The adaptation of Japanese obese children to nursery school and the behavior of the mothers toward their children based on attachment theory : an analysis of types of obesity

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Abstract

Objective: This study examined the adaptation of the 5-6-year-old obese preschoolers to nursery school and their mothers' behavior toward their children based on attachment theory. The study looked at the type of obesity based on a rapid increase through infancy and early childhood, and examined the association between the onset of progressive obesity and changes in family circumstances. **Methods:** Class nurses rated 187 obese preschoolers (109 boys and 78 girls) on the Child Obesity Adaptation Scales (COAS) which included five scales (lack of attention, withdrawal, aggressiveness, carelessness in making things, and non-activeness in play) related to children and three scales (roughness, unconcern and indulgence) to mothers. For progressive obesity, a checklist of changes in family circumstances was also completed. Obesity was classified as 'stable', constant through infancy and early childhood, and 'progressive', rapidly increasing from age 3 onwards. **Results:** According to the results of the COAS, girls with progressive obesity were more aggressive and the mothers of girls with progressive obesity were rougher. However, no differences appeared in boys. At the onset of obesity, half of the children with progressive obesity experienced negative changes in their family circumstances. **Conclusions:** This study suggested that (1) progressive girls and their mothers demonstrated insecure attachment characterized by aggression. (2) The onset of progressive obesity is associated with negative changes in the family circumstances of the child. Further, to prevent progressive obesity, it is proposed that the relationship between class nurses and children with insecure attachment to their mothers be developed.

Keywords: Adaptation to nursery school; Mothers' behavior; Attachment theory; Type of obesity; Stable and progressive; Preschoolers;

Introduction

World-wide, the prevalence of overweight and obesity among school-age and preschool children has increased dramatically since the 1970's[1)]. In Japan, similar results have been reported[2)] . These increases are disturbing as early childhood obesity is not only related to adolescent and adult obesity[3)] , but it also raises risks of chronic diseases such as type 2 diabetes[4)] , hypertension[5,6)] , and liquid abnormalities in blood[5,7)] . Therefore the prevention of obesity needs to start as early as possible and at latest from three years old[3)] .

There has been a call to support the notion that psychological research on obesity should be conducted within the context of the various systems in which the child and parent are involved[8)] . This system approach has been adopted in research on the prevention[9)] and treatment[10)] of obesity. However, the majority of studies on the relationships between obesity and psychological problems of children and mothers have only focused on individual problems. For example, with regards to children, research has been conducted on children's low self-esteem[11-14)] , depression[14)] , and school difficulties[15)] , whereas for mothers, research has covered the mothers' attitude toward their children[16)] and toward their children's eating habits[17,18)] . There is limited research examining the multiple relationships and/or interactions between family members[19-25)] . However, these studies only focused on clinically severe obese children. In order to prevent obesity from early childhood, researchers need not only to examine the factors directly related to eating habits, but also to investigate basic child-mother relationships in

daily situations. Then, if problems are identified, the researchers need to suggest whether psychological intervention to modify the relational dynamics between the child and his(her) mother is necessary, and upon implementation, conduct child eating support.

This study examines preschool obese children's adaptation to nursery school, the mothers' behavior toward their children, and the family circumstances surrounding the child and his(her) mother based on attachment theory[26]. In attachment theory, children explore their environment based on their feelings of security derived from a secure child-mother attachment system[26,27]. The mothers of children who have secure attachment are sensitive to the signals of their children, interact appropriately and have a consistent attitude toward their children under the same conditions[28]. In contrast, Trombini[8] suggested that mothers of obese children have an insecure attachment style and assumed that if a child has an insecure attachment with their mother, the child is unable to moderate any negative emotions from interaction with their mother and/or through some activity such as play. This failure to moderate their emotions may contribute to the child overeating.

In the present study, it is assumed that obese children fail to establish a secure attachment with their mothers and they have problems adapting well to nursery school. It is also assumed that the mothers of obese children do not treat their children appropriately. The following two assumptions are presuppositions of the hypothesis that: first, if children have established a secure attachment with their mothers during infancy and early childhood, they will develop appropriate social skills and cognitive competence which they will employ to adapt themselves to their social life[26,29]; second, mothers establishing a secure attachment with their children are sensitive to the signals of their children, interact appropriately and have a consistent attitude toward their children under the same conditions[28]. Here, social skills are defined as an ability to regulate one's own and others' needs when required and to convey one's needs to others effectively. Cognitive competence is defined as an ability to continue concentrating on one thing for a period of time. Hasegawa[30] investigated the behavioral characteristics of obese preschoolers and their mothers based on attachment theory. The following behavioral problems were found to be related to the degree of obesity. First, the children were dependent on others, displayed aggressive problems regarding social skills, and also displayed hyper-active problems regarding cognitive competence. Second, the mothers were insensitive to their children's physical condition, indifferent to their children, self-centered, and did not communicate with class nurses.

Previous research commonly focused on the difference in the degree of obesity observed among adults and children at a specific age, based on the assumption that 'the degree of obesity at one particular time positively correlates with the seriousness of the problems under examination.' However, the degree of obesity alone cannot suffice to explain the psychological problems. The association between the rapid development of obesity and serious psychological problems was investigated by Mellbin[31,32]. This research found that school children, in particular girls, who displayed a rapid development of obesity tended to exhibit serious psychological problems, including behavioral and learning problems. In spite of Mellbin's findings[31,32], there have been few further studies into the association between the psychological problems of preschooler and the rapid development of obesity. Therefore, this present study analyzes the rapid development of obesity in preschool children.

In order to clarify whether the rate in the development of obesity is associated with the presence of serious psychological problems, this research classifies the rate in the development of obesity into two different types; 'stable' and 'progressive'. Here, stable obesity was operationally defined as "stable through infancy and early childhood", and progressive obesity as "progressing rapidly from three years old". The research assumptions included that: children with stable obesity are consistently fatter than normal children along the normal growth curve; children with the progressive type are not only fatter than normal

children but also stray from the normal growth curve from age three onwards. It was also assumed that progressive obesity is abnormal growth, due to the extent to which a child with progressive obesity strays from the normal growth curve. However, there is a need to clarify the association between progressive obesity and serious psychological problems of the child and mother. This association was investigated in Hasegawa[33,34]. The behavior of mothers when their children showed negative emotions was examined using a questionnaire. This research concluded that compared with the mothers of girls with stable obesity, the mothers of girls with progressive obesity did not take appropriate care of their children, at such times. However, this difference did not appear among the mothers of boys.

This present study employs the Child Obesity Adaptation Scales（COAS）developed in Hasegawa [35]. The COAS is based on attachment theory and was employed to analyze children's adaptation to nursery school and the mothers' behavior toward their children. In Hasegawa[35], the COAS showed that the higher the degree of obesity, the more likely it was that the children would display the following patterns of behavior; lack of attention, withdrawal, aggressiveness, carelessness in making things, and non-activeness in play. Furthermore, the higher the degree of obesity the children displayed, the more likely it was that the mothers would show the following behavior toward their children; roughness, unconcern and indulgence.

In this research, using only the obese children's sample from Hasegawa's sample[35], the differences between stable and progressive obesity are investigated. The purposes of this study is to confirm the following hypothesis: Hypothesis 1, Children with progressive obesity will display more serious problems than stable type on the COAS reflecting a more insecure attachment between child and mother leading to maladaptation to social life; Hypothesis 2, There will be a clear association between the onset of progressive obesity and more serious psychological problems and this is in turn is associated with changes in the social circumstances of the family.

Method

Participants

In Japan, BMI [Body Mass Index: weight（Kg）/ height^2（m）] of 17 or above is defined as overweight, BMI of 18 or above as obese[36]. From the 793 nursery school children（394 boys and 403 girls）in the 'five-year-old' classes at the 39 public nursery schools in Koto ward, Tokyo, 187 children（109 boys and 78 girls）had BMI of 17 or above and thus were selected as research participants. The BMI was based on the heights and weights of the children measured during the monthly health examination at the nursery school in the November of that year. Of the 187 children, 39 boys and 44 girls were classified as overweight（$17 \leqq \text{BMI} < 18$）, 44 boys and 23 girls were moderately obese（$18 \leqq \text{BMI} < 20$）, and 28 boys and 11 girls were obese or severely obese（$20 \leqq \text{BMI}$）.

The age range of the participants was from 71 to 83 months with the mean age of 77.82（$SD \pm 3.34$）months for boys and 77.95（$SD \pm 3.41$）months for girls.

The classification of the type of obesity by the difference in the process of obesity（stable type and progressive type）

The obese and overweight children whose BMI was 17 or above were classified as stable or progressive obesity based on a series of recorded scores of the monthly BMI from the time of the child's entrance into nursery school to that November（Fig.1）.

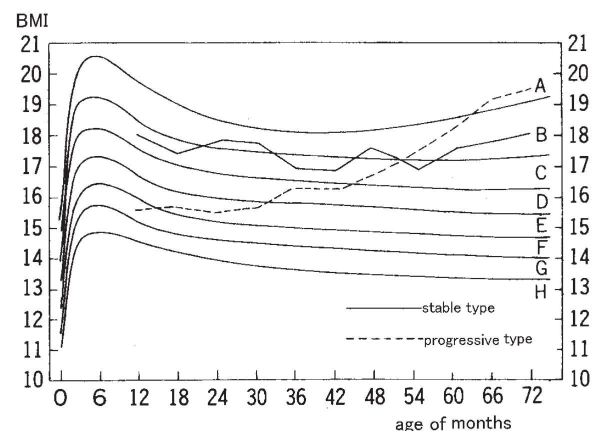

Fig.1 An example of the stable type and progressive type of obesity.
The seven lines represent the three, 10, 25, 50, 75, 90 and 95 percentile values of BMI respectively.

For each child, the mean BMI for every six month period, starting at the age of seven months, and the BMI of that November were plotted against eight (A-H) percentile bands of percentile values for the growth curve of Japanese infants and preschool children in 1992[36] shown in Fig 1. A child was considered as progressive if there was a two-band or more increase in the mean BMI during the 37-42 month-age period and the final BMI measurement of that November. A child was defined as stable if the child exhibited an increase of under two bands. When the participants did not enter nursery school before 42 months of age, the time of entrance was taken as the starting point of measurement of BMI. The mean BMI for the 43-48, 49-54 or 55-60 month-age periods was calculated. The starting point in terms of the band corresponds with the mean BMI. Excluding nine boys and nine girls who entered their nursery school after the commencement point for the four-years-old class, 54 boys and 50 girls were classified as stable, 46 boys and 19 girls as progressive.

For the purpose of comparison, a random sample of 166 children (85 boys, 81 girls) was taken from the remaining 606 (793-187) children with BMI of under17 using a table of random numbers. Of this sample, only three children (three boys, no girls) exhibited increase of more than two bands during the same period. Accordingly, it appears rare that a normal-weight child would exhibit an increase of more than two bands. The validity of this classification of obesity and the growth in preschoolers' obesity was confirmed in Hasegawa [35].

The Questionnaire

The Child Obesity Adaptation Scales (COAS; Appendix)

The COAS[35] consists of 39 items, of which 26 items refer to the children's problems in adapting to nursery school on five scales (I: lack of attention, II: withdrawal behavior, III: aggressive behavior, IV: carelessness in making things, V: activeness in play), and 13 items refer to the mothers' behavior toward their children on three scales (VI: roughness toward their children, VII: unconcern toward their children, VIII: pampering their children) . Responses of the COAS were rated on a 4-point Likert scale ranging from 'always' (4) to 'never' (1) . All of the types of behavior which were included in the COAS were observed in the children's daily life at nursery school. The Cronbach's coefficient alpha reliability of each scale was 0.85, 0.82, 0.80, 0.73 and 0.58 for I to V 0.81, 0.63 and 0.67 for VI to VIII. The content validity for the eight scales was confirmed in Hasegawa[35] .

The checklist for the progressive type

A checklist of 17 items regarding any changes in the circumstances of the child or any member of the child's family at the onset of obesity was created for children displaying progressive obesity. Theses items were created based on answers from class nurses during interviews at prior to the present research. Usually, in Japanese public nursery schools, class nurses are fully aware of the circumstances of a child's family. Fifteen items were concerned with changes in family circumstances, one item with any change in the child's eating habits, and the last item was 'no change'. If the circumstances of the child had any other kind of change, a column was provided for a description.

Procedure

This research was conducted as part of a study on child-mother attachment and preschoolers' adaptation to nursery school. Following discussions with the committee of Presidents, the members of which have control over the nursery school in the sample group, permission was given to undertake the research providing the privacy of the children was guarded and that the collected data was not open to other external research. The purposes of this research were explained to the class nurses by individual presidents, and all of the nurses expressed a willingness to participate. Next, a more general explanation of the research was provided to the mothers by the presidents and no mothers objected to the project. If any mother had objected, we were prepared to exclude their children's data. The COAS and the checklist for the progressive type obesity were distributed to each nursery school, and were

rated by the class nurses, then collected a month later. When the class nurse rated the checklist, the nurses were given a graph of the growth curve for each child specifying the onset of obesity.

The response rate for the COAS was 100.00%. However, checklists for nine children (eight boys and one girl) were incomplete resulting in a valid response rate of 86.95%. At the completion of the research, the findings were reported back to the committee and to the class nurses in order to assist in the provision of care for obese children at the nursery schools.

Statistical analyses

Two-way ANOVAs were conducted to examine the main effect of the type of obesity, sex and personal interactions according to the scores on the eight scales of the COAS. Subsequently, to examine any difference due to sex, chi-squaretests were conducted on the frequency of each item in the checklist and t-tests were conducted on the number of items checked for each child.

All statistical analyses were performed using SAS software, Version 8.2[37) . All the statistical tests reported were two sided. Differences at $P<.05$ (two-tailed) or better were accepted as statistically significant.

RESULTS

The comparison of scales of the COAS for the different types of obesity

The results of two-way ANOVAs of the eight scales of the COAS are shown in Table1.

First, there were significant interactions between sex and obesity on scale II 'children's withdrawal behavior', scale III 'children's aggressive behavior', and scale VI 'mothers' roughness toward their children'. So for these three scales, there were main effects of obesity type on scale II and III, despite scale VI having no main effect, the simple main effects of the type of obesity on sex were investigated. The results showed that there was no simple main effect on the type of obesity for boys. However, a simple main effect on all three scales for girls was evident. So a multiple comparison test using the *Scheffé* tests was conducted. The results indicated that on scale II 'children's withdrawal behavior', the mean score for stable obesity was higher than that for progressive type, on scale III 'children's aggressive behavior', the score for progressive obesity was higher than that of stable and on scale VI 'mothers' roughness toward their children', and the score of the progressive type's mothers was higher than that of the mothers of children with stable obesity.

Secondly, the significant main effects of the type of obesity and sex were examined. For sex, there was a significant main effect on sex on scale I 'children's lack of

Table 1

Resuts of two-way ANOVAs on the COAS's eight scales

		I:children's lack of attention		II:children's withdrawal behavior		IIIchildren's aggressive behavior		IV:children's carelessness in making things	
	df	*F value*	Scheffé (*P* level=.05)	*F value*	Scheffé (*P* level=.05)	*F value*	Scheffé (*P* level=.05)	*F value*	Scheffé (*P* level=.05)
Sex(S)	1	10.47**	boys>gilrs	0.13		0.00		5.68*	boys>gilrs
Type of obesity(O)	1	0.20		5.87*		6.14*		0.00	
S*O	1	2.60		4.09*		8.53**		1.51	
		V: children's activeness in play		VI: mothers' roughness toward their children		VII: mothers' unconcern toward their children		VIII: mothers' pampering their children	
Sex(S)	1	21.11***	boys>gilrs	0.22		2.72		0.09	
Type of obesity(O)	1	6.18*		2.68		0.41		1.05	
S*O	1	0.10		6.36*		1.51		0.29	

F=Fisher's coefficient, *df*=dgrees of freedom

$^{*}P<.05$

$^{**}P<.01$

$^{***}P<.001$

attention', scale IV 'children's degree of carelessness in making things' and scale V 'children's activeness in play'. For these scales, a multiple comparison test using the *Scheffé* test indicated that the scores of boys were significantly higher than girls for all three scales. For the type of obesity, there was a significant main effect on scale V 'children's activeness in play'. The results of the *Scheffé* test indicated no significant difference between stable type and progressive type obesity.

Changes in circumstances of a child at the onset of progressive type obesity

Three pairs of items from the initial list of 15 items regarding family circumstances were merged because they were closely related. The frequency of the remaining 14 items was shown on table2.

Out of all the children with progressive obesity, 15 children (26.79%) showed no changes in their circumstances at the onset of obesity. Forty-one children (73.21%) showed more than one change.

The highest frequency items regarding changes in family circumstance were first, mother's working tasks became harder (n=14, 25.00%), second, mother became pregnant (n=9, 16.07%), third (two responses), mother or father changed the job and mother had to take more care of a sibling (n=8, 14.29). Examining individual changes by sex, the circumstances of eight boys (21.05%) changed as the mother became pregnant, seven boys (18.42%) as

Table2

Frequencies of checklist items on life style chages at the onset of progressive obesity

		combined				boys				girls			
		Yes		No		Yes		No		Yes		No	
		n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
1	sibling repeatedly entered hospital because of a recurring illness.	1	1.79	55	98.21	1	2.63	37	97.37	0	0.00	18	100.00
2	a family member became sick, injury or worsened so the mother/father had to take more care of the invalid	7	12.50	49	87.50	6	15.79	32	84.21	1	5.56	17	94.44
3	mother became pregnant or a new baby was born	9	16.07	47	83.93	8	21.05	30	78.95	1	5.56	17	94.44
4	increased number of rows between mother and father or between family members	1	1.79	55	98.21	0	0.00	38	100.00	1	5.56	17	94.44
5	life stlye changed because mother and father git divorced	0	0.00	56	100.00	0	0.00	38	100.00	0	0.00	18	100.00
6	life stlye changed because mother or father remarried	0	0.00	56	100.00	0	0.00	38	100.00	0	0.00	18	100.00
7	life stlye changed because mother and/or father changed their job	8	14.29	48	85.71	4	10.53	34	89.47	4	22.22	14	77.78
8	mother and/or father lost his/her job	0	0.00	56	100.00	0	0.00	38	100.00	0	0.00	18	100.00
9	mother should take more care of a sibling because he/she entered school	8	14.29	48	85.71	4	10.53	34	89.47	4	22.22	14	77.78
10	the relationship between mother and father improvied (previously it had been bad)	0	0.00	56	100.00	0	0.00	38	100.00	0	0.00	18	100.00
11	mother's working tasks became harder (the time at nursery school was longer than before)	14	25.00	42	75.00	7	18.42	31	81.58	7	38.89	11	61.11
12	mother's tasks became fewer (the time at nursery school was shorter than before)	3	5.36	53	94.64	1	2.63	37	97.37	2	11.11	16	88.89
13	the child was eating more at school lunch than before	12	21.43	44	78.57	10	26.32	28	73.68	2	11.11	16	88.89
14	there seems to be no change	15	26.79	41	73.21	10	26.32	28	73.68	5	27.78	13	72.22

mother's working tasks became harder, and six boys (15.79%) as a family member became sick. For girls, the circumstances of seven girls (38.89%) changed as the mother's working tasks became harder, four girls (22.22%) as the mother should take care of a sibling, and the mother or father changed their job.

Among the 12 items regarding family circumstances, only 2 items (item10 and item12) showed positive changes where the child's condition and/or stress was improving as the mother's stress and/or workload became less. The other 10 items showed negative changes where the children's condition and/or stress worsened because the mother's stress and/or workload increased. Twenty-eight children (50.00%), 18 boys (47.37%) and 10 girls (55.56%) showed at least one item of negative change. The mean number of negative changes was 1.71 (*SD* ± 0.76; range 1-3) for all children, 1.67 (*SD* ± 0.77; range1-3) for boys and 1.80 (*SD* ± 0.78; range 1-3) for girls.

To examine the sex differences, chi-square-tests were conducted on all 14 items and t-tests were conducted on the number of items. No significant differences were found.

Discussion

The results of the COAS provide certain indications regarding the association between the type of obesity and the psychological problems of the children and/or mothers. First, girls with progressive obesity tended to show more serious problems with aggression than girls with the stable type. Second, mothers of girls with progressive obesity showed higher levels of roughness toward their children than mothers of girls with the stable type. The COAS also indicated that these psychological problems were associated with a more insecure attachment between child and mother. However, the research failed to fully to confirm Hypotesis 1 on the following point. The increased severity of the psychological problems of children with progressive obesity and mothers of children with progressive obesity was evident only in girls.

With regard to Hypothesis 2, it was found from the checklist for progressive obesity that half the children experienced negative changes in the circumstances of their families at the onset of obesity and that these children had on average experienced 1.71 (*SD* ± 0.76) changes, thus, confirming the hypothesis. This suggests that progressive obesity is indirectly related to increases in the stress of the child because the mothers' stress and/or workload were increasing. This in turn, is related to the children in this situation eating more.

Children who have a secure attachment with their mothers can moderate any negative emotions through interaction with their mothers and/or an activity such as play at times of stress[27, 38-41]. In contrast, in situations when a child experiences negative changes in their family situation, a child who has an insecure attachment with their mother is unable to moderate negative emotions or relieve stress, and therefore displays more serious social problems which can result in the child eating more and developing progressive obesity[42]. Hasegawa[33,34] indicated that compared to girls with stable obesity, girls with progressive obesity had a higher interest in eating even if they had displayed less interest in food during infancy. Hasegawa[33,34] went on to show that this was a results of girls with progressive obesity having easier access to food in their homes as they grew and that their mothers more frequently gave them sweets to moderate negative emotions.

However, the results of this research indicate some important differences in child obesity related to the sex of the child. The COAS results suggested that the insecure attachment between girls with progressive obesity and their mother is characterized by aggression. In contrast, boys with either stable or progressive obesity display a lack of attention or carelessness. The overall prevalence of progressive obesity is less common in girls (27.45%) than in boys (46.00%). One potential explanation of this is that progressive obesity in girls is the result of a cumulative effect of multiple factors including direct factors such as eating habits, eating environment, and indirect factors such as child-mother insecure attachment, and changes in the family circumstances. Results found here suggest that it is possible that the onset of obesity in boys is caused by a different process. The lack of attention that boys display

due to insecure attachment with their mother in combination with new negative changes in the family circumstances may heighten stress leading to the boys eating more and developing progressive obesity.

Previous psychological research has shown the existence of differences in psychological problems according to sex[25,31-34,43-45), to which this research agreed. However, the previous research failed to clarify the causes of these differences. It merely suggested that the cause may be due to hormonal differences[31,32] or psychological / social variables[25,31,32,43-45]. This research has reached similar conclusions. Thus, highlighting the need for further research into the influences of both biological and psychological / social factors.

In conclusion, to prevent progress obesity, class nurses need to watch for signs that a child might be experiencing an insecure attachment with their mothers, or when a child experiences some kind of negative change to their family circumstances. This means that class nurses should strive for a closer relationship with the child in order to reduce the child's stress. For boys, class nurses need to help the child to increase cognitive competence by improving their lack of attention. This can be achieved through creative activities which provide satisfaction and can then help the child learn to moderate stress. For girls, especially those who have an insecure attachment with their mothers that is characterized by aggression, class nurses need to examine the cause of the aggression and help the girls and their mothers reduce this aggression. If necessary, psychological intervention should be suggested.

This research does contain certain limitations. Firstly, in this research, though the class nurses rated the questionnaires to avoid any subjectivity of the mothers, there might be the possibility of bias in class nurses' assessments due to some prejudice against obesity.

Secondly, this research mainly focuses on the adaptation of children to nursery school and the relations between obese children and their mothers. This means that no data was collected on the physical and psychological features of the mothers, such as mothers' BMI[18,45-50], mothers' regulation of child's eating habits[18,44-46,48,50,51], mothers' concerns about their own and/or their child's body shape and diet[18,44,45,49,51], mothers' depression[52-55], nor on any social variables affecting the family, such as the parents' education[8,56] or socioeconomic status[56-58]. Any of these variables could be relevant to the development of obesity and/or attachment.

Recent research into child obesity has studied the relationship of obesity to the mothers BMI[18,45-50], mothers' regulation of child's eating habits[18,44-46,48,50,51], and mothers' concerns about their own and/or their child's body shape and diet[18,44,45,49,51]. However, this research did not include the variables which account for the basic relationship between a child and their mother. The findings of this research indicate that there is a need to examine the causal relationships between progressive obesity, such physical and psychological variables, and child-mother attachment. The results of such research could assist in the prevention of early childhood obesity by providing support to the basic relationships between children and mothers.

Food note

In this paper, sex was used not gender, because obesity is regarded as a physiological phenomena and it is possible to think that some factors related to sex exist in the process of increasing obese, regardless of whether child and mother interaction may develop base on the gender of children.

Acknowledgments

This study was supported, in part, by Grants-in-aid for Scientific Research from the Ministry of Education, Culture, Sports, Science and Technology of Japan.

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Appendix

Items of the eight scales on the COAS

Items
I: children's lack of attention: The child···.
forgets something and/or fails to perfectly finish parts of their daily routine.
becomes distracted while putting away toys even though he/she knows his/her peers are still doing that.
brushes his/her teeth, gargles, and/or washes hands carelessly.
drifts away from the group whilst playing indoor games due to boredom.
drifts away from the group whilst playing outdoor games before peers realize he/she has gone.
shakes his/her chair, puts his/her legs on his/her table, and/or talks to his/her peers when all of the children should be listening to their class nurse.
starts to do craftwork without listening to the full explanation from the class nurse, and as a result, he/she fails to follow the instruction correctly.
disturbs peers playing a game they are really enjoying because he/she joins in part way through and ignores or does not understand the rules.
takes a rest after a short period of light exercise because of sweat and/or being out of breath.
II: children's withdrawal behavior: The child···.
fails to relate actively to peers even if he/she wants to join them.
does not behave spontaneously even if he/she can do so.
can not express his/her feelings even if he/she is in a bad situation.
only stands and stares expressionlessly or vacantly at peers as they play.
tends to follow the behavior and/or expression of the class nurse with his/her eyes.
confirms each activity with the class nurse even if it is trivial with 'May I ... ' or 'Can I ...'.
III: children's aggressive behavior: The child···.
becomes physical against his/her peers who do not obey him/her though he/she instructs the peers how to play or gives each peer a role.
kicks the leg of a peer who is weaker than him/her or calls them names when class nurse is not watching.
refuses to play with peers who are better than him/her because he/she wants to take the leading role of any role playing game.
suddenly snatches toys from peers when he/she wants to play with them, and if the peer resists, he/she shoves the peer.
wants to use any new toy before his/her peers.
IV: children's carelessness in making things: The child···.
is careless when cutting and pasting paper together.
can not draw anything only grasps crayon during free drawing activities.
gives up without completing a picture or craft because it has a trivial fault.
preferes playing at his/her desk, such as drawing, reading books or making craft than playing with peers.
V: children's activeness in play: The child···.
draws or plays with blocks because he/she sees the peers enjoying it.
plays in the sand or on a swing or rides a tricycle as preferred outdoor activity
enjoys constructive games and/or toys such as Lego, building blocks or puzzles.
VI: mothers' roughness toward their children: The mother···.
commands and/or scolds aggressively without concrete explanation to her child.
nags her child about his/her behavior neglecting their children's pace of doing routine things.
hits her child's head or kicks his/her leg without explanation when she scolds him/her.
responds to her child absent-mindedly while doing other things or looks away when her child talks to her.
says she does not love her child or complains it is troublesome to have the child.
VII: mothers' unconcern toward their children: The mother···.
neglects her child when he/she hits peers or goes to a dangerous place.
scolds halfheartedly.
does not follow instructions from the class nurse regarding her child, despite agreeing to obey them.
does not understand her child because the grand-mother and/or father takes care of him/her.
VIII: mothers'pampering their children: The mother···.
does as her child demands even after saying no when the child demands something.
focuses on and/or worries about trivial things regarding her child.
tells and deals with her child as a baby.