

# 1. Outline of Mental Health and Lifestyle Survey for FY 2013

## 1.1 Purpose

The Great East Japan Earthquake on 11 March 2011 and the following accident at the Fukushima Daiichi Nuclear Power Plant brought the residents of Fukushima Prefecture psychological distress or post-traumatic stress disorder (PTSD) caused by anxiety, evacuation, loss of property, and fearful experiences. The survey started in FY 2011 to understand the residents' mental health and lifestyle, and provide them with appropriate care.

As mental health services should involve medium- and long-term support, we will continue to conduct the survey to convey a strong message of ongoing care and support to the participants. Additionally, further support is needed based on understanding the changes in their situation that have occurred as well as the causes of these changes.

## 1.2. Methods

### 1.2-1 Group

The group of the FY 2013 survey were residents of nationally designated evacuation zones as of 11 March 2011 and born on or before 1 April 2013. Specifically, there were 212,372 who were registered residents of the following municipalities: Hirono, Naraha, Tomioka, Kawauchi, Okuma, Futaba, Namie, Katsurao, Iitate, Minami-soma, Tamura, Kawamata, and the part of Date specifically recommended for evacuation).

Ages 0-3 Survey :	4,164 individuals born from April 2 <sup>nd</sup> 2010 to April 1 <sup>st</sup> 2013
Ages 4-6 Survey :	5,169 individuals born from April 2 <sup>nd</sup> 2007 to April 1 <sup>st</sup> 2010
Primary School Survey :	11,167 individuals born from April 2 <sup>nd</sup> 2001 to April 1 <sup>st</sup> 2007
Middle School Survey :	6,013 individuals born from April 2 <sup>nd</sup> 1998 to April 1 <sup>st</sup> 2001
General Survey :	185,859 individuals born before April 1 <sup>st</sup> 1998

### 1.2-2 Survey Methods

Based on the classifications, survey sheets (self-report or guardian response) were mailed to the participants.

### 1.2-3 Data Tabulation Period

Data tabulation period lasted from Feb 5<sup>th</sup> 2014 through Oct 31<sup>st</sup> 2014.

### 1.2-4 Number of respondents and valid responses

The numbers of respondents were: 1,635 (39.3%) for the ages 0-3 survey; 2,033 (39.3%) for the ages 4-6 survey; 4,005 (35.9%) for the primary school survey; 1,822 (30.3%) for the middle school survey; and 46,388 (25.0%) for the general survey. (Table 1)

The numbers of valid responses (response rate) were the following: 1,634 (39.2%) for the ages 0-3 survey; 2,032 (39.3%) for the ages 4-6 survey; 3,987 (35.7%) for the primary school survey; 1,820 (30.3%) for the middle school survey; and 46,377 (25.0%) for the general survey.

The results were collected for each item by questionnaire. As there are missing values in each item, the total may not match the abovementioned valid responses. Since the proportions in the report have been rounded to the nearest whole number, there are instances where the total does not add up to 100%.

### **1.3. Results**

#### **1.3-1 Age 0-3 years**

- While non-school age children were classified as Group 1 in the FY 2011 survey, they were classified and totaled as Age 0-3 years or Age 4-6 years in the FY 2012 and 2013 survey.
- Of 4,164 respondents, there were 1,634 (39.2%) valid responses.
- Regarding the children's health conditions, the result was generally favorable, with 98.8% of responses indicating no particular issues ('Extremely good', 'Good', 'Normal'), which was similar to the result of FY 2012 (98.5%). However, 1.2% responded indicating that there were issues ('Bad', 'Extremely bad').
- Length of sleep was 9 hours and 59 minutes on average, and the average napping time was 1 hour and 53 minutes. These results were almost the same as those of FY 2012 survey (length of sleep: 10 hours and 0 minutes), and counterparts (3-year-old children) in a national survey<sup>2</sup>.

#### **1.3-2 Age 4-6 years**

- Of 5,169 respondents, there were 2,032 (39.3%) valid responses.
- Regarding the children's health conditions, the result was generally favorable, with 98.4% of responses indicating no particular issues ('Extremely good', 'Good', 'Normal'), which was almost the same as the FY 2011 survey (97.8%) and FY 2012 survey (98.2%). However, 1.6% had some problems, with 1.4% responding 'Bad', and 0.2% responding 'Extremely bad'.
- In the survey on children's affect and behavior (SDQ Japanese Edition), 14.2% of the 2,027 valid respondents scored 16 or higher, the screening score from the preceding study, and 5.4% scored 20 or higher, the initial support standard. Compared to the FY 2011 survey (24.4% scoring 16 or higher, 11.3% scoring 20 or higher) and the FY 2012 survey (16.5% scoring 16 or higher, 5.9% scoring 20 or higher), the proportion is decreasing, although the decline slowed since FY 2012. For boys, of the 1,020 valid respondents, 16.7% scored 16 or higher, and 6.8% scored 20 or higher, while for girls, of the 1,007 valid respondents, 11.7% scored 16 or higher, and 4.1% scored 20 or higher. This tendency for girls to score lower was similar to the FY 2011 and 2012 survey.
- Average length of sleep was 9 hours and 44 minutes, and average length of naps was 1 hour and 39 minutes. Length of sleep and length of naps were almost the same as the FY 2011 (average length of sleep was 9 hours and 43 minutes, and average length of naps was 1 hour and 47 minutes) and FY 2012 (average length of sleep was 9 hours and 45 minutes, and average length of naps was 1 hour and 33 minutes) survey. The length of sleep was almost the same as that of counterparts (5-year-old children) in a national survey<sup>2</sup>.

### **1.3-3 Primary School**

- Of 11,167 respondents, there were 3,987 (35.7%) valid responses.
- Regarding health conditions, the result was generally favorable following the FY 2011 survey (97.1%) and FY 2012 survey (98.0%), with 98.5% of responses indicating no particular issues ('Extremely good', 'Good', 'Normal'). On the other hand, 1.5% indicated issues, and responded either 'Bad' (1.3%) or 'Extremely Bad' (0.2%).
- Regarding SDQ scores, of the 3,974 valid respondents, 14.7% scored 16 or higher and 5.7% scored 20 or higher. The proportion is almost the same as the age 4-6 group, and the proportion of high scores has been decreasing compared to the FY 2011 survey (22.0% scoring 16 or higher, 10.9% scoring 20 or higher) and FY 2012 survey (16.3% scoring 16 or higher, 6.4% scoring 20 or higher), although the decline slowed since FY 2012.

Considering boys and girls separately, 16.9% of boys scored 16 or higher, and 7.1% scored 20 or higher, while 12.3% of girls scored 16 or higher, and 4.1% scored 20 or higher, showing that girls tended to score lower. This tendency is similar to the FY 2011 and 2012 survey.

- Length of sleep averaged 8 hours and 54 minutes. This is about 20 minutes longer compared to the FY 2011 survey (8 hours and 36 minutes), and was almost the same as the FY 2012 survey (8 hours and 53 minutes) and a national survey<sup>3</sup>.
- Regarding fitness habits, fewer than 40% of respondents (39.3%) answered that they rarely exercise outside of physical education, which is an improvement since the FY 2011 survey (53.0%) and FY 2012 survey (45.1%). However, compared to the report from a national survey<sup>4</sup>, where the group that responded they occasionally or never exercise outside of physical education classes in school consisted of 11.8% of boys and 23.4% of girls, fitness habits are still insufficient.

### **1.3-4 Middle School**

- Of 6,013 participants, there were 1,820 (30.3%) valid responses.
- Regarding health conditions, the result was generally favorable as in FY 2011 (95.4%) and FY 2012 (96.6%), with 97.0% of responses indicating no particular issues ('Extremely good', 'Good', 'Normal'). On the other hand, 3.0% indicated issues, and responded either 'Bad' (2.7%) or 'Extremely bad' (0.3%).
- Regarding SDQ scores, of the 1,776 valid respondents, 13.2% scored 16 or higher and 6.3% scored 20 or higher. Compared to the age 4-6 and primary school groups, the percentage scoring 16 and above was lower but the percentage scoring 20 and above was higher. There was little difference in the proportion since FY 2012 compared to the FY 2011 survey (16.2% scoring 16 or higher, 7.7% scoring 20 or higher) and FY 2012 survey (12.3% scoring 16 or higher, 6.2% scoring 20 or higher).

Considering boys and girls separately, for boys, of the 873 valid respondents, 15.9% scored 16 or higher, and 7.1% scored 20 or higher. Among the 903 valid responses for girls, 10.5% scored 16

or higher, and 5.5% scored 20 or higher. While no gender differences were found until FY 2012, the proportion was lower amongst girls in the FY 2013 survey.

- Length of sleep averaged 7 hours and 8 minutes. This was about 15 minutes longer compared to the FY 2011 survey (6 hours and 53 minutes), and was almost the same as the FY 2012 survey (7 hours and 9 minutes) and a national survey<sup>3</sup>.
- Regarding fitness habits, 31.0% responded that they rarely exercise outside of physical education, which is an improvement from the FY 2011 survey (47.0%) and the FY 2012 survey (34.3%). However, compared to the results from a national survey<sup>5</sup>, where the group that responded they occasionally or never exercise consisted of 9.6% of boys and 29.3% of girls, fitness habits are still insufficient.

### **General Summary of Children**

- The SDQ was used as an indicator to evaluate children's mental health. Similar to the FY 2011 and 2012 survey, the percentage of people scoring 16 or higher on the SDQ was high for all groups compared to the percentage (9.5%) in prior research on the general population in unaffected areas of Japan<sup>6</sup>. Although the proportion of high scores of SDQ declined in all age groups compared to the FY 2011 survey, the improvement slowed and the proportion stayed almost the same since FY 2012. Length of sleep was also similar to the FY 2012 survey, approaching the length of sleep in the preceding research. In regards to fitness habits, the proportion of group that rarely exercises is in a declining tendency, but fitness habits are still insufficient compared to the national survey, although a direct comparison is difficult due to differing survey contents.

### **1.3-5 General (people born on or before April 1, 1998)**

#### **Mental Health**

- General mental health conditions (K6) apply to 3.0% of Japanese regional residents in normal times if the score of  $\geq 13$  is used as the cut-off value<sup>7</sup>. Evaluating adult regional residents four years after the 2007 Peru earthquake, which measured 8.0 magnitude scale, 15.9% met the cut-off of  $\geq 44$  PCL scores (PTSD checklist)<sup>8</sup>. For another study, 20.1% and 11.1% of rescue workers of the 9/11 terrorist attacks in New York City met the PCL cut-off score of  $\geq 44$  and  $\geq 50$  respectively<sup>9</sup>. Based on these preceding studies and results of surveys conducted to decide the PCL criteria, we set up standards for requiring telephone support provided by the Mental Health Support Team to be K6 score  $\geq 13$  and PCL score  $\geq 50$ , or K6 score  $\geq 17$  regardless of the PCL score.
- Regarding the K6, 9.7% scored 13 or higher, showing that scores had decreased compared to the FY 2011 and 2012 survey but are still high compared to the proportion of people scoring higher than the cut-off value during normal times. In contrast to 8.4% of males scoring 13 or higher, 10.8% of females scored 13 or higher. Considering the age groups differently, 10.7% of

respondents of 70 years or older scored 13 or higher, while 5.2% of respondents aged 10-19 years scored 13 or higher. These tendencies were similar to the FY 2011 and 2012 survey.

- On the PCL, 15.8% scored 44 or higher, which was relatively low compared to the FY 2011 and 2012 survey, but still very high. The gender and age tendencies were similar to those of the K6.

## **Lifestyle**

- Asked about their own health (subjective sense of well-being), 18.5% of respondents evaluated themselves as being 'Bad' or 'Extremely bad', and the proportion was similar to the FY 2011 survey (18.5%) and FY 2012 survey (17.9%).
- Compared with the prior year, 17.6% 'gained 3 kg or more' of body weight, while 9.7% 'lost 3 kg or more'. The percentage of people who gained weight was higher as was the case in FY 2012 (23.9% gained  $\geq 3$  kg and 14.8% lost  $\geq 3$  kg after the disaster in 2011).
- 60.3% of respondents were dissatisfied with their sleep, but this percentage has decreased since the FY 2011 survey (66.7%) and FY 2012 survey (62.4%).
- Regarding fitness habits, 46.7% of respondents rarely exercised, showing that the percentage went up compared with the FY 2011 survey (50.9%) and FY 2012 survey (47.3%).
- The percentage of current smokers was 18.5%, which was lower than the FY 2011 survey (20.7%) and FY 2012 survey (20.4%). The percentage of current drinkers was 44.1%, which was similar to the FY 2011 survey (44.1%) and FY 2012 (43.6%). The percentage of heavy drinkers (drinking at least 360 ml or more per day) was 7.9%, which was lower than the FY 2011 survey (9.6%) and FY 2012 survey (9.9%).

## References

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## **2. Outline of Mental Health Support**

### **2.1 Purpose**

The Great East Japan Earthquake on 11 March 2011 and the following accident at the Fukushima Daiichi Nuclear Power Plant brought the residents of Fukushima Prefecture psychological distress or post-traumatic stress disorder (PTSD) caused by anxiety, evacuation, loss of property, and fearful experiences. The survey started in FY 2011 to understand the residents' mental health and lifestyle, and provide them with appropriate care.

As mental health services should involve medium- and long-term support, we will continue to conduct the survey to convey a strong message of ongoing care and support to the participants. Additionally, further support is needed based on understanding the changes in their situation that have occurred as well as the causes of these changes.

Responses of FY 2013 survey were analyzed by doctors and other professionals at Fukushima Medical University (FMU). A Mental Health Support Team consisting of clinical psychologists, public health nurses and others performed consultations to those assessed to require counseling sessions or support for mental health or lifestyle problems.

### **2.2 Methods**

#### **2.2-1. Support Group**

Respondents to the Mental Health and Lifestyle Survey for FY 2013, who are residents of nationally designated evacuation areas born on or before 1 April 2013, and apply to the following selection criteria

#### **2.2-2 Criteria for Support**

##### **Telephone Counseling Sessions**

Respondents who required support (A):

- Children with SDQ (Strength and Difficulties Questionnaire) score  $\geq 20$ , adults with K6 (general mental health conditions) score  $\geq 13$  and PCL (trauma response) score  $\geq 50$ , or adults with K6 score  $\geq 17$  regardless of their PCL score.

Respondents who required support (B):

- Children and adults identified based on the content of free-answer questions and in urgent need of support.
- Adults with a previous history of hypertension or diabetes who have not received treatment with a BMI  $\geq 27.5$  (calculated from weight and height written in the survey) and a weight gain of  $\geq 3$  kg after the disaster, or those who consume, on average,  $\geq 540$  ml alcoholic drinks per day.
- Adults with a history of mental disorders who are not currently visiting a clinic.

## Written Materials

Respondents who required support (A):

- Children with SDQ score  $\geq 16$  (criterion in initial screening) and adults with K6 score  $\geq 13$  or PCL score  $\geq 44$  (criteria in initial screening), who did not meet the criteria for telephone counseling sessions.

Respondents who required support (B):

- Children and adults identified based on the content of free-answer questions and not in urgent need of support.
- Adults who neither meet the above criteria nor receive medical treatment with sleep disorder, depression and/or decreased activity.
- Adults with CAGE (method of screening for alcoholism) score  $\geq 2$  out of 4.

## 2.2-3 Support Methods

A Mental Health Support Team performed telephone consultations to those assessed to require support.

We sent the respondents who required written support materials a letter with a special phone number for support, and a return postcard asking their desire for telephone support. Telephone support was provided to those who indicated their desire for support, or those who were assessed to require support based on the reply content.

## 2.3 Results

The number of those who required support was 1,256 children and 11,507 adults for the FY 2013 Mental Health and Lifestyle Survey. Based only on the CAGE test scores, the number was 2,010.

Among the children, 504 required telephone counseling sessions and 752 required written support materials. Based on the content of the written materials, 37 participants were assessed to require telephone support, making it a total of 541 respondents who required telephone counseling sessions, including 321 (59.3%) male and 220 (40.7%) female. Among them, the counseling session was provide to 473 (87.4%) participants, 330 (69.8%) of whom resided within the prefecture and 143 (30.2%) resided outside the prefecture.

There were 3,843 adults who required telephone counseling sessions. The number of those who were assessed based on scale scores was 3,020, of whom 1,150 (38.1%) were male and 1,870 (61.9%) were female. Based on items other than scales, the number was 823, of whom 392 (47.6%) were male and 431 (52.4%) were female. The telephone counseling sessions were successfully administered to 3,321 (86.4%) respondents. Among them, 2,622 (79.0%) resided within the prefecture and 699 (21.0%) resided outside the prefecture. The number of adults who required written support materials was 7,664. Of these, a total of 616 were assessed by the content of their responses to require phone support. The number of those who were assessed based on the scale scores was 479, of whom 210 (43.8%) were male and 269 (56.2%) were female. Based on items other than scales, the number was

137, of whom 76 (55.5%) were male and 61 (44.5%) were female. The telephone counseling sessions were successfully administered to 592 (96.1%) respondents. Among them, 483 (81.6%) resided within the prefecture and 109 (18.4%) resided outside the prefecture.

To those who were identified as requiring support but could not be reached for telephone support (except for the deceased), and to those who only met the criteria of CAGE test scores, information was provided by sending booklet made by FMU's Radiation Medical Science Center: *Mental Health and Lifestyle Support*.

After the telephone counseling sessions for children, 355 (75.1%) were categorized as 'Follow-up 1\*', and 102 (21.6%) were categorized as 'Follow-up 2\*\*.' Frequently discussed issues were impact on school, and irritability and violence from the category 'Child's reaction,' and parent or guardian's problem from the category 'Parent/Guardian and family problems.'

Among the adults, 2,573 (77.5%) were categorized as 'Follow-up 1' and 599 (18.0%) were categorized as 'Follow-up 2.' Among the respondents who required written materials, 506 (85.5%) were categorized as 'Follow-up 1' and 78 (13.2%) were categorized as 'Follow-up 2.' Frequently discussed issues were physical problems, disrupted sleep, depression, and anxiety about the future from the category 'Personal reaction,' changes in living environment, family relationships, and changes in daily life and habits from the category 'Household problems,' and dissatisfaction with government policies or problems of disaster claims from the category 'Problems with social life.'

\* Participants confirmed to be improving or self-managing their problems.

\*\* Participants not recovering from health problems, the emotional aftermath, adjustment disorder etc.

#### Reference

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