalent type IWM), and 0.782 for factor 3 (avoidant type IWM).

Table 1 IWM and Basic Attributes

		Overall		Secure type IWM		Ambivalent type IWM		Avoidant type IWM		p-value
		n	Mean \pm SD	n	Mean \pm SD	n	Mean \pm SD	n	Mean \pm SD	
Age of mother (years)		625	33.8 \pm 4.5	341	33.7 \pm 4.6	200	33.5 \pm 4.3	84	34.4 \pm 4.3	0.324 ¹⁾
Family structure	Nuclear family	639	88.9	345	89.1	209	87.8	85	90.4	0.768 ²⁾
	Extended family	80	11.1	42	10.9	29	12.2	9	9.6	
Period of residence in current area	Less than one year	68	9.5	40	10.3	26	10.9	2	2.1	0.033 ²⁾
	More than one year	651	90.5	347	89.7	212	89.1	92	97.9	
Household finances	Have financial means/some financial means	443	61.8	237	70.7	113	47.7	57	60.6	<0.001 ²⁾
	No financial means/almost no financial means	274	38.2	113	29.3	124	52.3	37	39.4	
				Adjusted residual						
					0.9	0.9		-2.6**		
					-0.9	-0.9		2.6**		
					5.3***	-3.9***		0.4		
					-5.3***	3.9***		-0.4		
Employment status	Unemployed	312	43.4	162	41.9	113	47.5	37	39.4	0.271 ²⁾
	Employed	407	56.6	225	58.1	125	52.5	57	60.6	
Childcare leave	Taking childcare leave	147	36.6	88	39.5	42	33.9	17	30.9	0.377 ²⁾
	Not taking childcare leave	255	63.4	135	60.5	82	66.1	38	69.1	
Sex of child	Male	365	50.8	119	51.4	114	48.1	52	55.3	0.468 ²⁾
	Female	353	48.2	188	48.6	123	51.9	42	44.7	
Birth order of child	1st child	324	45.1	171	44.2	116	48.7	37	39.4	0.265 ²⁾
	2nd child or more	395	54.9	216	55.8	122	51.3	57	60.6	
Leave my child at a nursery school	Yes, I do.	232	32.3	128	33.1	70	29.4	34	36.2	0.436 ²⁾
	No, I don't	487	67.7	259	66.9	168	70.6	60	63.8	

1) One-way ANOVA

2) χ^2 test

p-value for adjusted residual ***p<0.001 **p<0.01

Table 2 IWM factor analysis

Item		1	2	3
Factor 1: Secure type ($\alpha=0.918$)				
Item 2	I tend to get close to people easily	0.899	-0.083	-0.071
Item 1	I tend to make acquaintances easily	0.875	-0.091	-0.060
Item 3	I think people find it easy to like my personality	0.830	-0.194	-0.079
Item 6	I am confident that I can get along well with people I meet for the first time	0.817	-0.188	-0.062
Item 4	I think most people like me	0.791	-0.254	-0.104
Item 5	I am dependable	0.710	-0.185	-0.204
Factor 2: Ambivalent type ($\alpha=0.846$)				
Item 10	Sometimes I worry that my friends don't really like me and that they don't want to be around me	-0.164	0.806	0.141
Item 8	Sometimes I wonder if people are reluctant to actually get close to me	-0.144	0.794	0.098
Item 12	I lose my confidence quickly over small things	-0.176	0.774	0.071
Item 9	I often can't trust myself	-0.080	0.757	0.083
Item 7	I tend to lose self-confidence	-0.389	0.628	-0.043
Item 11	I am easily misunderstood	-0.097	0.565	0.244
Factor 3: Avoidant type ($\alpha=0.782$)				
Item 15	I get irritated when people are too close to me or when people ask me to get closer than I would like.	-0.048	0.072	0.777
Item 16	I don't like to get too close to people	-0.260	0.078	0.768
Item 18	No matter how close our relationship is, I don't like it when a person acts too familiar	-0.028	0.154	0.710
Item 13	I don't like to rely on people	-0.110	0.158	0.633
Item 17	I don't think people can be fully trusted.	-0.194	0.263	0.593
Item 14	I think I can get along well enough on my own without depending on others.	0.061	-0.075	0.561
Sum of squared loadings		6.204	2.534	2.117
Contribution rate (%)		34.464	48.541	60.304

Principal component analysis: Kaiser(valimax)

2. Association between IWM and each factor

1) IWM and Basic Attributes (Table 1).

No association was found between IWM and mean age of mothers, family structure, employment status, childcare leave status, sex of child, birth order, or nursery school use status.

Those who had resided in the current area for at least one year had significantly more mothers with avoidant type IWM, 97.9% (adjusted residuals: hereafter referred to as residuals, 2.6, $p < 0.01$). Households with less financial means had significantly more mothers with ambivalent type IWM, 52.3% (residual 3.9, $p < 0.001$). And mothers with secure type IWM were significantly less at 29.3% (residual -5.3, $p < 0.001$).

2) Association between IWM and loneliness and childcare-related feelings (Table 3)

Loneliness scores were significantly higher among mothers with ambivalent type IWM (47.5 ± 9.1 points) and avoidant type IWM (44.9 ± 8.9 points) compared to those with secure type IWM (34.1 ± 7.7 points) ($p < 0.001$).

Mothers with ambivalent type IWM scored 12.9 ± 3.4 points for the childcare burden score, and those with avoidant type IWM scored 13.0 ± 3.9 points, both significantly higher than the 11.5 ± 3.5 points scored by mothers with secure type IWM ($p < 0.001$).

Mothers with ambivalent type IWM scored 13.0 ± 3.9 points for the childcare anxiety score, significantly higher than both the 11.4 ± 4.4 points scored by those with avoidant type IWM and the 10.7 ± 3.8 points scored

Table 3 Association between IWM and loneliness and child care-related feelings

	Overall		Secure type IWM		Ambivalent type IWM		Avoidant type IWM		p-value
	n	Mean ±SD	n	Mean ±SD	n	Mean ±SD	n	Mean ±SD	
Loneliness	719	40.0 ±10.5	387	34.1 ±7.7	238	47.5 ±9.1	94	44.9 ±8.9	<0.001 ¹⁾
Childcare burden	717	12.2 ±3.6	387	11.5 ±3.5	237	12.9 ±3.4	93	13.0 ±3.9	<0.001 ¹⁾
Childcare anxiety	717	11.7 ±4.2	367	10.7 ±3.8	237	13.0 ±3.9	93	11.4 ±4.4	<0.001 ¹⁾
Childcare positivity	717	14 (4-12)	387	14 (4-12)	237	13 (6-10)	93	13 (4-12)	<0.001 ²⁾

IQR : interquartile range

1) One-way ANOVA 2) Kruskal-Wallis test

p-value for multiple comparisons ***p<0.001

by those with secure type IWM ($p<0.001$).

Mothers with secure type IWM scored 14 (4-12) points for the childcare positivity score, significantly higher than both the 13 (6-10) points scored by those with ambivalent type IWM, and 13 (4-12) points scored by those with avoidant type IWM ($p<0.001$).

3) Association between IWM and status of childcare/housework helper and someone to talk to (Table 4)

No association was found between IWM and the mothers' need for someone to talk to about housework and childcare, or their relationship with someone to talk to.

Those who were dissatisfied or somewhat dissatisfied with their housework and childcare helper were significantly more likely to be of mothers with ambivalent type IWM, 17.7% (residual: 3.9, $p<0.001$) and significantly less likely to be of those with secure type IWM, 7.5% (residual: -3.4, $p<0.001$).

Those who had no mom-friends with whom they could interact were significantly more likely to be of mothers with avoidant type IWM (31.9%, residual 3.0, $p<0.01$) and ambivalent type IWM (29.0%, residual 4.0, $p<0.001$) and significantly less likely to be secure type IWM, 12.4% (residual: -5.8, $p<0.001$).

The lack of sympathetic mom friends was significantly higher for mothers with ambivalent type IWM, 27.3% (residual 4.4, $p<0.001$) and avoidant type IWM, 25.5% (residual 2.0, $p<0.05$) and significantly lower for secure type IWM, 10.9% (residual -5.5,

$p<0.001$).

No association was found between IWM and the need for a childcare and housework helper, relationship with the helper, and satisfaction with the helper.

4) Association between IWM and childcare support services (Table 5)

Those who knew about, or knew a little about, childcare circles were significantly more likely to be mothers with secure type IWM, 67.2% (residual 2.9, $p<0.01$) and significantly less likely to be those with ambivalent type IWM, 56.3% (residual -2.3, $p<0.05$).

Those who had participated in childcare circles in the past and wished to participate again were significantly more likely to be of mothers with secure type IWM, 34.9% (residual 2.3, $p<0.05$). Mothers with avoidant type IWM were significantly higher at 17.0% (residual 2.1, $p<0.05$) among those who had participated in childcare circles in the past but did not wish to participate again.

No association was found between IWM and awareness of community childcare support center program.

The desire to use community childcare support center program was significantly higher for mothers with secure type IWM, 51.7% (residual 2.7, $p<0.01$) and significantly lower for mothers with avoidant type IWM, 32.3% (residual -3.1, $p<0.01$).

Those who did not wish to use or did not need to use community childcare support center program were

Table 4 Association between IWM and status of childcare/housework helper and someone to talk to

	Overall		Secure type IWM		Ambivalent type IWM		Avoidant type IWM		p-value
	n	%	n	%	n	%	n	%	
Helper required/somewhat required	681	94.7	363	93.8	229	96.2	89	94.7	0.422
No/almost no helper required	38	5.3	24	6.2	9	3.8	5	5.3	
Helper is husband	387	53.8	209	54.0	121	50.8	57	60.6	0.270
No helper/helper not husband	332	46.2	178	46.0	117	49.2	37	39.4	
Satisfied/mostly satisfied with helper	574	81.1	320	82.9	179	77.2	75	83.3	0.177
Dissatisfied/somewhat dissatisfied with helper	134	18.9	66	17.1	53	22.8	15	16.7	
Someone to talk to required/somewhat required	682	94.9	365	94.3	229	96.2	88	93.6	0.489
No one/almost no one required to talk to	37	5.1	22	5.7	9	3.8	6	6.4	
Someone to talk to is the husband	387	53.8	209	54.0	121	50.8	57	60.6	0.270
No one to talk to/someone to talk to other than husband	332	46.2	178	46.0	117	49.2	37	39.4	
Satisfied/mostly satisfied with the person to talk to	628	88.8	356	92.5	190	82.3	82	90.1	<0.001
Dissatisfied/somewhat dissatisfied with the person to talk to	79	11.2	29	7.5	41	17.7	9	9.9	
I have mom-friends I can interact with	572	79.6	339	87.6	169	71.0	64	68.1	<0.001
I don't have mom-friends I can interact with	147	20.4	48	12.4	69	29.0	30	31.9	
I have mom-friends I can empathize with	588	81.8	345	89.1	173	72.7	70	74.5	<0.001
I don't have mom-friends I can empathize with	131	18.2	42	10.9	65	27.3	24	25.5	

χ^2 test
p value of adjusted residual ***p<0.001 **p<0.01 *p<0.05

Table 5 Association between IWM and childcare support service

	Overall		Secure type IWM		Ambivalent type IWM		Avoidant type IWM		p-value
	n	%	n	%	n	%	n	%	
I know/have some knowledge of it	448	62.3	260	67.2	135	56.3	54	57.4	0.014
I don't know/mostly don't know	271	37.7	127	32.8	104	43.7	40	42.6	
I have participated and would like to participate again	224	31.2	135	34.9	67	28.2	22	23.4	0.047
I have participated and would not like to participate again	77	10.7	34	8.8	27	11.3	16	17.0	
I have not participated	418	58.1	218	56.3	144	60.5	56	59.6	0.552
I don't know/mostly don't know	478	66.5	251	64.9	161	67.6	66	70.2	
I have used the service	62	8.6	33	8.5	24	10.1	5	5.3	0.752
I have not used this service	678	94.3	363	93.8	225	94.5	90	95.7	
I know/have some knowledge of it	561	78.0	311	80.4	175	73.5	75	79.5	0.122
I don't know/mostly don't know	158	22.0	76	19.6	63	26.5	19	20.2	
I have used the service	317	44.1	64	16.6	111	46.6	42	44.7	0.577
I have not used this service	402	55.9	223	57.6	127	53.4	52	55.3	
I know/have some knowledge of it	241	33.5	136	35.1	77	32.4	28	29.8	0.377
I don't know/mostly don't know	478	66.5	251	64.9	161	67.6	66	70.2	
I have used the service	62	8.6	33	8.5	24	10.1	5	5.3	0.840
I have not used this service	657	91.4	354	91.5	214	89.9	89	94.7	
I know/have some knowledge of it	664	92.5	356	92.0	220	92.8	88	93.6	0.229
I don't know/mostly don't know	54	7.5	31	8.0	17	7.2	6	6.4	
I have used the service	612	85.1	322	83.2	210	88.2	80	85.1	0.004
I have not used this service	107	14.9	65	16.8	28	11.8	14	14.9	
I would like to use it if the situation is right	338	47.1	200	51.7	108	45.4	30	32.3	0.004
I do not wish to use or do not need to use it	319	44.4	154	39.8	115	48.3	50	53.8	
I do not wish to use or do not need to use it	61	8.5	33	8.5	15	6.3	13	14.0	0.004
I would like to use it if the situation is right	319	44.4	154	39.8	115	48.3	50	53.8	
I do not wish to use or do not need to use it	61	8.5	33	8.5	15	6.3	13	14.0	0.004
I would like to use it if the situation is right	319	44.4	154	39.8	115	48.3	50	53.8	
I do not wish to use or do not need to use it	61	8.5	33	8.5	15	6.3	13	14.0	0.004
I would like to use it if the situation is right	319	44.4	154	39.8	115	48.3	50	53.8	
I do not wish to use or do not need to use it	61	8.5	33	8.5	15	6.3	13	14.0	0.004
I would like to use it if the situation is right	319	44.4	154	39.8	115	48.3	50	53.8	
I do not wish to use or do not need to use it	61	8.5	33	8.5	15	6.3	13	14.0	0.004
I would like to use it if the situation is right	319	44.4	154	39.8	115	48.3	50	53.8	
I do not wish to use or do not need to use it	61	8.5	33	8.5	15	6.3	13	14.0	0.004
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I would like to use it if									

ambivalent type IWM, 31.4% (residual 2.6, $p < 0.01$) and significantly fewer those with secure type IWM, 19.8% (residual -3.5, $p < 0.001$) desired consultation and temporary childcare.

Discussion

1. Association between participants' attributes and their IWM

In the national survey²³⁾, the average ages of mothers at the birth of their first and second children were 30.7 and 32.7 years, respectively. When the children turned 1 year and 6 months old, the mothers' average ages were 32.1 and 34.1 years, respectively, which was not much different from the average age of 33.8 years in the present study. In another national survey of 2019²⁴⁾, the following was reported: 46.1% of mothers whose youngest child was a 1-year-old were unemployed, and 82.5% of mothers were part of a nuclear family. These numbers are similar to the ones obtained in the present study.

As such, in terms of basic attributes, the participants are a representative group of mothers with 18 month old children in Japan.

The results of factor analysis of the 1st factor (secure type IWM), 2nd factor (ambivalent type IWM), and 3rd factor (avoidant type IWM) corresponded to the results of the IWM scale found by Takuma et al.¹⁴⁾. Internal consistency was ensured by calculating the Cronbach α coefficient for each factor, and the results confirmed that the three factors were appropriate to examine in the present study.

2. Association between IWM and loneliness and childcare-related emotions

Mothers with ambivalent and avoidant type IWM presented higher negative scores for loneliness and childcare burden than those with secure type IWM. Conversely, those with ambivalent and avoidant type IWM presented lower scores for positive childcare-related feelings. Participants with ambivalent type IWM presented higher negative scores for childcare anxiety than those with avoidant and secure type IWM.

Sato et al.⁸⁾ observed similar results when studying maternal IWM, loneliness, and childcare burden. In a survey by Nakanishi et al.¹⁰⁾ on IWM and mothers' childcare difficulties, mothers with ambivalent type IWM reported high levels of "difficulty and lack of self-

confidence" and "depression and anxiety." Further, in investigating the association between mothers' IWM and their childcare-related thoughts, Kamata et al.⁹⁾ found that only mothers with ambivalent type IWM reported high levels of "suffering," "irritability," and "severe anxiety." In similar studies, mothers with ambivalent and avoidant type IWM reported higher feelings of loneliness and higher negative childcare-related feelings than those with secure type IWM, and the results of those studies were similar to these.

People with ambivalent type IWM are characterized by ambivalence in their personal patterns of trusting and distrusting others and a strong sense of self-incompetence¹²⁾. People with avoidant type IWM may adopt a self-sufficiency self-image in attempt to compensate for their expectations of rejection by others and their inability to expect help¹²⁾. These characteristics of ambivalent and avoidant types of IWM are considered factors in the high levels of loneliness and low childcare positivity.

3. Implications for IWM and childcare support services

1) Characteristics of mothers with ambivalent type IWM, and the childcare support services they need

Many of the mothers with ambivalent type IWM felt that their household finances was on a tight budget and were not satisfied with the people they consulted about childcare and housework.

Many of mothers with ambivalent type IWM desire consultations and temporary childcare from community childcare support center program, which is similar to findings in Kamata et al.⁷⁾ wherein mothers with ambivalent type IWM often consulted specialists.

Mothers with ambivalent type IWM tend to have a negative view of their own childcare²⁵⁾, so they experience high levels of anxiety and burden regarding childcare, and it is speculated that they may need to consult specialists and receive temporary childcare as a result. Given these facts, it can be inferred that anxiety over childcare among mothers with ambivalent type IWM requires professional evaluative support, which enables parents to positively perceive their own childcare and gain self-confidence.

In addition to needing emotional support in the form of empathy and understanding from others about the

difficulty of childcare, temporary childcare that allows parents to easily leave their children in other people's care is necessary in order to alleviate the burden of childcare.

Family support services to offer mothers childcare relief support to reduce the burden of childcare is essential. However, it has been pointed out that due to procedural difficulties, family support services are difficult to use²⁶⁾. Thus, a system that allows mothers to access family support services for temporary childcare should be implemented. Thus, it is desirable to implement a system where family support services can also provide the function of temporary childcare, so that mothers can have some respite.

Mothers with ambivalent type IWM may perceive the relationships among other mothers as "an exclusive group of close friends"⁹⁾. As such, they may find it difficult to engage in such friendships despite desiring opportunities for parent-child group interaction.

In order to facilitate parent-child group interaction for mothers with ambivalent type IWM, in addition to providing a place for parents and children to meet and interact with other parents and children, we believe that supports such as programs and facilities that promote interpersonal exchanges²⁷⁾ are necessary.

2) Characteristics of mothers with avoidant type IWM and their childcare support services needs

Mothers with avoidant type IWM tend to participate in society with minimal intimacy with others²⁸⁾. Accordingly, we found that many such respondents did not wish to participate in childcare circles and that many did not wish to use or did not need to use community childcare support center program. Further, many of the mothers with avoidant type IWM did not have fellow mom-friends they could interact and empathize with, and only a few desired participations in parent-child group interaction through community childcare support center program. Mothers with avoidant type IWM do not want to participate in such services despite their high levels of loneliness and childcare burden. Accordingly, development of interaction methods that take into consideration the characteristics of mothers with avoidant type IWM it is necessary. As with mothers with ambivalent type IWM, mothers with avoidant type IWM need a temporary childcare system that allows them to feel free to leave

their children in the care of others, in order to alleviate their childcare burden.

Kamata et al.⁵⁾ reported that, compared to people with secure type IWM, people with avoidant type IWM sought consultation with specialists because the specialist had "expert knowledge." That is, people with avoidant type IWM may seek information from others rather than direct interaction with them. As such, we believe that mothers with avoidant type IWM could benefit from informational support²⁶⁾ from specialists. Mandai et al.⁸⁾ reported that social media use may reduce mother's loneliness during childcare. Accordingly, we suggest that non-face-to-face communication and emotional support such as communication via social media, may be appropriate for mothers with avoidant IWM to help alleviate their loneliness.

4. Recommendations for childcare support services

At present, the questionnaires administered during infant health checkups mainly concern the child's situation and childcare and do not include questions about the mother's characteristics. We argue that in order to connect mothers to childcare support services based on their interpersonal attitude characteristics, it is important to understand the factors of individual mothers from the early stages of pregnancy, such as by including relevant items on interpersonal attitude characteristics through questionnaires in mother-child health handbooks and during health checkups for infants.

Until now, countermeasure against mothers' loneliness, childcare burden, and anxiety have emphasized making friends and availing of counseling through community childcare support center program. However, we found that some mothers do not want to interact with other mothers, in line with their interpersonal attitude characteristics. In order to prevent isolation among mothers with such interpersonal attitudes, providing them with information and exchanges using a childcare information website that provides childcare assistance in parallel with face-to-face interactions may be desirable. However, only 30% of respondents were aware that a childcare information website that provides childcare assistance existed and less than 10% of them had used such sites. In a survey by Ida et al.²⁹⁾ 80% of participating Japanese

mothers with infants use the Internet for childcare support because it is “easily available and can be used anywhere”; the study also found negative aspects such as that “reliable and detailed information cannot be obtained.”

As such, using childcare information website to convey childcare support information in an easy-to-understand manner to families with children is important. Ideally, childcare information website should provide parents with information and consultation services from experts.

This study clarified the relationship between participating mothers’ interpersonal attitude characteristics and their requests for childcare support services.

Limitations and future research prospects

It is speculated that mothers with infants were forced to live a closed-off and isolated life during the survey period of the present study because of self-quarantine requests as a result of the spread of COVID-19. Consequently, mothers may have felt lonelier than in normal times, which could have an impact on their sense of childcare burden. Consequently, mothers may feel more lonely than they do in normal times, which could have an impact on their sense of childcare burden. Furthermore, it can be inferred that there was also a stronger demand for childcare support services.

The present study was conducted in a particular part of Japan and the relationships found between maternal IWM, loneliness, and child-care related feelings were

similar to those found in previous studies; the results demonstrated high reliability and validity. However, as there are regional differences in the amount and content of childcare support services, studies that expand the regional scope are needed in the future. Further, in order to capture the characteristics of the interpersonal attitudes of mothers with each IWM type, the responses of mothers who scored the same on all 3 IWM subscales were excluded from the analysis, and thus not all participants’ responses were analysed.

In addition, IWM does not determine a person’s personality because a person can have characteristics of all three IWM types at the same time¹⁶⁾.

The purpose of this study was not to analyse the characteristics of mothers at high risk of abuse and their requests for childcare support services, but rather to analyse the correlation between IWM characteristics and request for childcare support services. Therefore, those with high IWM subscale scores and multiple types were excluded from the analysis in order to capture the characteristics of each type of IWM. However, because mothers with such types are also at high risk of abuse, future research needs to consider those who have the same score on multiple IWM types as well as the magnitude of the subscale scores.

Acknowledgment

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乳幼児を持つ母親の対人態度と子育て支援サービスへの要望との関連

宮野 幸子¹⁾³⁾, 岡本 理恵²⁾, 山田 裕子³⁾

要 旨

目的：児童虐待の要因とされる孤独感、育児負担感、育児不安感は、母親の内的作業モデル (Inter Working Model:以下IWMとする)が影響することが明らかとなっている。しかし、これまでに母親のIWMと子育て支援サービスへの要望との関連については報告されていない。本研究の目的は、孤独感、育児負担感、育児不安感と関連があるといわれる母親のIWMと、彼らの子育て支援サービスへの要望との関連を明らかにすることであり、さらに対人態度の特徴を考慮した子育て支援の示唆を得ることである。

方法：A県内の保健所または保健センターで、2020年8月から11月に行われた1歳6か月児健康診査を受診した母親に、無記名自記式質問紙調査を実施した。

結果：対象者2,375人中,790人(回収率33.3%)から回答を得、719人(回答率91.0%)を分析対象とした。

IWMのアンビバレント型と回避型の母親は、孤独感と育児負担感の点数が高かった。アンビバレント型の母親は育児不安感が高かった。子育て支援サービスへの要望では、アンビバレント型の母親は地域子育て支援拠点事業に、相談・一時保育を要望する者が多く、環境・情報の改善を要望する者が少なかった。回避型の母親は親子同士の交流を要望する者が少なかった。

結論：母親のIWMは孤独感、育児負担感、育児不安感、育児肯定感と関連し、さらに、母親のIWMは子育て支援サービスへの要望と関連することが明らかとなった。従って、母親の対人態度の特徴を考慮した子育て支援サービスが必要であることが示唆された。