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2024 Fukushima Medical University International Symposium on the Fukushima Health Management Survey

Secretariat of International Symposium

Office of Public Communications and International Cooperation, Radiation Medical Science Center for the Fukushima Health Management Survey, Fukushima Medical University

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# Psychological effects on children in Fukushima and their care: findings from a longitudinal survey

March 2, 2024

2024 Fukushima Medical University International Symposium  
on the Fukushima Health Management Survey

**Fukushima College**

UCHIYAMA Tokio, KAWASHIMA Keiko

**Taisho University**

SUZUKI Satomi

# Introduction



March  
2011

2018~

1 1/2-year-old Health  
Checkups

3 1/2-year-old Health  
Checkups

## Children (Responses by Parents/Guardians)

- Development of body and mind
- Independence in daily life
- Nursing environment

## Parents/Guardians

- Mental health
- Living situation/evacuation status

Questionnaire for  
elementary school  
students

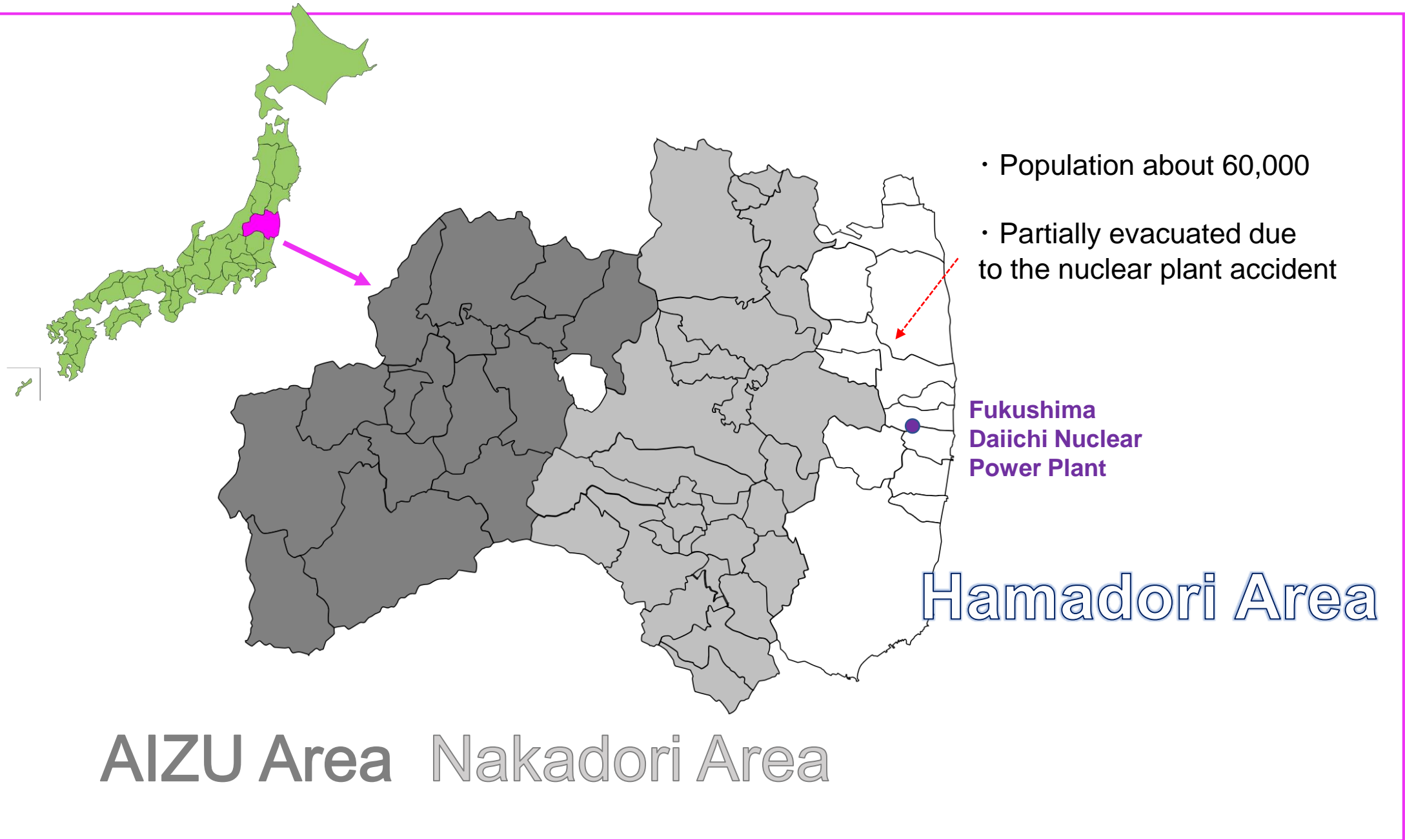
## Children

(Responses by Parents/Guardians)

- Emotions and behavior
- Need for care and support

## Parents/Guardians

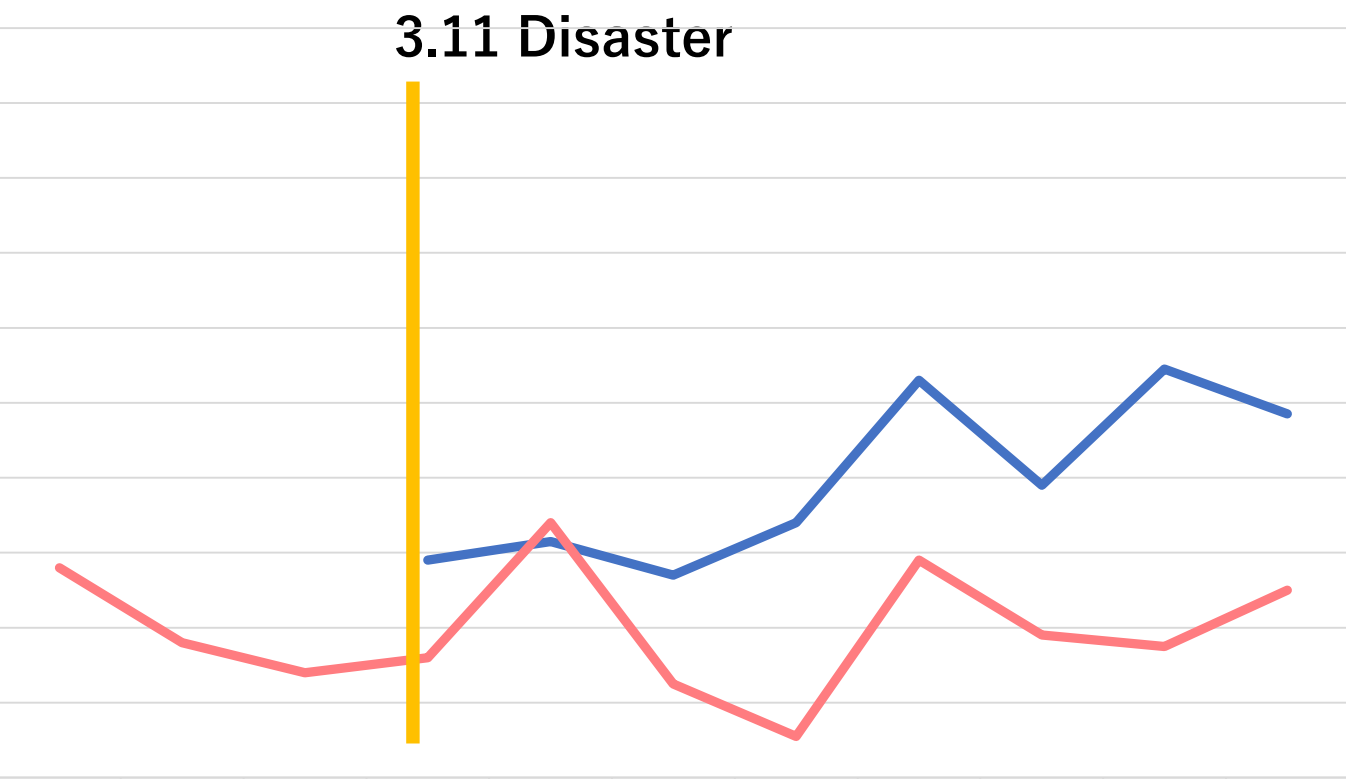
- Mental health
- Living situation/evacuation status



1 ½-year-old health checkup  
(Infant health checkup)

# Parents/Guardians response: point-and-speak (1½-year-old health checkup)

(%)  
20.0  
18.0  
16.0  
14.0  
12.0  
10.0  
8.0  
6.0  
4.0  
2.0  
0.0



**3.11 Disaster**

2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018

— Speak some words that mean something other than mom/dad? (No)  
— Point to something that child knows from a picture book? (No)

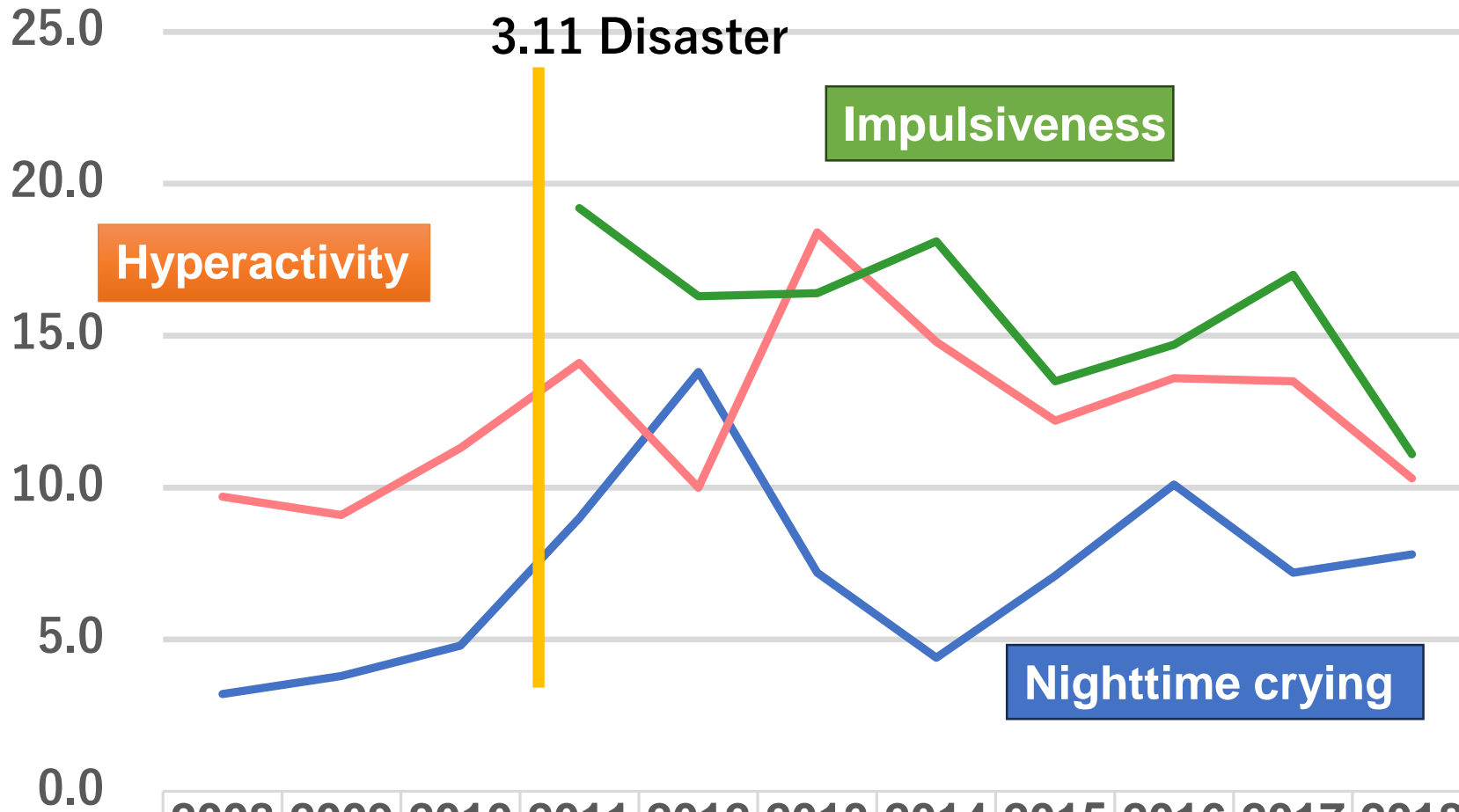
				5.8	6.3	5.4	6.8	10.6	7.8	10.9	9.7
5.6	3.6	2.8	3.2	6.8	2.5	1.1	5.8	3.8	3.5	5.0	

Fiscal year	Total
2008	503
2009	584
2010	539
2011	156
2012	162
2013	203
2014	270
2015	311
2016	344
2017	374
2018	358

# Parents/Guardians response: Children's behaviors

(1½-year-old health checkup)

(%)

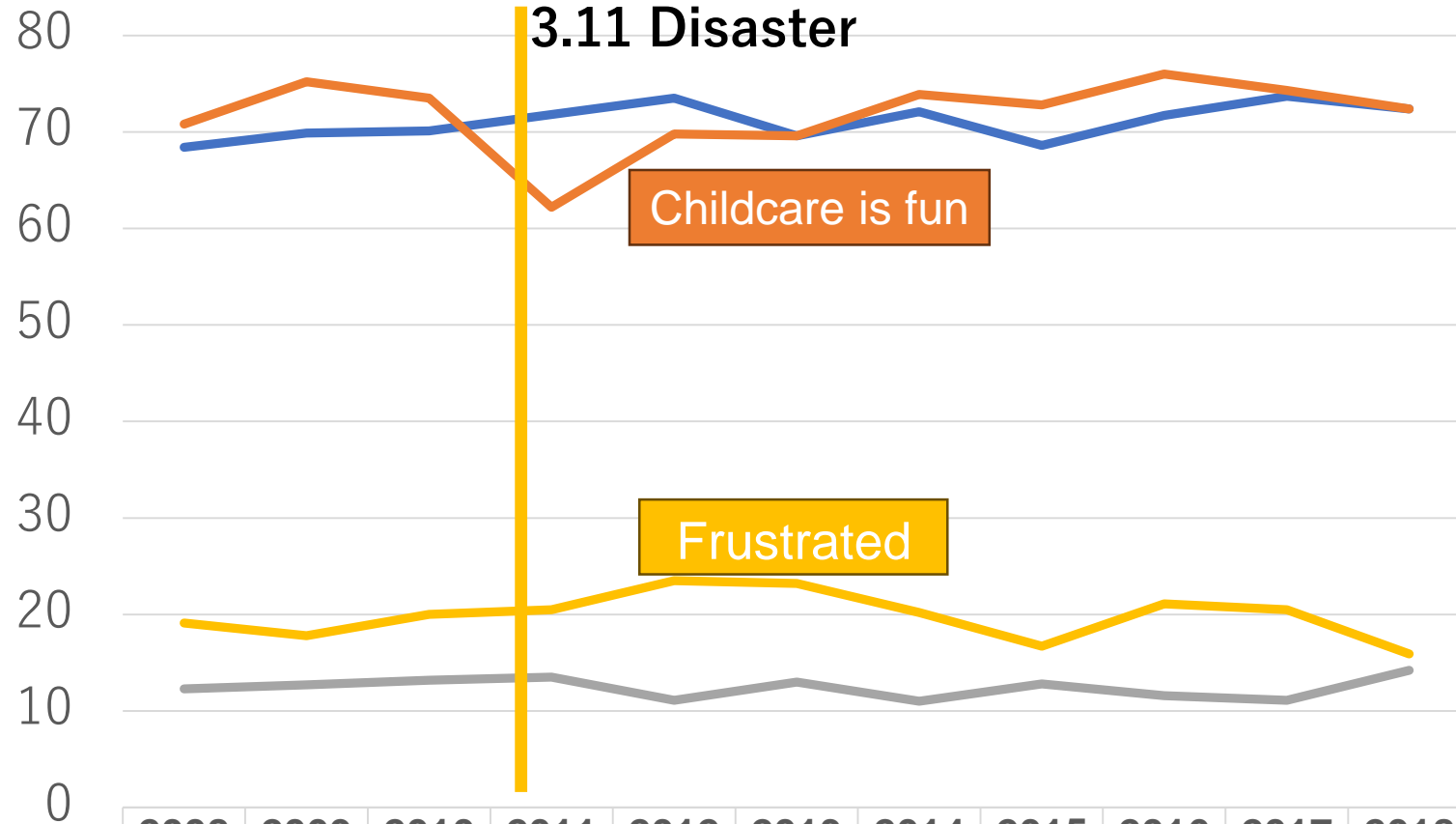


	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
— Nighttime crying	3.2	3.8	4.8	9.0	13.8	7.2	4.4	7.1	10.1	7.2	7.8
— Hyperactivity	9.7	9.1	11.3	14.1	10.0	18.4	14.8	12.2	13.6	13.5	10.3
— Impulsiveness				19.2	16.3	16.4	18.1	13.5	14.7	17.0	11.1

Fiscal year	Total
2008	503
2009	584
2010	539
2011	156
2012	162
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2016	344
2017	374
2018	358

# Parents/Guardians response: Their own feelings

(1½-year-old health checkup)



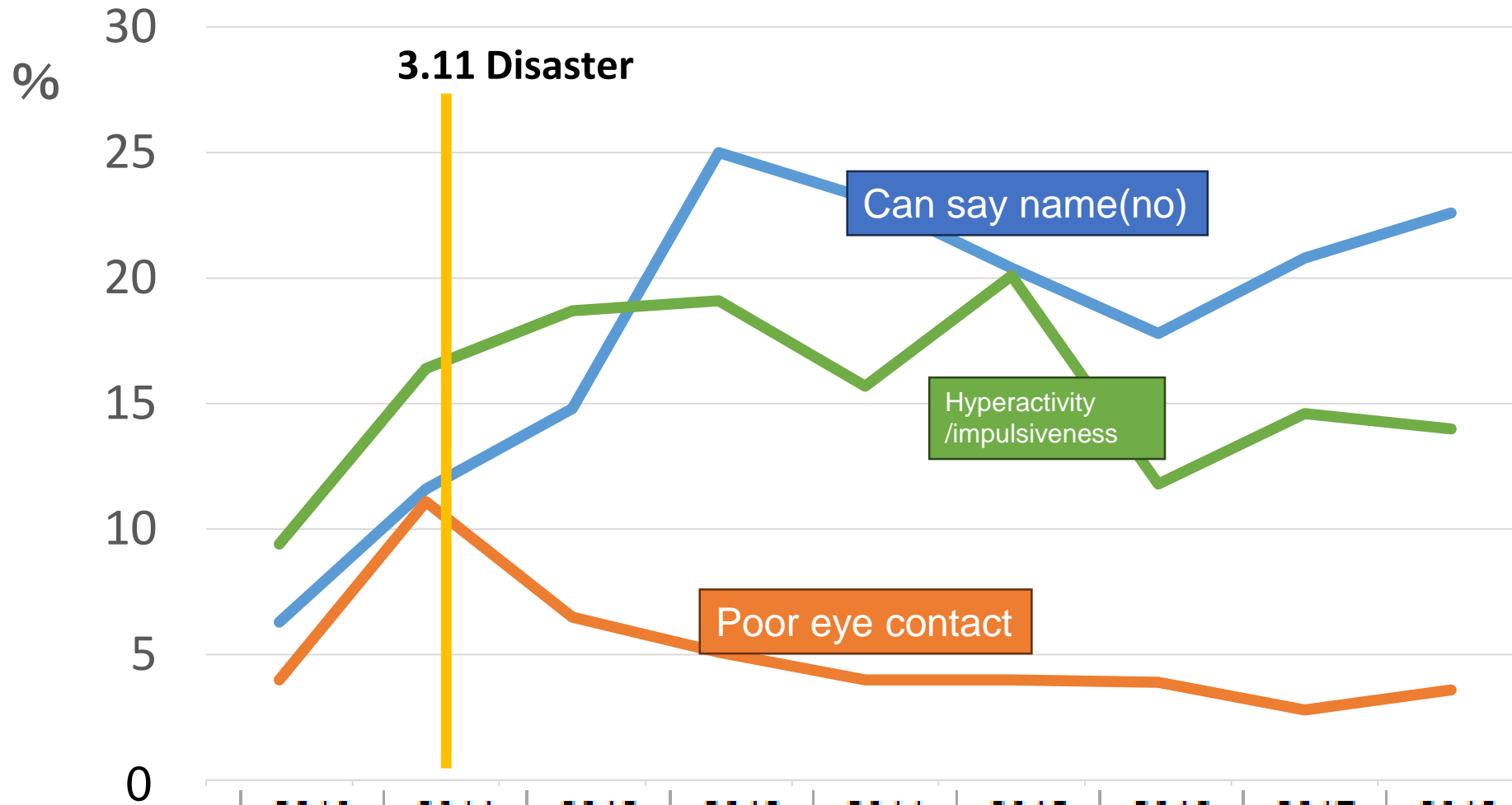
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
— <b>Everyday is fun (No)</b>	68.4	69.9	70.1	71.8	73.5	69.6	72.1	68.6	71.7	73.7	72.4
— <b>More workload, but childcare is fun.</b>	70.8	75.2	73.5	62.2	69.8	69.6	73.9	72.8	76.0	74.3	72.4
— <b>More workload, more fatigue.</b>	12.3	12.7	13.2	13.5	11.1	13.0	11.0	12.8	11.6	11.1	14.2
— <b>Often frustrated</b>	19.1	17.8	20.0	20.5	23.5	23.2	20.2	16.7	21.1	20.5	15.9

Fiscal year	Total
2008	503
2009	584
2010	539
2011	156
2012	162
2013	203
2014	270
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2017	374
2018	358



3½-year-old health checkup

# Assessment by public health nurses (3½-year-old health checkup)



Fiscal year	Total
2010	505
2011	207
2012	230
2013	215
2014	249
2015	298
2016	304
2017	356
2018	358

Can say name (no)	6.3	11.6	14.8	25	23.2	20.4	17.8	20.8	22.6
Poor eye contact	4	11.1	6.5	5.1	4	4	3.9	2.8	3.6
Hyperactivity/impulsiveness	9.4	16.4	18.7	19.1	15.7	20.1	11.8	14.6	14

# Parents/Guardians response: Worrisome children's behaviors

(3½-year-old health checkup)

(%) 30.0

**3.11  
Disaster**

25.0

20.0

15.0

10.0

5.0

0.0

Restlessness

Poor eye contact

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Poor eye contact	4	11.1	6.5	5.1	4	4	3.9	2.8	3.6
Restlessness	9.4	16.4	18.7	19.1	15.7	20.1	11.8	14.6	14

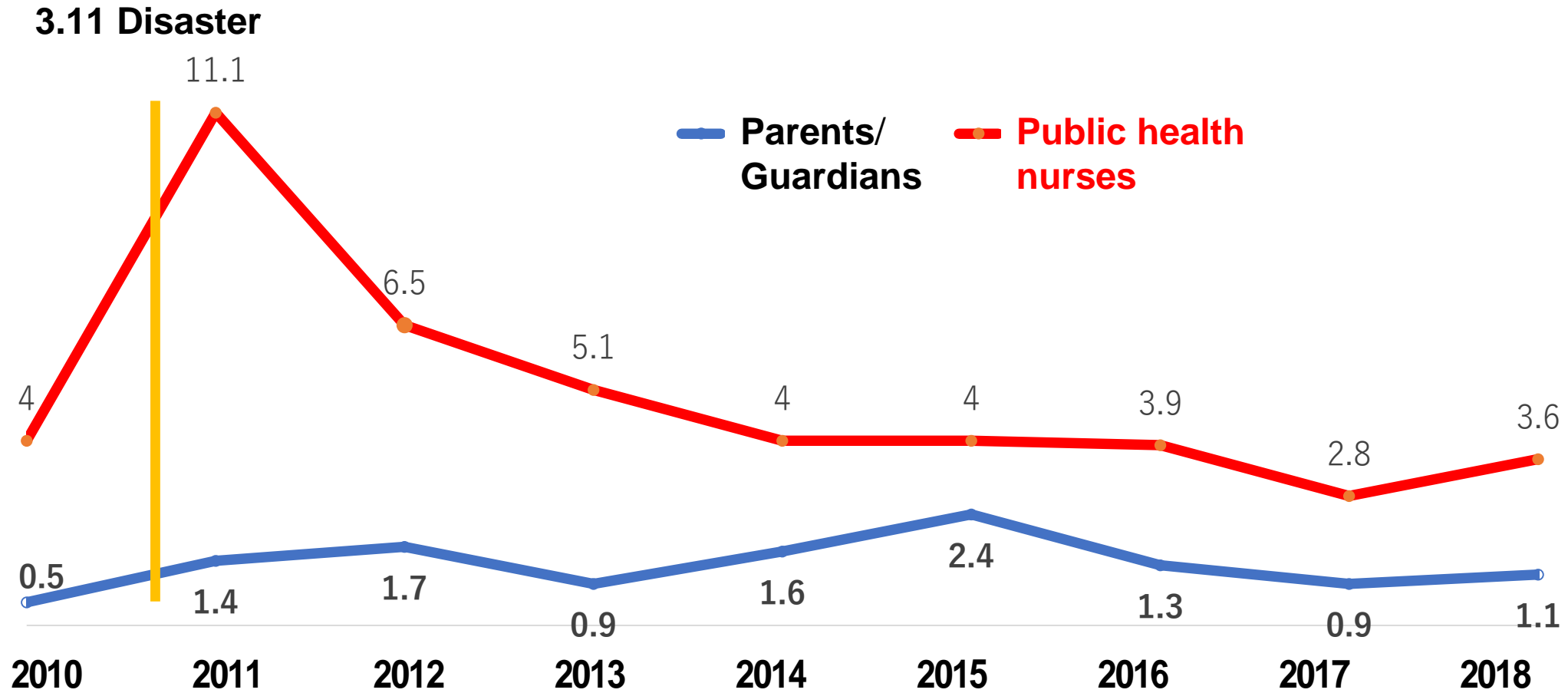
— Poor eye contact

— Restlessness

Fiscal year	Total
2010	505
2011	207
2012	230
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2018	358

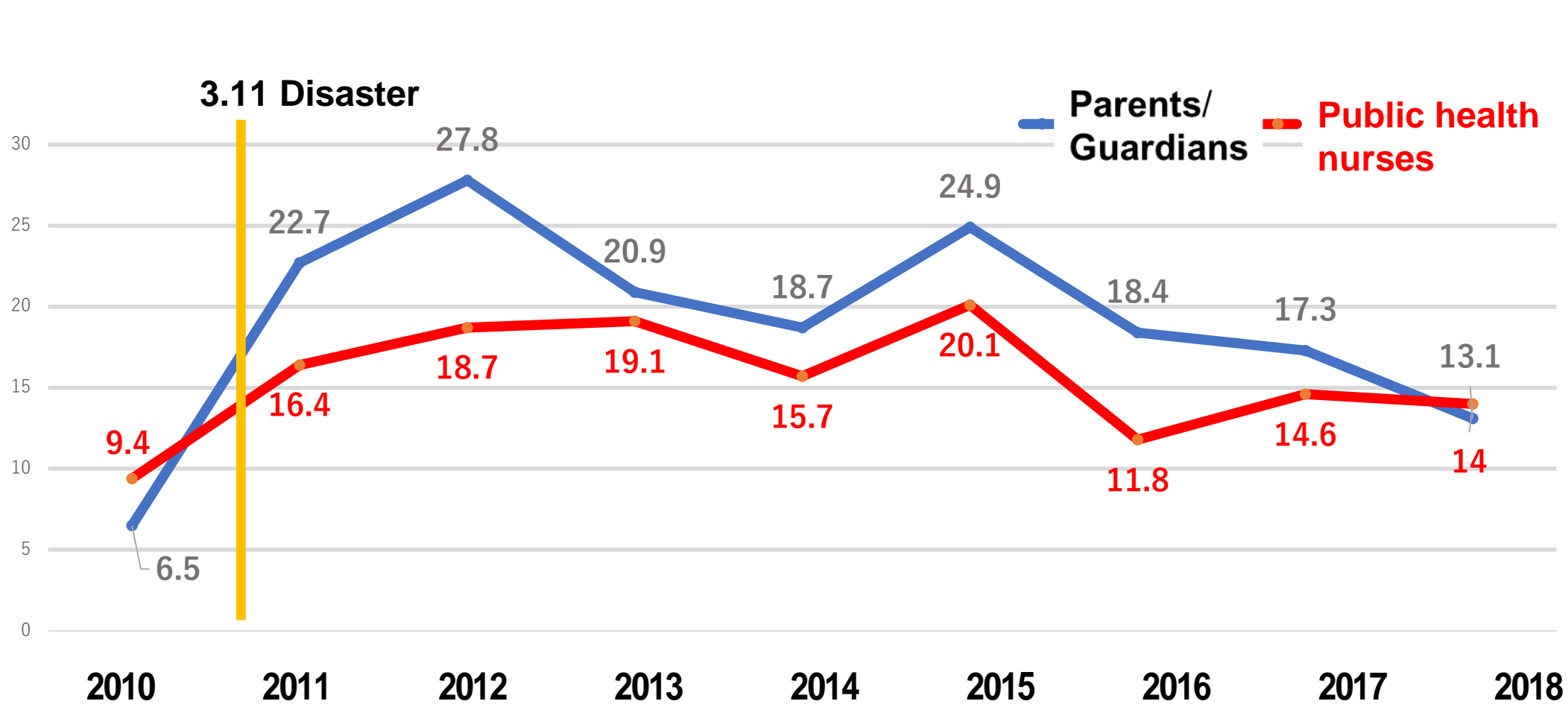
# Percentage of children with poor eye contact

(3½-year-old health checkup)



Fiscal year	Total
2010	505
2011	207
2012	230
2013	215
2014	249
2015	298
2016	304
2017	356
2018	358

# Hyperactivity/impulsiveness/restlessness (3½-year-old health checkup)



Fiscal year	Total
H22	505
H23	207
H24	230
H25	215
H26	249
H27	298
H28	304
H29	356
H30	358

# Results from the infant health checkups

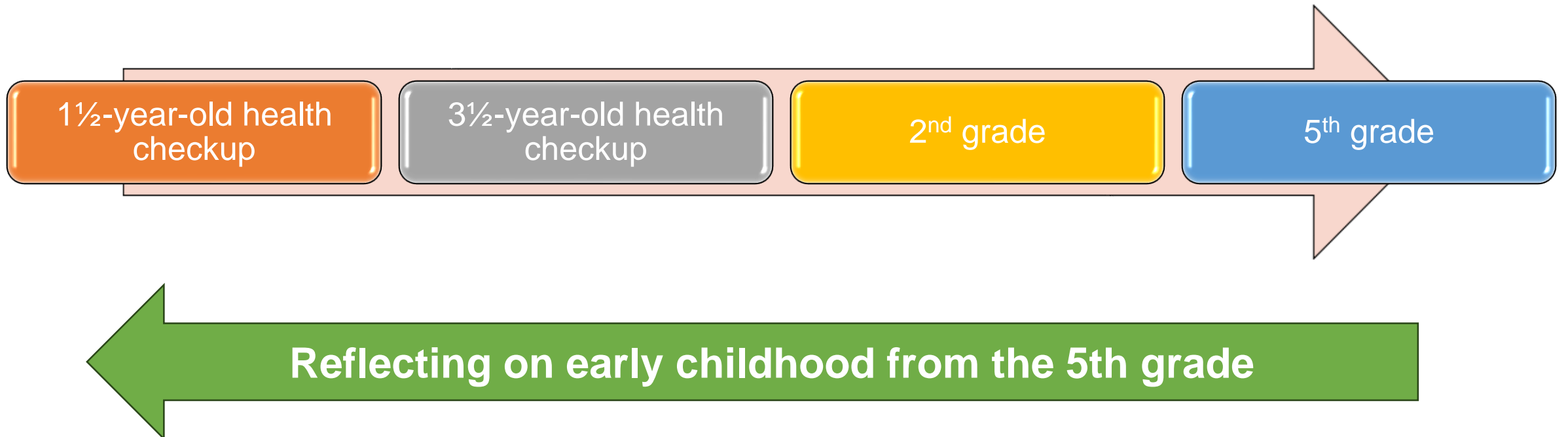
- 1½-year-old health checkup: Language developmental issues.
- 3½-year-old health checkup: The increase of children with issues of restlessness, language development, and delay in acquiring daily living skills has continued more than 8 years.
- Why?
- How long will this situation continue? Will it settled down eventually?
- What are the behavioral characteristics of school-age children?  
e.g., Will the restlessness persist?
- How can we respond?

# **Questionnaire survey of elementary school students**

Implemented from 2019 to 2021

# Survey population

Grade	Time of birth	Age at the time of 3.11 disaster	Responses	Those associated with 1 ½ & 3 ½ health checkup
2 <sup>nd</sup>	April, 2010 - March, 2013	Prenatal - 1 year old	258	139
5 <sup>th</sup>	April, 2007 - March, 2010	1 - 4 years old	256	100





# Methods of analysis

## ◆ Retrospective cohort study

- Analysis methods: Multiple logistic regression analysis (SPSS Statistics ver.26)
- Analysis contents: The data used for analysis

Follow-up Survey (2 <sup>nd</sup> & 5 <sup>th</sup> graders)	1½-year-old health checkup	3½-year-old health checkup
<ol style="list-style-type: none"><li>1. Face sheet (Information on gender, age, education, healthcare, etc.)</li><li>2. Japanese version of children's SDQ (Strength and Difficulty Questionnaire : SDQ)</li><li>3. Depression/anxiety disorder screening questionnaire</li><li>4. Health related QOL (SF-8/SF-12) (Quality of life: QOL)</li><li>5. Child-rearing environment</li><li>6. Evacuation situation during the disaster</li></ol>	<p>Medical questionnaire</p> <p>(point-and-speak, vocabulary, understanding of, parental mental health, etc.)</p>	<p>Medical questionnaire</p> <p>(development of language, hyperactivity, Independence in daily life, parental mental health, etc.)</p>

# Summary

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The factors that affected the level of difficulty in SDQ at the time of the 3.11 disaster

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## 2<sup>nd</sup> Graders



- Children's emotional issues at the time of 3½-year-old health checkup
  - Lower sense of well-being of parents/guardians
  - Long period of the evacuation life after birth
- 

## 5<sup>th</sup> Graders



- Mothers realize lack of support from others and surroundings both at 3½-year-old health check up and now.
-

# Future Tasks

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- Parents and children with high support needs in elementary school show signs from early childhood.
  - By nature, early intervention should be possible.
- It needs to be clarified for mothers who feel not having enough support, specifically, what support they need and how to provide the support.
- Establish Systems to ensure support to those who need it from limited supporting resources.
- To realize this, it is important to identify parents and children who really need support.
  - Under the current circumstances, it is difficult to associate data from the infant health checkups to school-age children's health checkups.
  - There is little data that can be tracked (about 20 to 50 children per school grade).
  - To provide support, it is necessary to accumulate data efficiently.

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