

[共同研究：子どもの生活環境と健康に関する研究]

## Studies on children's lifestyle circumstances and health (First report)

Shunji IMANISHI

Naoya MATSUMOTO

Sungha KO

Yoshimasa MATSUURA

Shinji TSUBOUCHI

Yoshiharu TANAKA

Norinaga SHIMIZU

Michio MATSUURA

### Abstract

In this first report we aimed to clarify the factors of life environments which affect children's health. Our subjects were the guardians of 93 elder (6 years-old) male and female preschoolers of K nursery school in Tokyo met. (abbreviated as KNS) and Y nursery school in Yamaguchi pref. (abbreviated as YNS). Questionnaires regarding the life environments of the preschoolers covered 29 items concerning fundamental life habits including their wake-up time, bedtime, and sleeping period, dietary habits, activity habits, and circumstances of playing. In both preschools more than 80% of preschoolers live with parents, and the number of preschoolers living with only their mothers was less than 15%, therefore no significant difference of family constitution was observed between YNS and KNS. The average wake-up time of preschoolers attending YNS was significantly earlier ( $p < 0.01$ ) than that of KNS. The average bedtime of KNS was significantly later ( $p < 0.001$ ) than that of YNS. The average sleeping period of YNS was significantly longer ( $p < 0.001$ ) than that of KNS. The means of going to school showed much difference between the two schools. The percentage taken by car was greater in YNS than KNS, while the percentages of being taken by bicycle or walking were greater in KNS than YNS. All means of transportation to school had significant difference of

---

This study was mostly supported by the project of the Research Institute of the St. Andrew's University from 2008 to 2010 (Studies on the lifestyle circumstance and health of children).

Keyword: lifestyle circumstance, health, children

rates ( $p < 0.05$ ) between YNS and KNS. Results of this study clarified that the preschool located in the city area is characterized by life habits such as short sleeping period, late wake-up time and bedtime, and the preschool located in the mountain area is characterized by longer sleeping period, early wake-up time and bedtime. However, the location of playing spaces did not show significant difference, probably because of the social backgrounds including TV games rather than environmental factors. Considering the health of preschoolers, emphasis on physical activities by playing outside and ensuring sufficient sleep are important factors.

## Introduction

Recently, with development of scientific technology and changes in social structures, life environment factors essential to life, such as food, clothing and shelter, have changed remarkably. These changes in life environment factors have had various drastic influences on children's health.

In particular, extremely serious children's health problems<sup>1,3,6,7,9,12)</sup> such as obesity and hypothermia are believed to be caused by disorder of lifestyle habits such as diet, exercise, and sleep.

Miyaguchi et al.<sup>13)</sup> examined the relationship between life habits and fundamental motor abilities by means of a questionnaire concerning life habits and daily walking activities in 207 preschool children aged 4 and 5 years old. They reported that preschool children who walk a lot in the morning show high motor abilities, and significant difference was recognized concerning the amount of walking in the morning between different nursery schools. Moreover, children in the nursery schools where a large amount of walking is maintained tend to have regular defecation and early bedtimes, and the relationship between the defecation and sleeping time were somewhat significant. Therefore, with regard to life habits, preschool children with regular habits of defecation and early bedtimes are considered to have prominent tendencies of greater amounts of walking and more general points of motor abilities.

Murase et al.<sup>14)</sup> made generational comparisons by questionnaires completed by 1,890 fourth-grade students, 1,862 sixth-grade students, 5,017 graduated students, and 1,202 education-related personnel from 60 elementary schools of Kanagawa prefecture. The results showed that the present-day children have a prominent tendency to not play outdoors, compared with their parents' generation. Therefore, since present-day children's surroundings are different from those of their parents' generation, they play less outdoors such as in open spaces and vacant land, being greatly affected by media such as television and Internet. More children go to sports clubs and less children play in natural environments.

Miyake et al.<sup>10)</sup> carried out research using a questionnaire on the lifestyle and measurement of body temperature of preschoolers (625 males and females, 4 to 6 years old) in 7 nursery schools

and kindergartens in Osaka pref. and Yamaguchi pref. They showed that the rate of preschoolers with a basal body temperature of less than 36.0 degrees was 28.6%, more than those reported in previous studies. Moreover, from the questionnaire on lifestyle habits, it was established that body temperatures of preschoolers had significant correlation with life rhythms such as sleeping period and bedtime. The preschoolers whose body temperatures were less than 36.0 degrees tended to share characteristics of life habits on 5 items such as not eating breakfast, not waking up by themselves in the morning, insufficient sleep, long TV watching time, and late bedtime.

Studies on the effects of physical activities on the body temperature of preschoolers,<sup>11)</sup> including research on total walk steps in a day, suggest that lack of daily physical activities should be one of the factors of hypothermia.

Petrauskiene A et al.<sup>16)</sup> investigated dietary and exercise habits in 271 families of preschool-age children attending kindergartens in Kaunas. They pointed out that these children eat fresh fruits more frequently than vegetables, owing to the dietary habits of their parents, and that the cause of lack of exercises among the children should be assumed to be the excessive time spent watching TV and playing with computers at home. Furthermore, they cautioned that lack of exercise is influenced by the unhealthy habits of their parents such as smoking regularly and drinking alcohol.

In this first report we aimed to clarify the factors of life environments which affect children's health.

## Method

Our subjects were the guardians of 93 elder (6 years-old) male and female preschoolers of K nursery school in Tokyo met. (abbreviated as KNS) and Y nursery school in Yamaguchi Pref. (abbreviated as YNS).

Both nursery schools were provided with request forms to cooperate in this study and gave informed consent by documents. Then, the guardians were also provided with request forms to cooperate in this study, and the preschoolers whose guardians gave their informed consent by documents were investigated. Questionnaires (document 1) regarding the life environments of the preschoolers covered 29 items concerning fundamental life habits including their wake-up time, bedtime, sleeping period, dietary habits, activity habits, and circumstances of playing. The questionnaire papers were distributed and collected by the class teachers of the nursery schools, and placed in envelopes for return by the guardians. Seventy-seven guardians cooperated by filling out the questionnaire (82.8%). From the questionnaire surveys, the percentage of answers for every item was calculated, and the  $\chi$  square test was applied to examine the rate difference of each item between the two nursery schools. A *t*-test was applied to numerical data such as

wake-up time, bedtime, and sleeping period in order to compare differences of averages between the two nursery schools. Results of only 9 items which relate to fundamental life habits are presented in this report.

### Results

The family constitution of the preschoolers in YNS and KNS, and that of total (SUM) is shown by graphs in Fig. 1. Percentages of the preschoolers living with parents were 85.4% for YNS, 83.3% for KNS, and 84.4% for SUM, and those living with their mother only were 12.2% for YNS, 13.9% for KNS, and 13.0% for SUM. However, difference between YNS and KNS was not significant.

The wake-up time of YNS, KNS, and SUM is shown in Fig. 2. The percentage of YNS preschoolers who wake up before 7:00 (39.0%) was greater than those of KNS (19.5%). The percentages of KNS preschoolers who wake up at 7:00-7:59 or 8:00-8:59 were greater than those of YNS. Each percentage of SUM was 29.9% (6:00-6:59), 54.6% (7:00-7:59), and 15.5% (8:00-8:59). The average wake-up time of YNS (6:58) was significantly earlier than KNS (7:19) ( $p < 0.01$ ) (Table 1).

Table 1 Average values of the wake-up time of the K nursery school and Y nursery school

	wake up time
K nursery school	7:19 AM
Y nursery school	6:58 AM

\*  $p < 0.01$

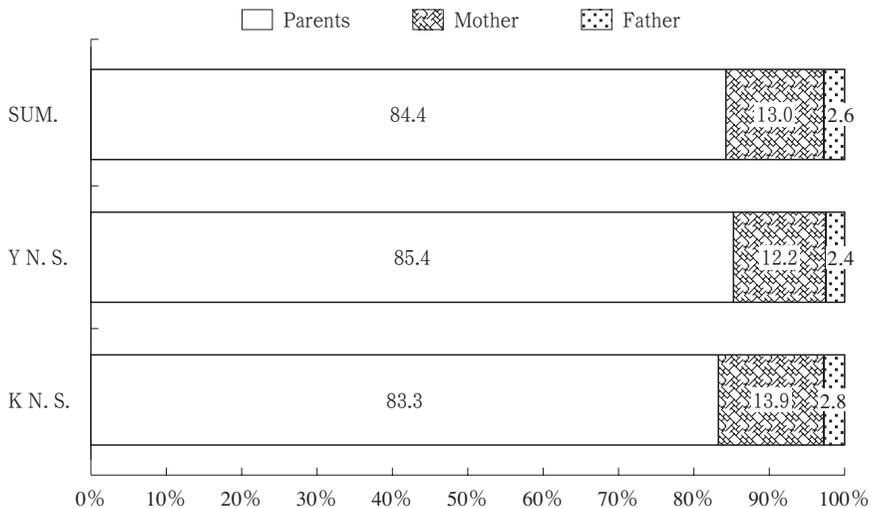


Fig. 1 Comparison of the “family constitution” of the children between in the Y nursery school (YNS) and K nursery school (KNS), and in their summary (SUM).

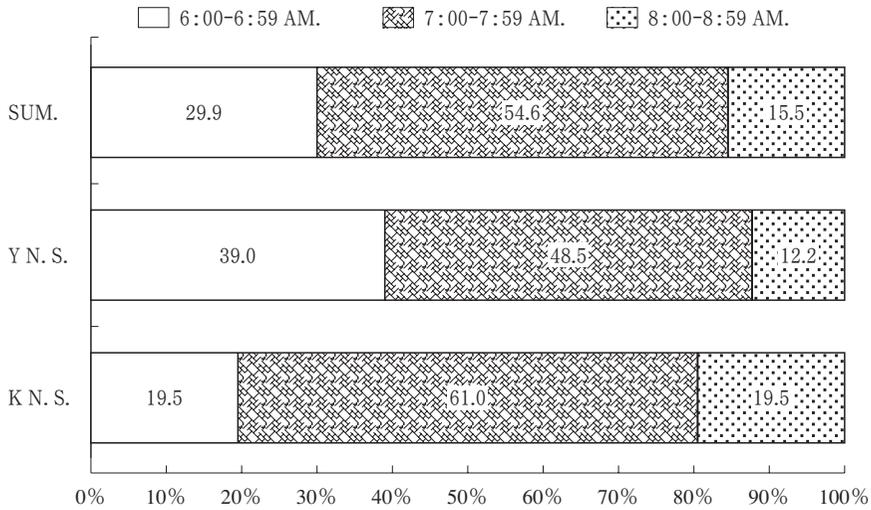


Fig. 2 Comparison of the “wake-up time” of the children between in the YNS and KNS and in the SUM.

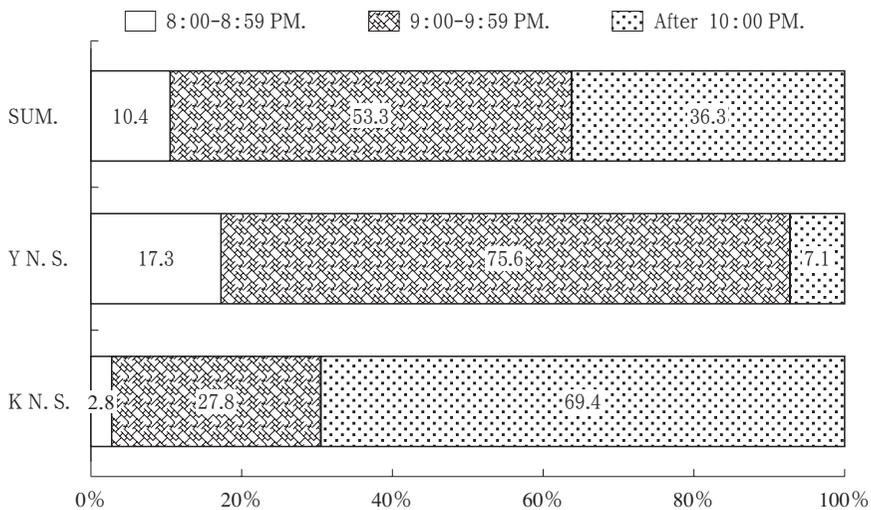


Fig. 3 Comparison of the “bedtime” of the children between in the YNS and KNS and in the SUM.

Comparisons of the bedtime of preschoolers in YNS, KNS, and SUM are shown in Fig. 3. Percentages of bedtime at 8:00-8:59 were 17.3% for YNS, 2.8% for KNS, and 10.4% for SUM, and at 9:00-9:59 were 75.6% for YNS, 27.8% for KNS, and 53.3% for SUM. Both percentages of YNS were higher than those of KNS. Conversely, at 10:00- KNS showed higher percentage than YNS, with 7.1% for YNS, 69.4% for KNS, and 36.3% for SUM. Therefore, the bedtimes of preschoolers attending KNS are later than YNS, and the average KNS bedtime (10:02) was sig-

Table 2 Average values of the bedtime of the K nursery school and Y nursery school

	bedtime
K nursery school	10:02 PM
Y nursery school	9:08 PM

\*\*\* p<0.001

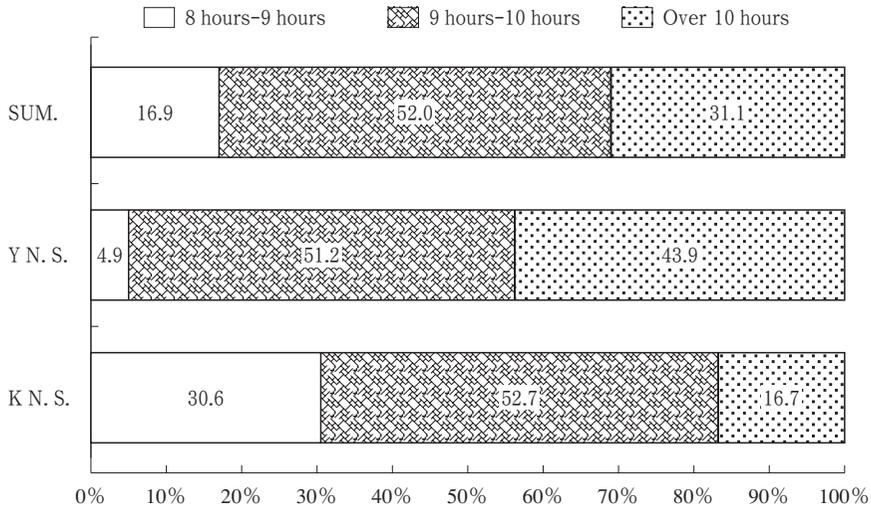


Fig. 4 Comparison of the "sleeping period" of the children between in the YNS and KNS and in the SUM.

nificantly later ( $p<0.001$ ) than that of YNS (9:08) (Table 2).

Comparisons of the sleeping periods in YNS, KNS, and SUM are shown in Fig. 4. Percentages of preschooler's sleeping period of 8-9 hrs were 4.9% for YNS, 30.6% for KNS, and 16.9% for SUM. Those with 9-10 hrs showed no difference between both nursery schools, at 51.2% for YNS, 52.7% for the KNS, and 52.0% for SUM. But, those for YNS with over 10 hrs were greater than KNS: 43.9% for YNS, 16.7% for KNS, and 31.1% for SUM. The average sleeping period of preschoolers attending YNS (9:49 hrs) was significantly longer than for those attending KNS (9:16 hrs) ( $p<0.001$ ) (Table 3).

Table 3 Average values of the sleeping period of the K nursery school and Y nursery school

	sleeping period
K nursery school	9 hrs 16 min
Y nursery school	9 hrs 49 min

\*\*\* p<0.001

The situation regarding breakfast is shown in Fig. 5. In both nursery schools, the rate of preschoolers who have breakfast everyday or usually was 95% and of those who do not have

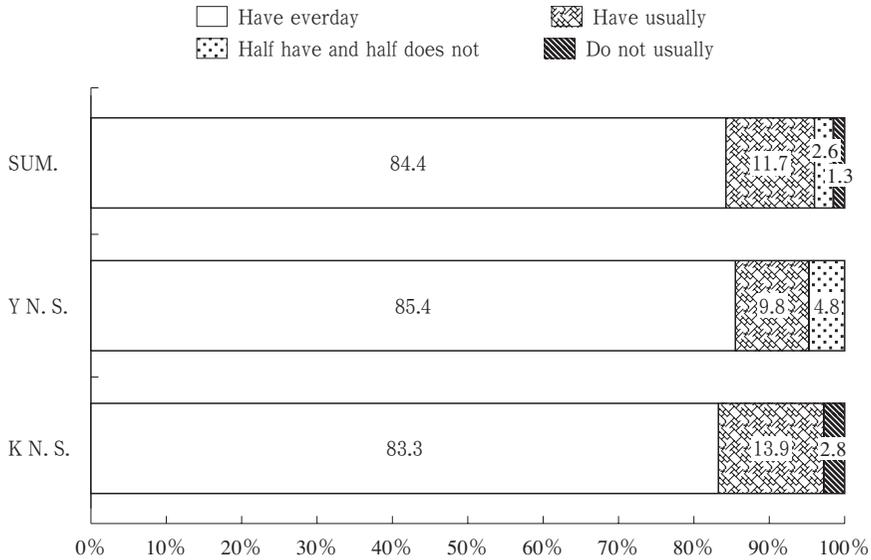


Fig. 5 Comparison of the “having breakfast or not” of the children between in the YNS and KNS and in the SUM.

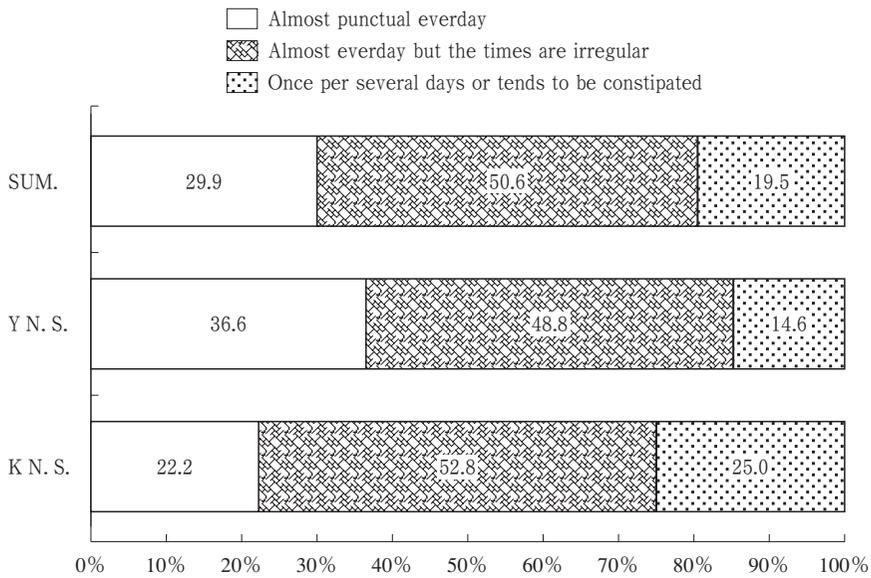


Fig. 6 Comparison of the “condition of defecation” of the children between in the YNS and KNS and in the SUM.

breakfast usually or do not have breakfast at all was under 5%. Differences between YNS and KNS were not recognized.

Comparisons of the situation of defecation in YNS, KNS, and SUM are shown in Fig. 6. Percentages of “Almost punctual everyday” were 36.6% for YNS, 22.2% for KNS, and 29.9% for

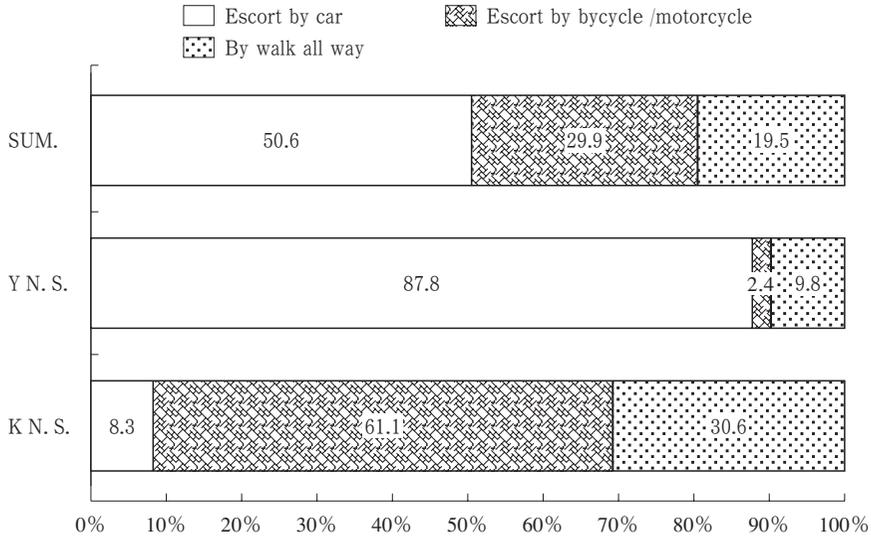


Fig. 7 Comparison of the “mean of going to the nursery school” of the children between in the YNS and KNS and in the SUM.

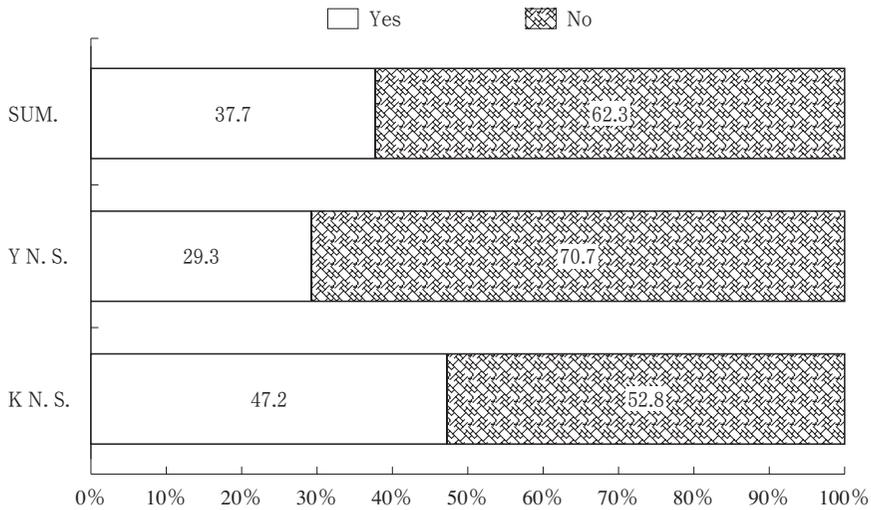


Fig. 8 Comparison of the “children learning periodically outside of the school and at home” between in the YNS and KNS and in the SUM.

SUM. Percentages of “Almost everyday but the times are irregular” were 48.8% for YNS, 52.8% for KNS, and 50.6% for SUM, almost half in both schools. Percentages of “once per several days or tends to be constipated” were 14.6% for the YNS, 25.0% for KNS, and 19.5% for SUM, and no significant difference between YNS and KNS was observed.

Comparisons of the means of transportation to the nursery school in YNS, KNS, and SUM are shown in Fig. 7. Percentages being taken by car were 87.8% for YNS, 8.3% for KNS, and 50.6%

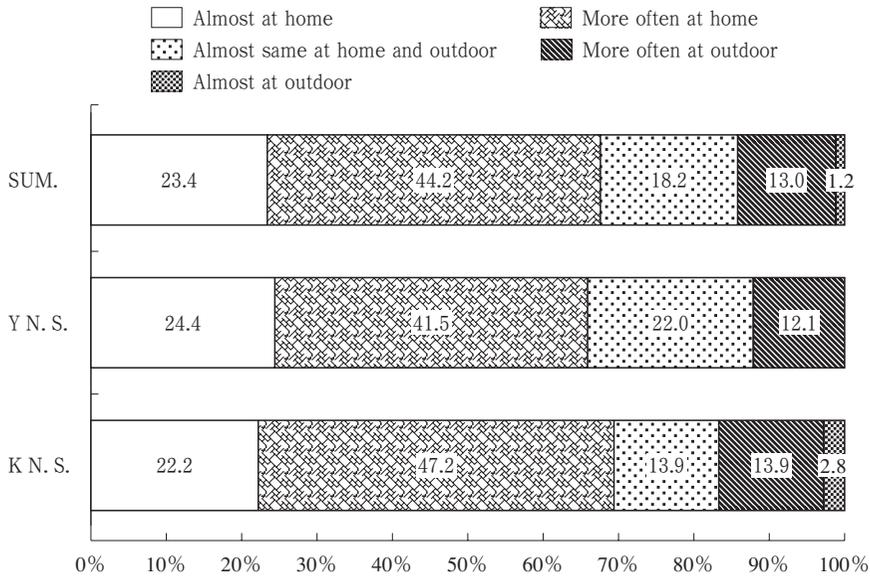


Fig. 9 Comparison of the “playing place, at home or at outdoor” of the children between in the YNS and KNS and in the SUM.

for SUM, so YNS showed much greater percentage than KNS. Those being taken by bicycle showed 2.4% for YNS, 61.1% for KNS, and 29.9% for SUM, and those who walked to school showed 9.8% for YNS, 30.6% for KNS, and 19.5% for SUM. All of the means of transportation to the nursery school had significant difference of rates ( $p < 0.05$ ) between YNS and KNS.

Comparisons of the “children learn periodically outside of the school and at home” item in the YNS, KNS, and SUM are shown in Fig. 8. KNS had greater percentages of learning than YNS because 29.3% for YNS, 47.2% for KNS, and 37.7% for SUM.

Comparisons of the places to play in YNS, KNS, and SUM are shown in Fig. 9. Percentages of play at home were 24.4% for YNS, 22.2% for KNS, and 23.4% for SUM, and those of often at home were the 41.5% for the YNS, 47.2% for KNS, and 44.2% for SUM, revealing no significant difference between YNS and KNS. Percentages of often outdoor were 12.1% for YNS, 13.9% for KNS, and 13.0% for SUM, and those of almost outdoor were 2.8% for KNS and 0% for YNS.

## Discussion

In this study we tried to clarify what kind of life environments influence the health of preschoolers by comparing the preschoolers of YNS and KNS from results of questionnaires completed by their guardians.

YNS is located in M City, the mountain area of Yamaguchi pref. where there is extremely low traffic density, and the wide premises of the preschool are surrounded by green plants. On the other hand, KNS is located in K ward, in the downtown area of Tokyo metro., where there is

heavy traffic volume and the confined premises of the preschool are surrounded by buildings.

In the case of both preschools more than 80% of preschoolers live with parents, and the number of preschoolers living with only their mothers was less than 15%, therefore no significant difference of family constitution was observed between YNS and KNS.

For the wake-up time, percentages of preschoolers who wake up before 7:00 were greater in YNS than KNS, while those who wake up at 7:00-7:59 or at 8:00-8:59 were greater in KNS than in YNS. The average wake-up time was significantly earlier ( $p < 0.01$ ) in YNS than KNS. For the bedtime, percentages at 8:00-8:59 or at 9:00-9:59 were greater in YNS, while at 10:00-10:59 was greater in KNS than YNS. The the average bedtime was significantly earlier ( $p < 0.001$ ) in YNS than KNS. For the sleeping period, 8-9 hrs was more common in KNS than YNS while over 10 hrs was more common in YNS than KNS. The average sleeping period was significantly longer ( $p < 0.001$ ) in YNS than KNS. This result showed the same tendency as in comparison results on the sleeping periods that Hoshi et al.<sup>4)</sup> measured among preschool children in urban versus rural areas. Thus, the KNS preschoolers have tendencies of shorter sleeping period, later bedtime, and later wake-up time, compared with those of the YNS. Maehashi<sup>8)</sup> indicated that the decrease of sleeping period of children became prominent from 10 years ago, and the children with a sleeping period of around 9 hours easily reveal fatigue. Hart CN. et al.<sup>2)</sup> in research on children's health-related quality of life and pediatric sleeping disorders, suggested that children with sleeping disturbances could be cured of their sleeping disorders by development of quality of lifestyle. Montgomery-Downs HE. et al.<sup>15)</sup> in research on the relationship of sleep habits and risk factor in infants suggested that life environments in childhood greatly affect sleep-disordered breathing. From the results of this study, although the differences of sleeping habits between the two preschools would be reflected by the difference of life environment such as city and mountain area, provision of sufficiently long sleeping periods in childhood seems to be necessary in future.

Concerning meals and defecation, percentages of having breakfast everyday or usually amounted to 95% and no difference between YNS and KNS was observed. As for defecation, among children attending both preschools, more than 75% were almost punctual everyday or almost everyday but irregularly. But, the number of those defecating once per several days or seeming to be constipated was greater in KNS than YNS.

Tripodi A et al.<sup>17)</sup> and Jiang J et al.<sup>3)</sup> pointed out the importance of appropriate dietary habits and the improvement of lifestyle habits in childhood by investigations among 5-6 years-old children on the relationship between dietary habits/lifestyles and obesity, and risk factors in 2-to 6-year-old children for becoming overweight. In this study we did not investigate the food intake of infants precisely, but it seems to be necessary to concentrate on the aspect of diet in future.

Items concerning means of transportation to the nursery school and learning periodically outside of nursery schools showed much difference between the two schools. The percentages of being taken by car were greater in YNS than KNS, while the percentages of being taken by bicycle or walking were greater in KNS than YNS. The difference seems to reflect the differences of infrastructures, traffic conditions and geographies between the city and rural areas. Percentages of learning periodically outside of the nursery school were greater in KNS than YNS. This difference also seems to reflect the differences in traffic conditions and quality and quantity of the places of learning.

Percentages of places used for play did not reveal significant difference, in responses selecting play at home or more often at home. This could be due to the spread of information media devices such as TV, Video, DVD and Internet, and to the social circumstances with increase of social crimes in children's surroundings. Results of this study clarified that the preschool located in the city area is characterized by life habits such as short sleeping period, late wake-up time, and bedtime, and the preschool located in the mountain area is characterized by longer sleeping period, early wake-up time, and bedtime.

However, the location of playing spaces did not show significant difference by area, probably because of the social backgrounds including TV games rather than environmental factors. Considering the health of preschoolers, emphasis on physical activities by playing outside and ensuring sufficient sleep are important factors.

#### References

- 1) Keiko Abe, Kanichi Mimura, Munehiro Tetsuguchi, Shingo Atsuno: Physical fitness and lifestyle among obese elementary school children., *Jpn J. School Health*, 45, 397-405, 2003.
- 2) Hart CN., Palermo TM., Rosen CL.: Health-related quality of life among children presenting to a pediatric sleep disorders clinic., *Behav. Sleep Med.*, Vol. 3, No. 1, 4-17, 2005.
- 3) Akiko Harada, Sekisou Harada.: Revision of the evaluation of physique and motor abilities for preschool children., *J. Educ. Health Sci.*, Vol. 44, No. 4, 629-643, 1999.
- 4) Nagae Hoshi, Akira Maehashi: Research on the healthy life for young children. — The comparison of living conditions of preschool children in the urban area and in the rural area of Saitama Prefecture —, *The Journal of Movement and Health Education*, Vol. 12, No. 1, 2-11, 2002.
- 5) Jiang J., Rosenqvist U., Wang H., Greiner T., Ma Y., Toschke AM.: Risk factors for overweight 2- to 6-year-old children in Beijing China., *Int. J. Pediatr. Obes.*, Vol. 1, No. 2, 103-108, 2006.
- 6) Haruko Takada, Joanne S. Harrell, Kaei Washino, Mikio Hayashi.: Influence of parental lifestyle on child's obesity. —9-10 year-old children in Japan and the US., *J. Educ. Health Sci.*, Vol. 44, No. 4, 603-612, 1999.
- 7) Haruko Takada, Joanne S. Harrell, Kaei Washino, Masami Nagasima and Hirotsi Iwata: Eating habits, daily activity and health knowledge of 9-10 year-old children in Japan and US, *J. Educ. Health Sci.*, Vol. 45, No. 2, 697-709, 1999.
- 8) Akira Maehashi: How to find and manage physical abnormalities of young children., *Japan J. Phys. Educ.*

- Hlth. Sport Sci., Vol. 49, No. 3, 197-208, 2004.
- 9) Mikami S.,Mimura K.,Fujimoto S.:Physical activity during academic classes and recesses at school in obese boys., J. Educ. Health Sci., Vol. 45, No. 3, 798-803, 1999.
  - 10) Takaaki Miyake,Yoshimasa Matsuura,Yukiko Kawano, Norinaga Shimizu: Effects of lifestyle on the body temperature of preschoolers., The Journal of Movement and Health Education, Vol. 13, No. 2, 11-18, March, 2004.
  - 11) Takaaki Miyake,Yoshimasa Matsuura, Norinaga Shimizu: Effects of physical activities on the body temperature of preschoolers.,The Journal of Movement and Health Education, Vol. 13, No. 2, 19-26, March, 2004.
  - 12) Takaaki Miyake,Yoshimasa Matsuura, Norinaga Shimizu.: Study of the effect of life circumstances on body temperature in infants., Jpn. J. of School Health Proc., 78-79, Vol. 42, 2001.
  - 13) Kazuyoshi Miyaguchi, Shinichi Demura, Koshi Kasuga.: Relationship between life-style habits and fundamental motor ability in preschool children., J. Educ.Health Sci, Vol. 54, No. 2, 149-157, 2008.
  - 14) Koji Murase, Masaru Ochiai.: The environment available for children's games, and related factors. — comparison between generations—, Japan J. Phys. Educ. Hlth. Sport Sci., Vol. 52, No. 2, 187-200, 2007.
  - 15) Montgomery-Downs HE., Gozal D.: Sleep habits and risk factors for sleep-disordered breathing in infants and young toddlers in Louisville, Kentucky., Sleep Med., Vol. 7, No. 3, 211-219, 2006. (in Denmark)
  - 16) Petrauskienė A.,Dregval L., Petkute S.: Health behavior of families having preschooler-age., Medicina (Kaunas) Vol. 43, No. 10, 816-823, 2007.
  - 17) Tripodi A., Daghighi MM., Severi S., Ferrari L., Ciardullo AV.: Surveillance of dietary habits and lifestyle among 5-6 year-old children and their families living in Central-North Italy., Soz Präventivmed, Vol. 50, No. 3, 134-141, 2005. (in Italy)

(Document 1)

### Request to co-operate with the investigation of infant life.

We are promoting to study on the theme “what is the desirable life environment for children” hoping the healthy developing of children, as the professionals of health sciences. This time, as a process of our aim, we determined to collect the basic data of actual children's lives and physical conditions. We will give the collected raw data and analyzed data to the kindergarden where your child is subjected, and recommend to utilize them for improving nursing and educational activities.

Thus, we are grateful if you understand aims of our research and co-operate with us.

All data we collected in this research will be processed stastically, and we are aware that any name or privacy of you and your child must not be published. In addition, your answer must not be conveyed to the teachers with your name.

Also, we are grateful if you understand the above matters and answer to the following questionnaire based on the facts of your child.

Please put the questionnaire paper you answered into the attached letter case, seal, and give to the teacher of the nursery school until      month      day     .

If you have any question, contact the following phone number.

Sungha Ko, St. Andrew's University, 0725-54-3131 (the key number)

**\*In the following questions, if several choices are indicated, please select the proper one(s) and enclose the number or letter ahead by a circle.**

**\*If there is a parenthesis, please write down the proper matters.**

**Date of reply:** Year \_\_\_\_\_ Month \_\_\_\_\_ Day \_\_\_\_\_

**The person who replied:** (1) Mother, (2) Father, (3) Grandmother,

(4) Grandfather, or

(5) Other ( \_\_\_\_\_ ) of your child

**Please write down your child's name and other informations below for our convenience to combine measured data and names.**

**Name of your child:** ( \_\_\_\_\_ )

Age of your child: ( \_\_\_\_\_ ) years ( \_\_\_\_\_ ) months old, Sex (Male · Female)

Name of the nursery school your child subjected: ( \_\_\_\_\_ )

**Present height of your child:** ( \_\_\_\_\_ ) cm, **Present weight of your child:** ( \_\_\_\_\_ ) kg

**1. What time of waking up is for your child usually?** Approximately ( \_\_\_\_\_ ) AM ( \_\_\_\_\_ ) min

**2. How does your child wake up?**

1. By him/herself everyday, 2. By him/herself usually, 3. Half by him/herself and half endeavoured to wake up, 4. Endeavoured to wake up usually, 5. Endeavoured to wake up everyday

**3. How is the mental condition of your child when waked up?**

1. Seems good feeling everyday, 2. Seems good feeling usually, 3. Half good feeling and half bad feeling, 4. Seems bad feeling usually, 5. Seems bad feeling everyday

**4. Does your child play any activity before breakfast? 1. Yes, 2. No**

**If "1. Yes", what is the activity which your child play? Select one and enclose the number by a circle.**

1. Exercise, 2. Walking, 3. Read books, 4. Watch TV, VHS, 5. Play with toys, 6. Play with TV games, 7. Help housekeeping, 8. Other ( \_\_\_\_\_ )

**5. Have your child breakfast at morning?**

1. Have everyday, 2. Have usually, 3. Half have and half does not, 4. Does not usually, 5. Does not everyday

**6. What time does your child have breakfast usually? Approximately ( \_\_\_\_\_ ) AM ( \_\_\_\_\_ ) min**

**7. During breakfast, does your child watch TV?**

1. Watch TV everyday, 2. Watch TV usually, 3. Half watch TV and half does not, 4. Does not usually, 5. Does not everyday

**8. Is there any person who has breakfast with your child? 1. Yes, 2. No (Alone)**

**If "1. Yes", who is this? Possible to select plural ones and enclose the number(s) by circle(s).**

1. Sister/brother, 2. Mother, 3. Father, 4. Grandmother, 5. Grandfather, 6. Other (\_\_\_\_\_)

**9. Which is the most place where your child have breakfast?**

1. Home, 2. Car, 3. Cafe or fast food shop, 4. Other (\_\_\_\_\_)

**10. If you have any anxiety on your child during meal, select the matter(s) below and enclose the number(s) by circle(s).**

1. Have meal watching TV everytime, 2. Have meal without chewing foods completely, 3. Leave foods for too long time in the mouth, 4. Has extreme favour or hate for many foods, 5. Take too long time because having meal with playing, 6. Have meal with standing elbows, 7. Have meal with attaching dishes directly to the mouth, 8. Other (\_\_\_\_\_)

**11. What is the condition of defecation for your child?**

1. Almost punctual everyday. If so what is the time of defecation? (morning, noon, evening)  
2. Almost everyday but the times are various, 3. Once per several days, 4. Seems to be constipated,

**12. What are the physical/mental conditions when your child go to school? Possible to select plural ones and enclose the number(s) by circle(s).**

1. Seems to be tired on body, 2. Yawn often, 3. Seems to be sleepy, 4. Seems to want laying, 5. Can't be eager on matters, 6. Be anxious on matters, 7. Can not be punctual, 8. Seems to have headache, 9. Shivering of limbs, 10. Seems to be ill, 11. Seems to be comfortable, 12. Active, 13. Other (\_\_\_\_\_)

**13. What time does your child leave home to go to the nursery school?**

Approximately (\_\_\_\_) AM (\_\_\_\_) min

**14. What is the mean of going to the nursery school?**

1. Pick-up bus of the school. If so, (\_\_\_\_) min walk to the bus stop, 2. Escort by car, 3. Escort by bicycle/autobicycle, 4. By public transport(s). If so, the walking time is approximately (\_\_\_\_) min, 5. By walk all way (take approximately \_\_\_\_ min)

**15. What kinds of playing does your child after coming home? Select three best things which your child play often and write down the corresponding numbers in the parentheses of the last sentence.**

1. Draw pictures, 2. Playing house, 3. Bicycle, 4. Playing with blocks, 5. Playing with balls, 6. Reading (picture-) books, 7. Watch TV/VHS, 8. Playing as a hero, 9. Paper folding, 10. Crafts, 11. Playing with dolls, 12. Playing with sands, 13. TV games, 14. Playing with materials in the park, 15. Chasing games, 16. Jumping with a rope, 17. Plastic rails, 18. Card games, 19. Other (\_\_\_\_\_) Order of frequency: most often (\_\_\_\_), next (\_\_\_\_), and the third (\_\_\_\_)

**16. How many person(s) is/are there when your child plays (except staying time at the nursery school)?**

Approximately (\_\_\_\_) persons

**17. How long is the playing time of your child on weekdays (except staying time at the nursery school)?**

Approximately ( ) hours and ( ) min.

Among them, how long is the playing time at outdoors? Approximately ( ) hours and ( ) min.

**18. How long does your child watch TV/VHS on weekdays? Approximately ( ) hours and ( ) min.**

**19. Does your child have TV games or portable games (such as, PlayStation, 64, Nintendo DS)? If her/he has any, how often and how long her/he plays with them?**

**1. Doesn't have or doesn't play,**

**2. If her/he does,**

A. Almost everyday, approximately ( ) hours and ( ) min per day.

B. ( ) times per week, approximately ( ) hours and ( ) min per playing day.

C. Several times per month.

D. Other frequency ( )

**20. Which is more often does your child play at home or outdoor (except staying time at the nursery school)?**

1. Almost at home, 2. More often at home, 3. Almost same at home and outdoor, 4. More often at outdoor, 5. Almost at outdoor

**21. Where does your child play most often (except staying time at the nursery school)?**

1. Park, 2. Within temple or vacant land, 3. Road, 4. Farm, 5. Home garden, 6. At home, 7. Stair of apartment, 8. Other ( )

**22. Does your child learn anything periodically outside of the nursery school (including swimming, exercises as gymnastics)? 1. Yes, 2. No**

If "1. Yes", how many? ( ) kinds of learning

If "1. Yes", what is/are, how often, and how long? Write down up to three learnings

1. kind: ( ), frequency: ( ) times per week, time per once: approximately ( ) hours

2. kind: ( ), frequency: ( ) times per week, time per once: approximately ( ) hours

3. kind: ( ), frequency: ( ) times per week, time per once: approximately ( ) hours

**23. Does your child have snacks within one hour before dinner?**

1. Has everyday, 2. Has often, 3. Half has, half doesn't, 4. Almost doesn't have, 5. Doesn't have

If 1. or 2., what does your child have as snacks? ( )

**24. What time of the start of dinner? Approximately ( ) PM ( ) min**

**25. Does your child have snacks or light meals between dinner and sleeping time?**

1. Has everyday, 2. Has often, 3. Half has, half doesn't, 4. Almost doesn't have, 5. Doesn't have

If 1. or 2., what does your child have as snacks or meals? ( )

- 26. What time of sleeping of your child at weekdays? Approximately ( ) PM ( ) min**  
**If your child go sleep after 10 PM usually, what does her/he do after 10 PM before sleeping?**  
1. Reading (picture-) books, 2. Playing with toys, 3. Eating, 4. Watch TV/VHS, 5. Playing TV games,  
6. Go outside, 7. Awake without doing anything especially, 8. Other (mainly, \_\_\_\_\_)
- 27. How about the sleeping state of your child?**  
1. Sleeps well without awaking, 2. Usually sleeps well without awaking, 3. Half without awaking, half  
wake up at intervals, 4. Usually wake up at intervals, 5. Cann't sleep well (Seems to have a nightmare,  
Crying, etc.)
- 28. Select all persons who are living together with your child? If there are parentheses, write  
down the numbers.**  
1. Father, 2. Mother, 3. Grandfather, 4. Grandmother, 5. Elder brother ( ) persons, 6. Elder sis-  
ter ( ) persons, 7. Younger brother ( ) persons, 8. Younger sister ( ) persons, 9. Other  
( ) ( ) persons
- 29. Who is the main person caring your child in weekdays?**  
1. Mother, 2. Father, 3. Grandfather/mother, 4. Other (\_\_\_\_\_)

**Thank you very much for co-operating with us.**

## 子どもの生活環境と健康に関する研究（第1報）

今 西 俊 次  
松 本 直 也  
高 成 廈  
松 浦 義 昌  
坪 内 伸 司  
田 中 良 晴  
清 水 教 永  
松 浦 道 夫

### 要約

第1報では、子どもを取り巻く生活環境が健康に及ぼす要因について、生活環境調査から子どもの生活環境の実態を明らかにすることを目的とする。

対象者は、東京都のK保育園（KNSと略す）山口県のY保育園（YNSと略す）の年長（6歳児）園児93名の保護者である。幼児の生活環境に関する調査は、起床時刻、就寝時刻、睡眠時間などの基本的な生活習慣、食習慣、運動習慣、遊び環境などの29項目について質問紙を作成した。家族構成は、いずれの園についても80%以上の園児が両親と住んでおり、母親のみと住んでいる割合はいずれも15%以下を示し、両園における差は認められなかった。平均起床時刻は、KNSに比べYNSの方が有意（ $p < 0.001$ ）に早かった。平均就寝時刻は、KNSに比べYNSの方が有意（ $p < 0.01$ ）に早かった。平均睡眠時間では、KNSに比べYNSの方が有意（ $p < 0.001$ ）に長かった。通園方法は、YNSのおよそ90%の園児が車での送り迎えであるKNSではおよそ9%と低い。反面、自転車の送り迎えでは、KNSがおよそ60%を占め、YNSでは2.4%と低く、有意（ $p < 0.05$ ）な差が認められた。これらのことから、都市部にある保育園では、起床時刻、就寝時刻共に遅く、結果として睡眠時間が短い生活習慣を持つ園児の割合が多い実態が明らかとなり、山間部にある保育園では、起床時刻、就寝時刻共に早く、睡眠時間も長い園児の割合が多い実態が明らかとなった。しかしながら、遊ぶ場所については、両園における差が認められなかった。このことは、子どもが好む遊ぶ場所は、環境的な要因よりもむしろテレビゲームを始めとする社会的な背景に起因していると考えられる。

---

本研究は、桃山学院大学総合研究所2008年度共同研究プロジェクト「子どもの生活環境と健康に関する研究」の助成を受けて行った。

キーワード：生活環境、健康、子ども