

FY2014
Surveillance of Health in School Children and Adolescents
Project Report

Chapters 1-3
(Abstract Draft)

Committee for Surveillance of Health in School Children and Adolescents
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A. Introduction

The Public Interest Incorporated Association Japan Society of School Health (JSSH) [Nihon Gakko Hokenkai] aims to provide evidence that contributes to the education and government administration in health at national and municipal levels by surveying and analyzing the health status of school children and junior and senior high school students in this project.

This is primarily a questionnaire survey; different factors such as “risk factors for lifestyle-related disease,” “lifestyle (exercise, diet, and others),” “mental health,” and “allergy symptoms” are investigated, and statistical analysis and tabulation are conducted.

In FY2014, 123 elementary, junior high, and senior high schools in total from 21 prefectures were surveyed as the surveillance collaborators. A total of 19219 school children and students were surveyed, as shown in the table below.

		Grade					Overall
		Elementary school Grades 1-2	Elementary school Grades 3-4	Elementary school Grades 5-6	Junior high school Grades 1-3	Senior high school Grades 1-3	
Gender	Boys	1,121	1,377	1,319	3,844	1,988	9,659
	Girls	1,080	1,330	1,282	3,647	2,221	9,560
Total		2,201	2,707	2,601	7,491	4,219	19,219

The survey period was from December 2014 through February 2015.

Specifically, the JSSH distributes the questionnaire sheets to the collaborators through local Societies of School Health and Boards of Education, and children/students or their guardians fill out the answers based on the health status on schooldays excluding Saturdays and Sundays. The items for the lifestyle-related disease risk factors are completed by class teachers or school nurses.

The questionnaire sheets are sent back from the schools to the JSSH via Boards of Education, after the respondents' names are painted over or cut apart.

B. Overview of the Survey Results

1) Introduction

This project started in 1992, and the survey is conducted every other year and the data tabulation is carried out in the following year. This time, the survey was conducted in FY2014, and its report is released in FY2015.

Based on the data accumulated so far, the JSSH has published school life manuals for school children and students, namely *Desirable Lifestyle* (FY2005) and *Lifestyle for Children Nurtured at Home and Schools* (FY2010).

This is an abstract to present the survey summary. Please refer to *Health Surveillance of School Children and Students: Project Report* for more details. The overview of the survey results are as follows.

2) Survey Results by Category

(1) Risk factors for lifestyle-related disease

The prevalence of obesity was determined by the percentage of overweight; the highest score for boys and girls was observed at Age 12 (13.4%) and Age 15 (10.3%), respectively.

It is likely that “the trend of high prevalence of obesity continues to date,” considering that the obesity prevalence was about 3% in 1970. This survey also revealed the increase of

obesity among the senior high school boys and girls.

The prevalence of thinness was highest at Age 15 (2.4%) for boys and at Age 12 for girls (4.3%).

When the standard for high waist circumference is assumed to be 75cm or more for elementary school children and 80cm or more for junior high school students by applying the metabolic syndrome diagnosis standards for small children in Japan, 16.1%/10.6% (boys/girls) of 5th and 6th graders and 13.0%/8.6% of junior high school students were determined to have high waist circumference. Those whose waist circumference was half or more of his/her body height were 19.5%/10.6% for 5th and 6th graders and 12.9%/12.2% for junior high school students.

The prevalence of hypertension was 0.1-1%, which was similar to previous surveys. Hypertension was also observed in 1.3-7.2% of the senior high school boys.

Dyslipidemia was evaluated based on the abnormal level of total cholesterol (≥ 220 mg/dl), increased level of LDL cholesterol (≥ 140 mg/dl), and decreased level of HDL cholesterol (≤ 40 mg/dl); 4.7, 3.4, 1.4/3.2, 1.5, 1.4% of elementary school children, 1.7, 1.0, 2.0/4.1, 2.3, 1.1% of junior high school students, and 1.3, 2.9, 2.5/6.5, 5.4, 1.5% of senior high school students.

The scores of the obese group were statistically significant in seven indexes, namely, systolic and diastolic blood pressures, average blood pressure, total cholesterol, LDL cholesterol, HDL cholesterol, and arteriosclerosis index (note: HDL cholesterol was significantly lower, others were higher).

(2) Lifestyle

Overall, 69.4% and 51.6% of boys and girls answered that they “have a bowel movement daily,” respectively. One every five to eight junior high and senior high school girls answered that they “sometimes do not have a bowel movement for a few days.”

As for the status of having a breakfast, 95.0/95.7% (boys/girls) answered that they “eat breakfast most days.” The incidence of missing breakfast was high among the senior high school students at 11.0/7.6%, followed by the junior high school students at 6.3/5.7%.

Within the obese groups of the junior high school girls and senior high school boys, more students answered that they “do not eat breakfast” (with statistical significance). Within the thin group of senior high school girls, 15.7% of them answered that they “do not eat breakfast” (with statistical significance).

Within the thin group, about 10% of the junior high school boys, 3rd and 4th grade girls, and junior high school girls answered that they “want to be thinner;” however, this figure increased to about 20% among the senior high school girls (with statistical significance). Within the obese group, the boys and girls of the 1st and 2nd grades, junior high school boys, and senior high school boys answered that they “feel they are okay as is” (with statistical significance).

Overall, 73.9/56.2% has a daily habit of being physically active. The figure for the senior high school girls in particular was notably low in terms of age distribution.

In terms of gender, the average time of exercise for boys and girls was 3 hours and 58 minutes and 3 hours and 24 minutes for strenuous exercise, 2 hours and 46 minutes and 2 hours and 19 minutes for moderate exercise, and 1 hour and 42 minutes and 1 hour and 29 minutes for light exercise, respectively. The survey showed a bipolar trend; the exercise time decreases as the grade advances, while students involved in extracurricular activities in junior or senior high school exercise longer.

When the time of playing electric games, surfing on the Internet, and watching a television are totaled as the “screen time,” the overall average for boys and girls was 5 hours and 55 minutes and 5 hours and 40 minutes, respectively. In terms of the grades, it rapidly increased as the grade advances; the screen time for boys and girls was 3 hours and 38 minutes

and 3 hours and 21 minutes for the 1st and 2nd grades and increased to 6 hours and 49 minutes and 6 hours and 36 minutes for junior high school students and 7 hours and 11 minutes and 7 hours and 1 minute for senior high school boys and girls, respectively.

The proportion of going to after-school cramming schools was lowest in the 1st and 2nd grades at 16.1/17.1% and was followed by a gradual increase; the peak was 45.0/45.3% for the junior high school students.

In terms of the correlation between the lifestyle results and the blood test results, those with shorter exercise time often had abnormal levels of LDL-cholesterol.

The average time of going to sleep was 21:20/21:20 for the 1st and 2nd graders, but it changed to 23:12/23:21 for junior high school students and 23:50/23:53 for senior high school students. These values are roughly 10 to 30 minutes later than those observed in a similar study conducted in FY1981 (see *FY1981 School Children and Students Health Status Survey* by JSSH).

The average time of waking up was 06:35 for both boys and girls of the 1st and 2nd grades, 06:37/06:32 for junior high school students, and 06:38/06:32 for senior high school students.

The time to leave home for school was 07:30/07:29, and the duration to leave home after waking up was 55/57 minutes, overall.

(3) Mental health

In the Question 34.1 that examines the depressive emotion, "Sometimes I feel like I don't want to do anything because I feel depressed," 23.1% of boys and 28.2% of girls answered positively.

In the Q34.7 "Sometimes I think I want to die," 14.3/22.8% (boys/girls) answered that "Sometimes I feel like I want to die." In light of the nature of such answers, it was advised that the relevant respondents should receive prompt attention and response for these particular questions.

In the Q34.3 on "hyperactivity," "I cannot stay still because I cannot calm down," 23.9/18.4% answered positively, suggesting higher incidence in boys than in girls.

In the Q35.2 on "behavior," "Sometimes I lose my temper over trivial things," 26.5/25.8% answered positively, overall.

In the Q35.4 about "having friends," 14.0/9.1% answered that "I have been bullied or teased by others."

To examine the "trend of temper dysregulation," the answers of "often," "sometimes" and "occasionally" to Q34 as well as "highly applicable" and "applicable" to Q35 were collectively totaled and assessed following a flow chart; 6.4/9.1% of junior high students and 7.1/9.5% of senior high school students were shown to be positive.

The trend of temper dysregulation in the populations of disaster-affected regions was more evident among junior and senior high school girls with over 10% in both cases; 7.7/10.1% of junior high school students and 6.4/13.0% of senior high school students were experiencing temper dysregulation in the disaster areas.

Many items were shown to be statistically significant ($\alpha > 0.05$) when compared to the Body Style Group 3, especially in the obese groups of girls.

(4) Allergy

The prevalence of bronchial asthma was 17.1% overall; 4.5% (5.5% and 3.4% for boys and girls, respectively) are those who are currently diagnosed and 12.6% are those who had been previously diagnosed. In terms of grades, the 1st and 2nd graders were the highest at 6.7%, and high school students were the lowest at 2.1%. There was no significant difference among grades in terms of past diagnosis. When the question asked if a respondent has experienced any wheezing or whistling in the chest, 6.6% answered "Yes." Those who answered "Yes" were also asked if his/her sleep was ever disrupted by the wheezing, and 49.9% answered "No;" it suggests that the other half

of them may be suffering from the nighttime sleep disorder. Those who experience such episodes 1 to 3 times a year (presumably the intermittent type) accounted for 70.2%, and those who experience 4 to 12 times a year who are likely somewhere between the intermittent type and mild persistent type or worse accounted for 16.4%.

The prevalence of atopic dermatitis was 12.6% overall; 5.5% (boys/girls 5.8/5.2%) are those who are currently diagnosed, and 7.1% are those who had been previously diagnosed. The prevalence rate among the 1st and 2nd graders was the highest at 7.1%, and the junior high school students were the lowest at 4.3%. The ratio of past diagnosis was highest at senior high schools and the lowest at the 1st and 2nd grades. The total of the current and past diagnosis showed little difference across the school grades, indicating that the incidence of atopic dermatitis is not increasing recently unlike bronchial asthma.

The prevalence of food allergy was 7.9% overall; 2.5% (2.9/2.1%) are those who are currently diagnosed, and 5.4% are those who had been previously diagnosed. The total of the current and past diagnosis ratio was highest at the 1st and 2nd grades, suggesting that the prevalence of food allergy was increasing in the last 12 years. The peanut was the most common cause (17.0%) among the possible food items included in the survey, followed by chicken eggs (16.4%); the lowest was the soy (2.3%).

The prevalence of cedar pollen allergy was 13.3% overall; 9.3% (10.0/8.6%) are those who are currently diagnosed, and 4.0% are those who had been previously diagnosed. There was no notable difference across age. The prevalence of sick building syndrome was 0.8%, and the bee venom allergy was 0.1%.

Among the past history, anaphylaxis was 3.9% and shock was 0.6%. The ratio of those who carry epinephrine, which accounted for 0.1% in the previous survey, increased to 0.3% in this survey.

In terms of mental health issues, the odds ratio between those “applicable” and “not applicable” for bronchial asthma and the answer “Sometimes I lose my temper over trivial things” was 0.638 (95% Confidence Interval: 0.420-0.971). The odds ratio for positive or negative answers to the question “I have been bullied or teased by others” was 1.900 (95% CI: 1.117-3.233).

In terms of food allergy and mental health, the odds ratio for positive or negative answers for the question “I cannot stay still because I cannot calm down” was 1.953 (95% CI: 1.265-3.016), and the odds ratio for “I sometimes get angry, start crying or feel happy all the sudden” was 1.762 (95% CI: 1.013-3.04).

C. Committee Structure and Other Notes

* Committee for Health Status Surveillance of School Children and Students

Fumio Inoue: Kyoto University of Education (Lifestyle)

Takanori Imai: Showa University School of Medicine (Allergy symptoms)

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Koichi Hirano: Hamamatsu City Welfare Medical Center for the Developmental Medicine
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* The following members of the Globalization Committee will consider the preparation of an English translation of the abstract.

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