Fukushima Medical University

Mental health consequences of the Fukushima disaster and care for affected people

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Mainichi Shimbun / Reuters

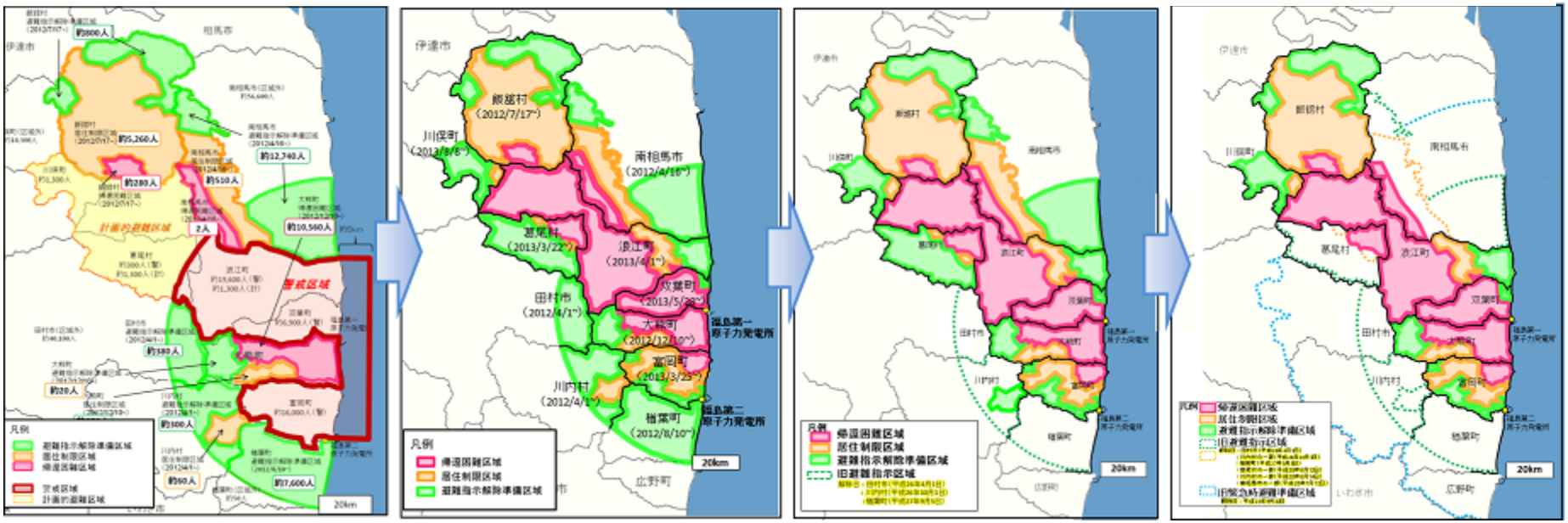
Ambiguous loss

Differences between natural and nuclear disasters

	Natural disasters	Fukushima disaster
Impact of trauma	Acute, instant	Chronic, continuous
Affected area	Visible, clear	Invisible, unclear
Physical loss	Apparent	Ambiguous
Psychological acceptance	Relatively easy	Very difficult
Compensation	Simple, limited	Complicated, unsettled
Groundless rumors	Rare	Common
Stigma and self-stigma	Rare	Common
Voluntary evacuation	Few	Numerous
Evacuation	Near, relatively short-term	Remote, long-term
Cohesiveness of community	High	Low
Psychological recovery	Dependent on physical relief	Independent of physical relief

Maeda et al, J Natl Inst Public Health: 2018

As of DEC 11, 2012 As of AUG 8, 2013 As of SEP 5, 2015 As of JUL 12, 2016



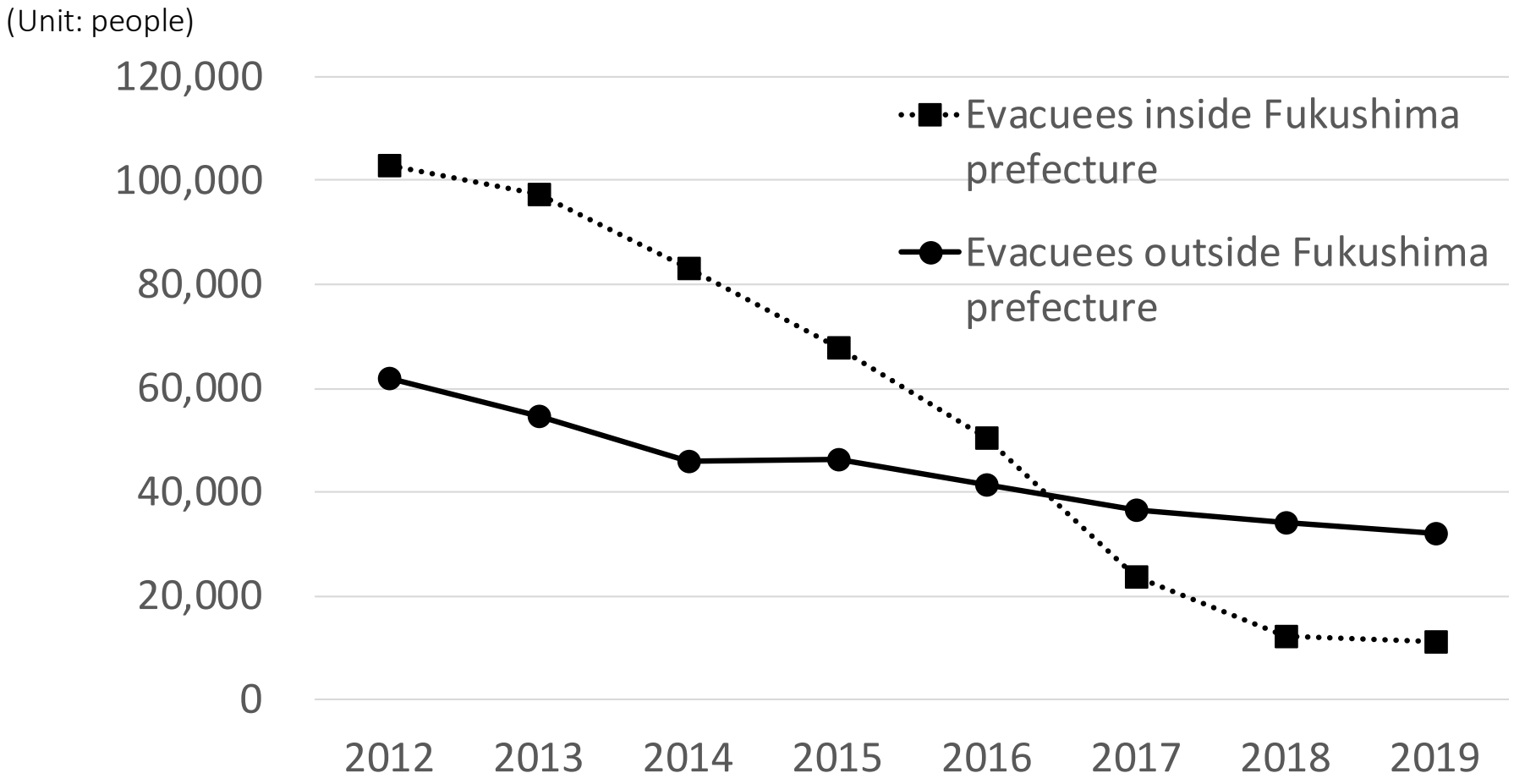
Number of evacuees

Evacuees in Fukushima : 7,915

Evacuees out of Fukushima : 30,740

（As of Mar, 2020, Fukushima prefecture）

Evacuees inside and outside Fukushima Prefecture



Fukushima Prefecture. *Steps for reconstruction and revitalization in Fukushima prefecture* (2020). Available online at: https://www.pref.fukushima.lg.jp/uploaded/attachment/394169.pdf (accessed Sep28, 2020).

Initial phase (~6 months)

- Adequate risk communication was required, but extremely difficult in this phase. To request affected people to keep calm often provoked negative reactions among them. It was regarded as underestimation or concealment of the impacts.
- Acute stress reactions often appeared with intense aggression, which could traumatize different rescue and relief workers including medical and welfare staff.
- Preexisting care system was weakened due to evacuation of local health care workers.
- Alternatively, new mental health care system that could provide long-term psychological care in disaster area was required.

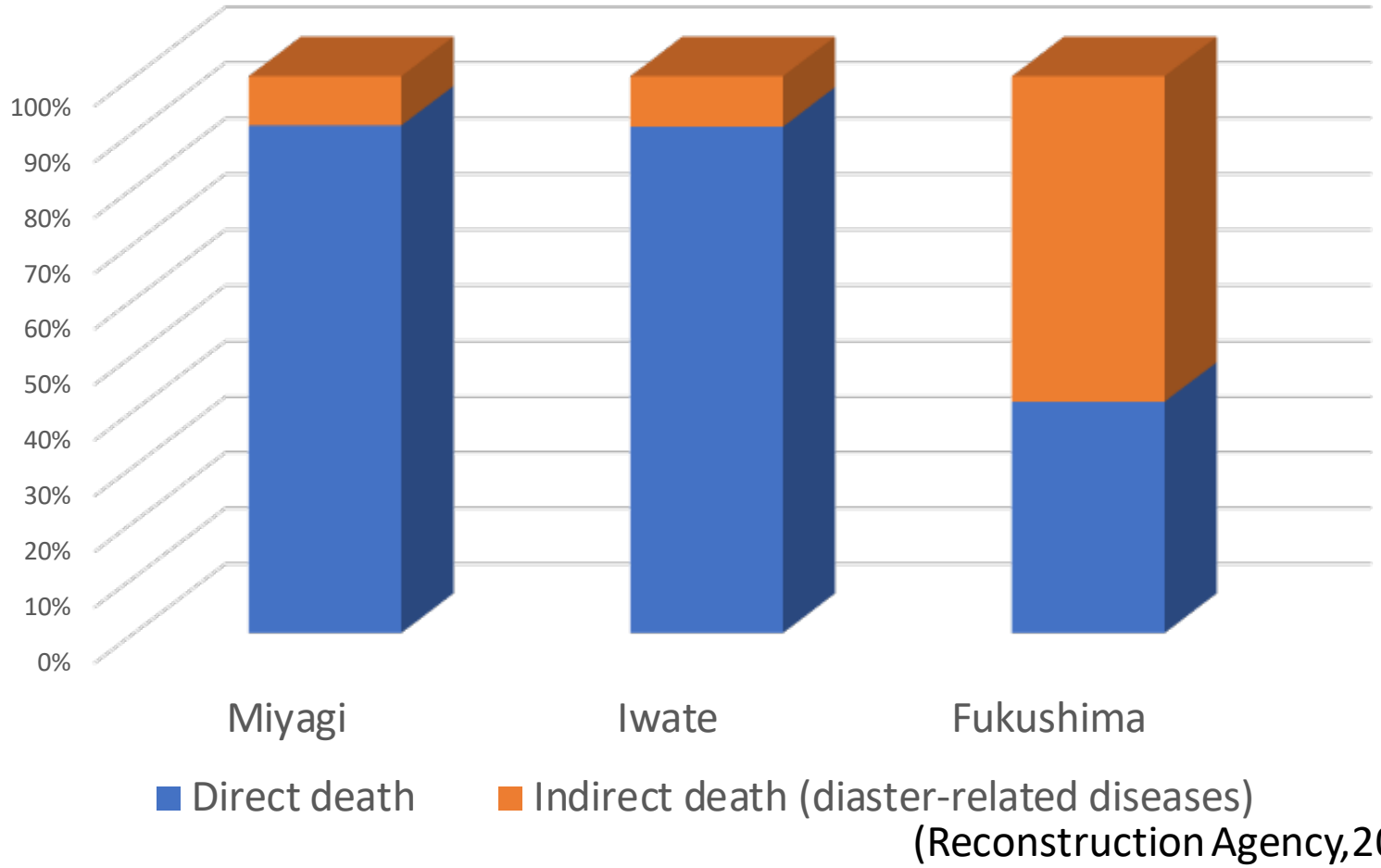
Fukushima Center for Disaster Mental Health (FCDMH)

- ◆Established in 2012
- ◆About 40 staff (clinical psychologists, social workers, nurses, occupational therapists, etc.)
- ◆5 branches in Fukushima
- ◆Activities
  - ✓Visit service (outreach)
  - ✓Group activities for evacuees
  - ✓Educative programs for other parties concerned (e.g. community nurses, administrative officers)
  - ✓Making relationship with other mental health facilities

Recovery phase (6 months ~)

- This phase is much longer than that of natural disasters.
- While risk communication was implemented, concerns among affected people extended to not only radiation health effects but also other broad matters (eg. financial issues, future plans, medical and welfare service, etc.)
- Evacuation-related health issues (non-radiological health problems) including suicide was growing up.
- Stigmatization related to pregnancy and/or compensation emerged among the public and affected people.
- Dispersal of evacuees weakened community ties.

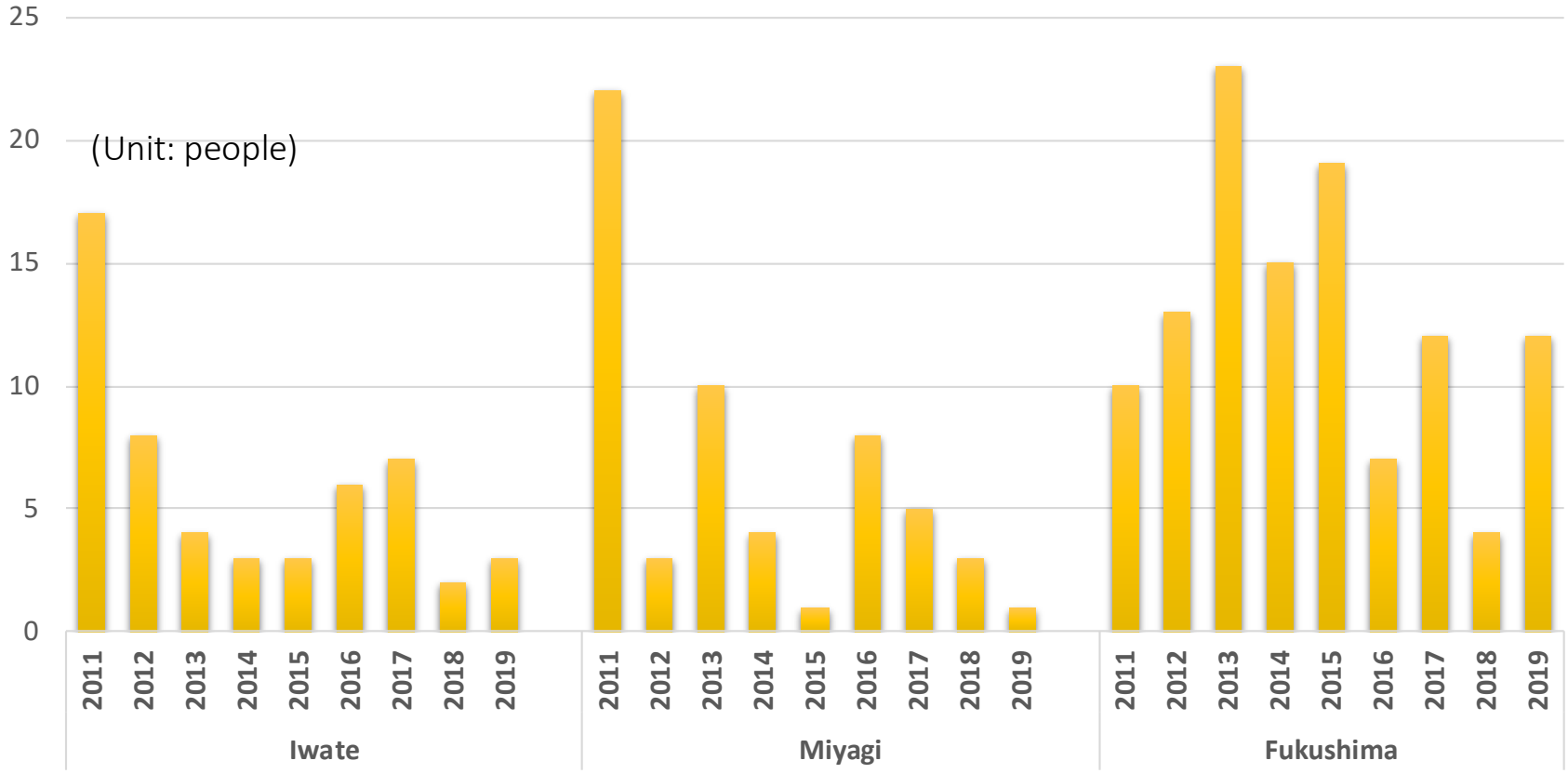
“Direct death” vs “Indirect death”



(Reconstruction Agency,2019)

Direct death: death can be directly ascribed to disaster (earthquake or tsunami)
Indirect death (disaster-related death): death occurred as a consequences of environmental problems in evacuation life

Disaster-related suicide in prefectures affected by the Great East Japan Earthquake



Japan Ministry of Health, Labour and Welfare. *The Number of Suicides Relating to Great East Japan Earthquake 2019*. (2019). Available online at: https://www.mhlw.go.jp/content/202008-shinsai.pdf (accessed Sep28, 2020).

Mental Health and Life style survey

Fukushima Medical University

Purposes

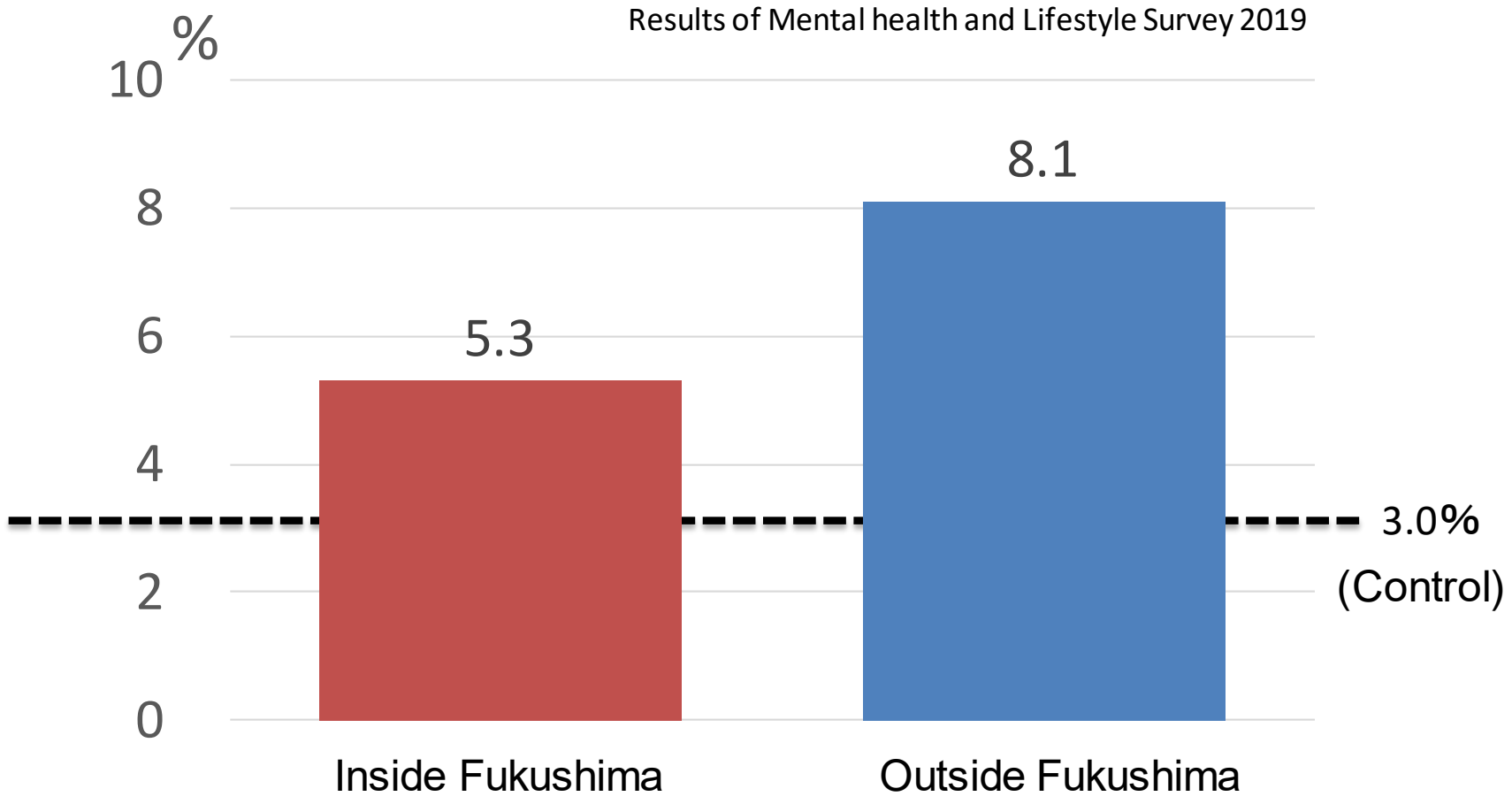
- To clarify current mental health problems and lifestyle-related issues among people who lived in the evacuation zone at the time of the disaster by using several questionnaires
- To provide brief intervention including psychoeducation and advises by telephone or mail mainly for people at risk of PTSD, depression and other behavioral problems.
- To share information with available resources in Fukuhima such as the Fukushima Care Center for Disaster Mental Health or psychiatric clinics as needed

Target population

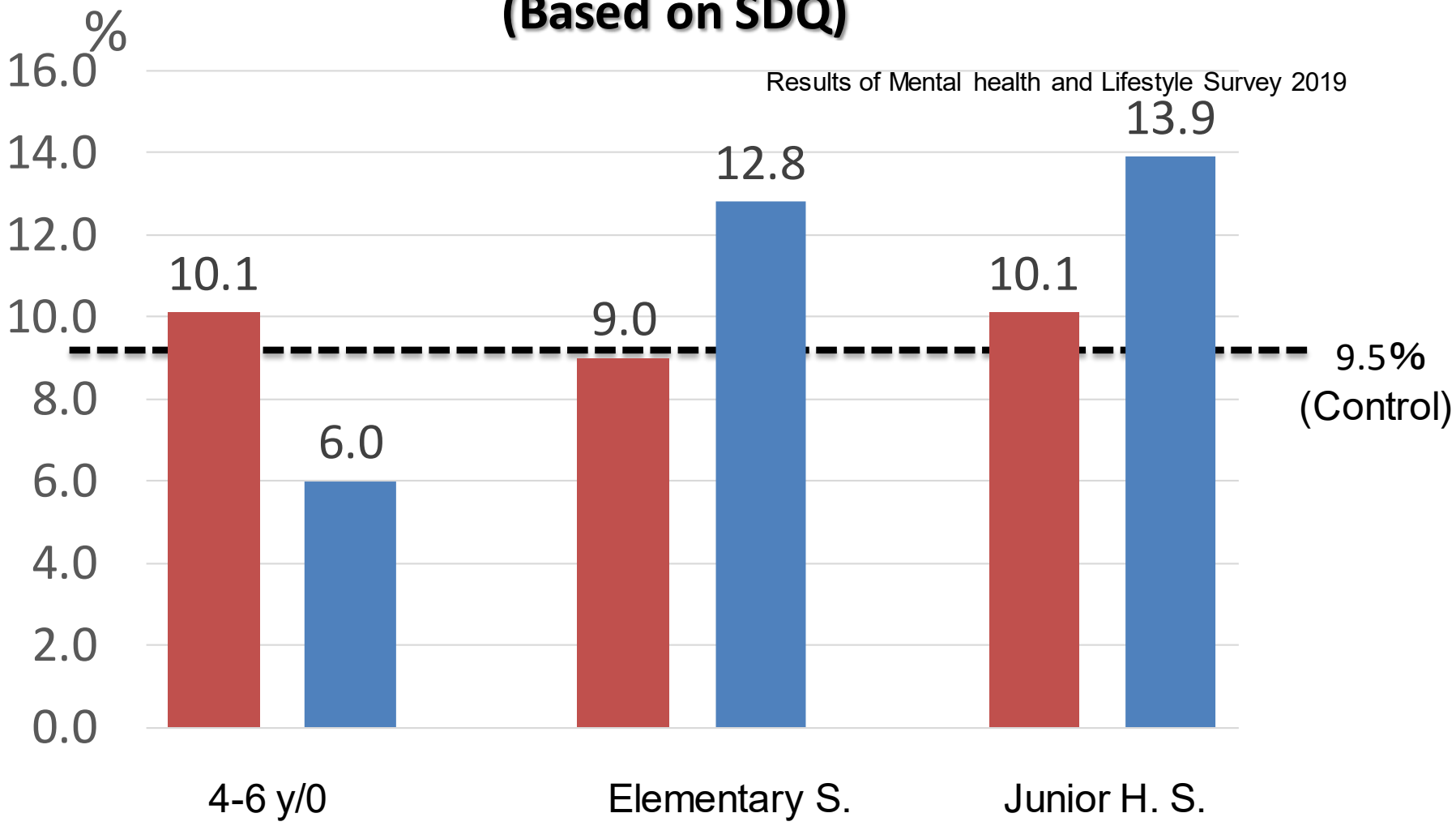
- **211,615** residents had once lived in 13 municipalities which were ordered by the Japanese government for evacuation.
- We divided all the participants into 5 groups according to age.
  - ① **Age 0-3** : 4,625
  - ② **Age 4-6** : 5,047
  - ③ **Primary School(age 7-12)** : 11,413
  - ④ **Middle School (age 13-15)** : 6,023
  - ⑤ **Adult (age >15)** : 184,507

This survey has been performed since January 2012, about one year after the disaster

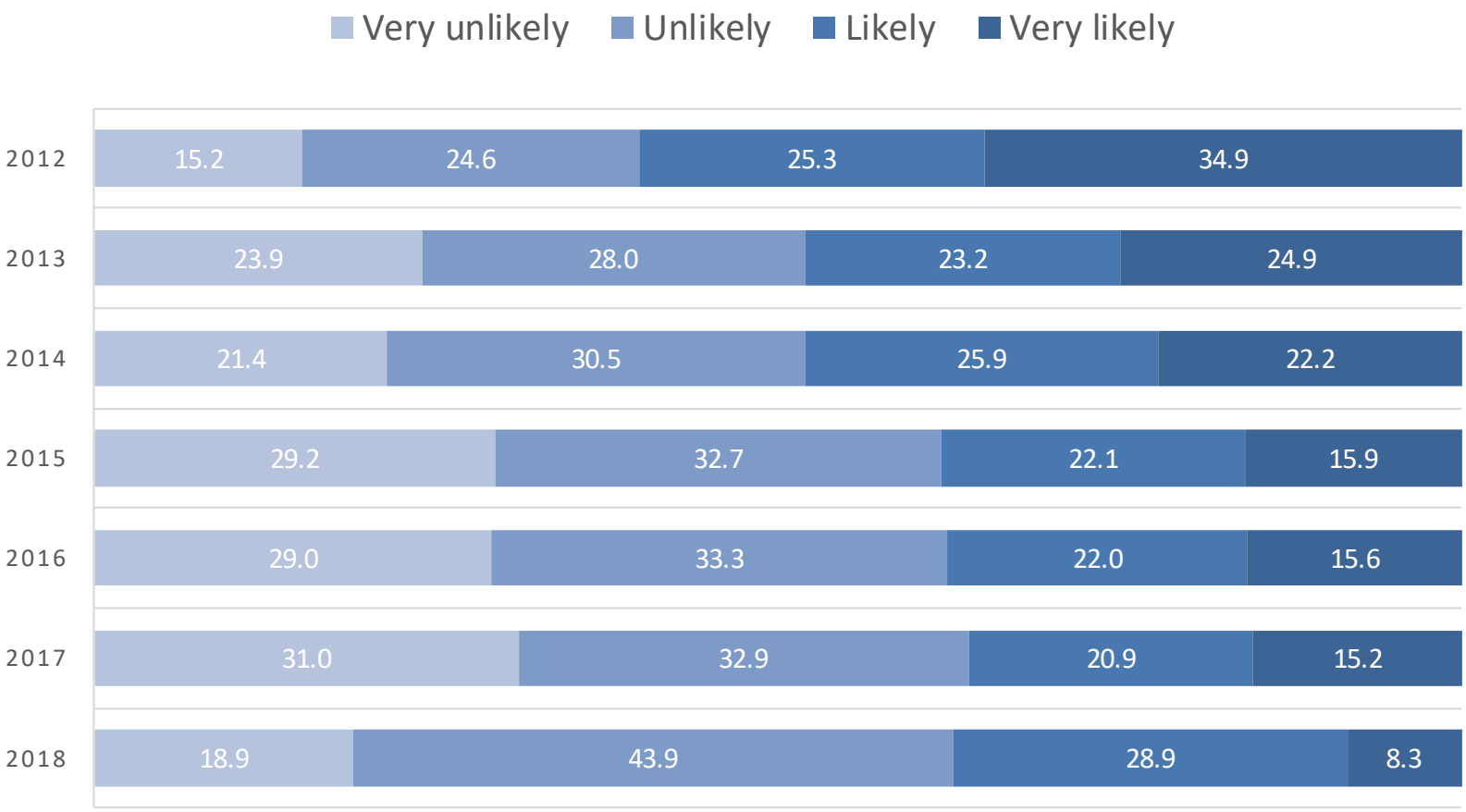
Comparison of prevalence of evacuees at risk of psychiatric disorders between in and out of Fukushima in 2019 (based on K6)



Comparison of prevalence of Children at risk of behavioral problems between in and out of Fukushima in 2019 (Based on SDQ)



Radiation risk perception towards genetic effects among evacuees



Multivariate logistic regression analysis of the severe distress group

Predictor	Model 2 Model 1 + disaster-related variables
	OR (95%CI)
Gender (female)	1.51 (1.21-1.89)**
Age (65y or more) at the disaster	1.82 (1.46-2.26)**
Problem drinking (CAGE 2 or more) in 2013	1.77 (1.26-2.49)**
Sleep disturbance in 2013	3.86 (3.07-4.86)**
Poor perceived social support (LSNS-6 12 or less) in 2013	2.39 (1.90-2.99)**
Perception of radiation risk (genetic effects: very likely) in 2013	3.91 (3.17-4.83)**
House damage at the disaster	0.90 (0.68-1.20)
Bereavement at the disaster	1.16 (0.91-1.47)
5 times or more relocations after the disaster (in 2012)	1.26 (1.02-1.55)*

Oe, Maeda et al. 2016

Brief intervention by Telephone

- Our team has about 17 staff including clinical psychologists, social workers and nurses.
- The telephone supports were provided for the respondents who show high score on SDQ, K6 or PCL.

Strength and Difficulties Questionnaire (SDQ)

Parents of children aged 4 through 15 years were asked to evaluate their children's behavior

Kessler 6-item questionnaire (K6)

To estimate general mental health, especially depression

PTSD Checklist (PCL)

To estimate PTSD symptoms

Long-term recovery phase

Mental health care system needs to function for very long time after nuclear accidents.

Social countermeasures for public stigma (e.g. anti-stigma campaign) may contribute to empowerment of affected people.

Relief workers might be extremely overworked and easily exposed to negative feelings (anger and complaints) of affected people. Supporting such workers should be key to success of the restoration after nuclear disasters.

Exhaustion of relief workers in Fukushima

Results of diagnostic interview for public employees working in the disaster area (n=168, in 2013-2014)

- Depression 17.9%
- Suicide risk 8.9%
- Sleep difficulties 72.6%

97% of the participants were exposed to frequent anger or complaints from evacuees

Maeda et al . PCN 2016


THANK YOU FOR YOUR ATTENTION