

Stress Factors for Affected People

- Future uncertainty
- Uncertainty about residence and workplace security
- Social prejudice
- Media influences
- Differences of climates and customs

Characteristics unique to radiation disasters



- Unable to predict disasters
- Difficult to determine the extent of damage
- Possible radiation effects that might arise in the future

Source: Prepared based on the "Mental Support at the Chernobyl Accident," Material 3-2 for the 3rd meeting of the Investigative Commission for Mental Care and Measures against Health Concern, Exposure Medicine Sectional Meeting, Nuclear Regulation Authority (former Nuclear Safety Commission)
<http://warp.da.ndl.go.jp/info:ndljp/pid/8422832/www.nsr.go.jp/archive/nsc/senmon/shidal/kokoro/kokoro003/siryu2.htm> (In Japanese)

Generally, factors causing stress to the affected people include future uncertainty, uncertainty about residence and workplace security, social prejudices, media influences, differences of climates and customs, etc. For radiation disasters, there are other stress factors as well, such as being unable to predict disasters, difficulty in determining the extent of damage, and radiation effects that might arise in the future (p.143 of Vol. 1, "Radiation Accidents and Health Concerns").

In particular, concerns over future radiation effects cause a huge stress as affected people have to be worried for a long time about the possibility that they might someday develop cancer.

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Updated on March 31, 2017

Anxiety caused by radiation accidents

- Anxiety over health effects of radiation
- Anxiety over health effects on children now and in the future

Psychological effects from protracted anxiety

- Possibility that mental health may deteriorate
- Possibility that mothers' anxiety may affect the mental state and growth of children

Factors that increase anxiety

- Unable to acquire reliable information
- Confusion caused by scientifically inaccurate information
- Stigmas and stereotypes

In the event of a radiation accident, people would be worried about the possibility of their exposure to radiation and about the extent of exposure and possible health effects if exposure occurred. Parents in particular would be concerned about the immediate and long-term health effects on their children.

People's mental health would deteriorate as a result of protracted anxiety over possible future health effects. It has also been pointed out that the anxiety of mothers might affect the mental state and growth of their children (p.106 of Vol. 1, "Effects on Children - Chernobyl NPS Accident -").

The anxiety could be heightened by being unable to acquire reliable and accurate information about radiation. It has also been reported that unreasonable public stigmas and discriminations (stereotypes) about people affected by contamination or exposure could exacerbate their mental health problems.^{*1*2}

*1: Fukushima Psychological Care Manual, Fukushima Mental Health and Welfare Centre

*2: Werner Burkart(Vienna) "Message to our friends affected by the nuclear component of the earthquake/tsunami event of March 2011 (August 26, 2013)"(Werner Burkart :Professor for Radiation Biology at the Faculty of Medicine of the Ludwig Maximilians University in Munich, Former Deputy Director General of the International Atomic Energy Agency (IAEA)) (http://japan.kantei.go.jp/incident/health_and_safety/burkart.html)

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Possible psychological effects of radiation issues:

- Parents' anxiety over radiation proves that they are dedicated parents.
- Parents' excessive concern over radiation could affect children mentally and physically.

Regarding fetal exposure and neuropsychological disorders caused by the Chernobyl NPS Accident:

- The results of studies on the neuropsychological disorders of children who were fetuses at the time of the accident are not coherent.
- Although there is a report that exposure affected the IQ of the fetuses, no correlation has been found between thyroid exposure doses and children's IQs.

Source: Prepared based on the Kolominsky Y et al., J Child Psychol Psychiatry, 40 (2): 299-305, 1999

In some of the studies targeting children who were fetuses at the time of the Chernobyl NPS Accident, investigations on neuropsychological effects were also conducted.

Although the results of the studies are not necessarily coherent, a report that attests to emotional disorders of the children caused by the accident also points out other effects such as parents' anxiety as factors affecting their mental state, rather than merely pointing out radiation exposure as a direct effect (p.106 of Vol. 1, "Effects on Children - Chernobyl NPS Accident -").

(For the results of the survey on children's mental health conducted by Fukushima Prefecture, see p.155 of Vol. 2, "Mental Health and Lifestyle Survey: What Has Become Clear (4/5).")

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Updated on March 31, 2019

Conclusion from dialogue with the local residents 1

(View of the International Commission on Radiological Protection (ICRP))

- Participants recognized the importance of developing radiation protection culture to allow inhabitants to understand and evaluate the information on the consequences of the accident and to take informed actions for reducing radiological exposure.
- They recognized the need for a more detailed characterisation of the radiological situation to allow people to know where, when and how they are exposed.
- They underlined their concern about the future demographic pattern due to an acceleration in the younger generations leaving the prefecture and abandoning farming activities.
- They discussed with great emotion the issue of discrimination of people in the affected areas, especially for those of pre-marital age to marry and have children.
- The preservation of the traditional and popular activity of gathering wild vegetables (sansai) was identified as culturally important in maintaining the cohesion of the Fukushima community.

Source: Prepared based on Lochard, J (2012), the material for the 27th symposium of the Nuclear Safety Research Association

Providing useful information for helping affected people to solve or deal with real issues has been proven to be an effective means for offering psychological support.

In the event of a nuclear disaster, expert knowledge is required to understand the possible effects of radiation and to come up with measures for radiological protection.

After the Chernobyl NPS Accident, as well as after the Tokyo Electric Power Company (TEPCO)'s Fukushima Daiichi NPS Accident, experts and local residents had dialogues. If affected people are able to solve radiation issues by themselves with experts' support, that is considered quite effective in reducing their psychological stress.

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Updated on March 31, 2017

Conclusion from dialogue with the local residents 2

(View of the International Commission on Radiological Protection (ICRP))

- Develop a mechanism to support projects proposed by local communities and residents to improve living conditions.
- Support community expectations that decisions on recovery actions reflect their priorities, be based on their knowledge of the local context, and support their current and future interests.
- Continue efforts to monitor individual internal and external exposures, and to provide information and tools in order to help people to make their own judgments.
- Create a forum for a permanent dialogue between all concerned parties (producers, distributors and consumers) on the issue of foodstuff.
- Promote the involvement of parents, grand-parents and teachers to develop radiation protection culture among children.
- Strengthen dialogue and cooperation with stakeholders elsewhere in Japan and abroad.

Source: Prepared based on Lochar, J (2012), the material for the 27th symposium of the Nuclear Safety Research Association

The ICRP provided some specific suggestions as a result of the dialogues between experts on radiological protection and the affected people of the accident at Tokyo Electric Power Company (TEPCO)'s Fukushima Daiichi NPS. The suggestions include the necessity to reflect the priorities of local communities, provide tools and information about radiation doses, create a permanent forum on foods, develop radiological protection culture, etc.

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Summary of effects on mental health



World Health Organization (WHO) Report issued in 2006 upon the 20th anniversary of the Chernobyl NPS accident

- **Anxieties and medically unexplained physical symptoms including depression and Post Traumatic Stress Disorders (PTSD) are increasing as stress-related disorders among the group of disaster victims, compared to a control group.**
- **The effects of the Chernobyl NPS Accident on mental health have been the biggest health issue for the residents.**

Source: World Health Organization: Mental, psychological and central nervous system effects. Health effects of the UN Chernobyl accident and special health care programmes: report of the UN Chernobyl forum expert group "Health" (eds. Bennett B., et al), 93-97, WHO, Geneva 2006

The effects of the Chernobyl NPS Accident are often cited as an example of psychological effects of nuclear disasters.

According to summaries by the International Atomic Energy Agency (IAEA) and WHO, psychological effects surpassed direct health effects of radiation.

After the Chernobyl NPS Accident, many complained about health problems because of mental stress. This was not caused solely by the effects of radiation but is considered to have resulted from a complex combination of multiple factors including social and economic instability brought about by the collapse of the USSR at the time, which caused a great deal of mental stress to people.

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Studies in the 2006 World Health Organization (WHO) Report 

- (i) Stress-related symptoms**
- (ii) Concern over effects on brains in development (fetal effects)**
- (iii) Effects on decontamination workers**
 - High suicide rate
 - Some scholars point out concerns over functional brain disorders

Source: World Health Organization: Mental, psychological and central nervous system effects. Health effects of the UN Chernobyl accident and special health care programmes: report of the UN Chernobyl forum expert group "Health" (eds. Bennett B., et al), 93-97, WHO, Geneva 2006

The WHO Report summarizes psychiatric consequences of stress from the nuclear disaster, pointing out the following four points:

The first is about stress-related symptoms. The study reports that the percentage of those claiming unexplainable physical symptoms or health problems based on self-assessment in a group of exposed people was 3 to 4 times larger than that in a control group.

Secondly, it was found that mothers who were pregnant when the accident happened have been deeply concerned about radiation effects on the brain functions of their children. For example, to a questionnaire question such as "if they believe their children have problems with their memory," 31% of mothers in mandatory evacuation areas answered yes, which is 4 times larger than the percentage (7%) of mothers in uncontaminated areas who answered yes.

The third and fourth points are radiation effects observed in decontamination workers.

A follow-up study on 4,742 Estonians who participated in decontamination operations found that 144 of them had been confirmed dead by 1993, with 19.4% of them dying by suicide, although no increases were seen in cancer incidence and mortality rates.

Additionally, there was a study report that functional brain disorders were found in decontamination workers with the highest exposure doses. However, such findings are criticized for a lack of scientific correctness as alleged by some researchers and are not confirmed individually.

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Updated on February 28, 2018

Summary by Bromet et al. (2011)

- (1) Among workers who participated in emergency work immediately after the accident and decontamination operations, a significant percentage is still suffering from depression and PTSD, even after the lapse of 20 years from the accident.**
- (2) Different studies show different results about psychiatric effects on children in the highly contaminated areas.**
- (3) Studies on general populations have found that the percentages of self-reported health problems, clinical or preclinical depression, anxiety and PTSD are high.**
- (4) Mothers remain in a psychiatric high-risk group as they have been concerned about family health at all times.**

Source: Bromet EJ, JM Havenaar, IT Guey. A 25 year retrospective review of the psychological consequences of the Chernobyl accident, Clin Oncol 23, 297-305, 2011

In 2011, a research group specialized in psychiatry and preventive medicine published a paper detailing what psychiatric effects of the Chernobyl NPS Accident were observed.

It has been found that among a group of workers who worked at the site immediately after the accident and who were exposed to high levels of radiation, a significant percentage is still suffering from depression and PTSD, even after the lapse of 20 years from the accident. Different studies show different results concerning radiation effects on toddlers and fetuses who lived around the plant or in the highly contaminated areas at the time of the accident. For example, studies conducted in Kiev, Norway and Finland on children who were exposed to radiation in their mothers' wombs suggest that they had specific psychiatric and psychological disorders, but other studies do not observe such health problems. Studies on general populations have found that the percentages of self-reported health problems, clinical or preclinical depression, anxiety and PTSD are high. Mothers remain in a high-risk group from a psychiatric viewpoint as they have been concerned about family health at all times.

In the case of the Chernobyl NPS Accident, all such symptoms are not attributed solely to concern over radiation. Distrust of the government, inappropriate communications, the collapse of the USSR, economic issues, and other factors would also have had some relevance and some of them would have had a combined effect, rather than one factor being the sole culprit.

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2006 World Health Organization (WHO) Report :
Mental health such as anxiety is the biggest problem for regional healthcare.



Against this,



concerns have been raised over the decrease in international investigations since the 2006 WHO Report.

- (i) It has been pointed out that the physical effects and damage from the Chernobyl NPS Accident might be greater than the estimate in the WHO Report, and that it would be necessary to continue international investigations.*¹**
- (ii) There has been a criticism that the WHO's view would make people less wary of foods from the contaminated areas and could impede future investigations and research.*²**

*1: This view is based on the fact that in Rivne in Ukraine, the incidence of neural tube defects is 22.2 per 10,000 people, the highest throughout Europe. (Wertelecki, Pediatrics, 125, e836, 2010)
However, it has not been clear what is causing this.

*2: Holt, Lancet, 375, 1424 - 1425, 2010

There are also reports arguing that the WHO Report overestimates mental health aspects such as anxiety and underestimates physical effects.

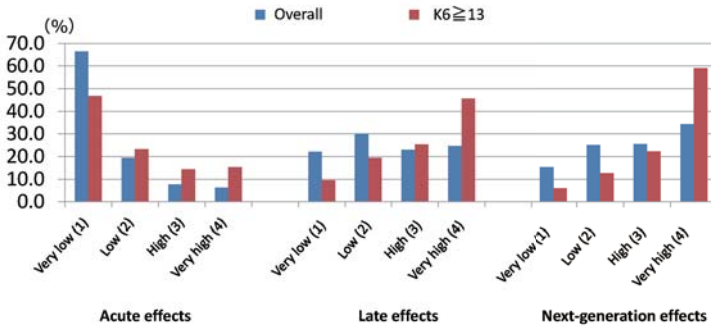
These reports rely primarily on a report that people living as an isolated Polish community in the Rivne province of Ukraine, called "Polishchuks," have a high incidence of neural tube defects. Because the effects of consanguineous marriage are also suspected and neural tube defects could be also caused by folate deprivation and maternal alcohol use, it is unclear whether the high incidence of neural tube defects in the Rivne province has been caused by radiation from the Chernobyl NPS Accident or other effects, or their combinations.

(Related to p.107 of Vol. 1, "Knowledge on Malformation Induction - Chernobyl NPS Accident -")

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Results of the Mental Health and Lifestyle Survey of the FY2011 Fukushima Health Management Survey



*K6 is a self-recording scale to measure general levels of mental health. Scores exceeding 13 show strong depression and anxiety symptoms.

- **Overall trend**

The majority answered that the possibility of acute effects is very low. Opinions vary with regard to late effects. The largest number of respondents chose the option "very high" for next-generation effects.

- **Among people with mental disorders**

The percentages of respondents who chose the option "very high" were large for all three types of effects.

Source: Prepared based on Suzuki Y, et. al., Bull World Health Organ, 2015
(<http://dx.doi.org/10.2471/BLT.14.146498>)

As part of the Fukushima Health Management Survey, Fukushima Prefecture conducts the Mental Health and Lifestyle Survey targeting residents of evacuation areas, etc. every year (see Vol. 2, "10.5 Mental Health and Lifestyle" for details). The 2011 survey asked about the perception of (i) acute effects (hair loss and bleeding), (ii) late effects (thyroid cancer and leukemia), and (iii) any next-generation effects of radiation. As a result, the following were found.

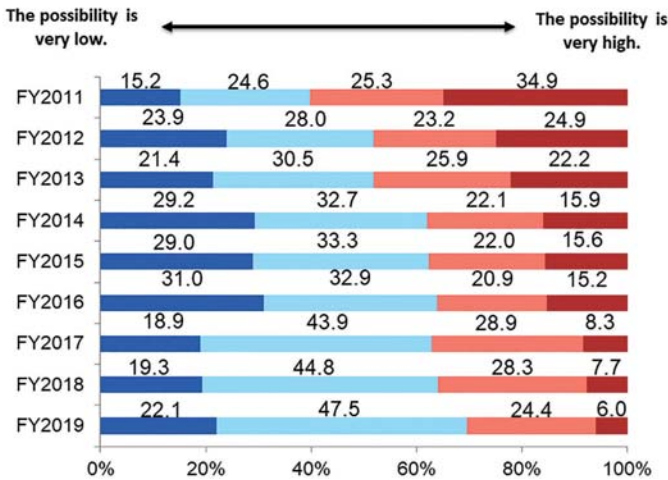
- There are very few people worrying about acute exposure, but the majority have concerns over late effects and next-generation effects.
- Those worrying about radiation effects as indicated in their responses to all three questions clearly show worse mental health conditions and have depression and anxiety symptoms.

Given these, it can be said that people who are apt to have negative perception of risks are highly likely to have strong depression and anxiety symptoms as well.

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Changes in Perception of Radiation Risks (Next-generation Effects)



Source: Prepared based on the materials of the 42nd Prefectural Oversight Committee Meeting for Fukushima Health Management Survey

As shown on p.151 of Vol. 1, “Relationship between Mental Health and Perception of Risks Concerning Health Effects of Radiation,” the Fukushima Health Management Survey examines perception of risks concerning health effects of radiation (late effects and next-generation effects) every year. The percentages of respondents answering that the possibility is high are gradually decreasing for both questions. However, what should be noted is the fact that a larger number of people every year worry about next-generation effects rather than late effects. The figure shows changes over the years in responses to questions about next-generation effects. The percentage of people worrying about next-generation effects is decreasing gradually but still remains at around 30% as of FY2019.

Such worries over next-generation effects of radiation tend to cause discrimination and prejudice and doubt about future chances of getting married or having children. If affected people themselves feel in this manner or have self-stigmas (self-prejudice), their confidence and identity may be shaken significantly and their future life plans may be affected accordingly. It is necessary to note the sensitiveness of such worries and prejudice for affected people (p.143 of Vol. 1, “Radiation Accidents and Health Concerns”).

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The Chernobyl NPS Accident occurred on April 26, 1986



Increase in induced abortions in remote places

Greece: sharp decline in birthrate in January 1987

⇒ Induced abortions for 23% of fetuses in the early stage of fetation in May 1986 (estimation)

Italy: Approx. 28 to 52 unnecessary abortions per day for five months after the accident (estimation)

Denmark: Slight increase

Sweden, Norway, Hungary: None

Source: Prepared based on the Proceedings of the Symposium on the effects on pregnancy outcome in Europe following the Chernobyl accident. Biomedicine & Pharmacotherapy 45/No 6, 1991

Excessive concern over the health effects of radiation could be harmful both physically and mentally.

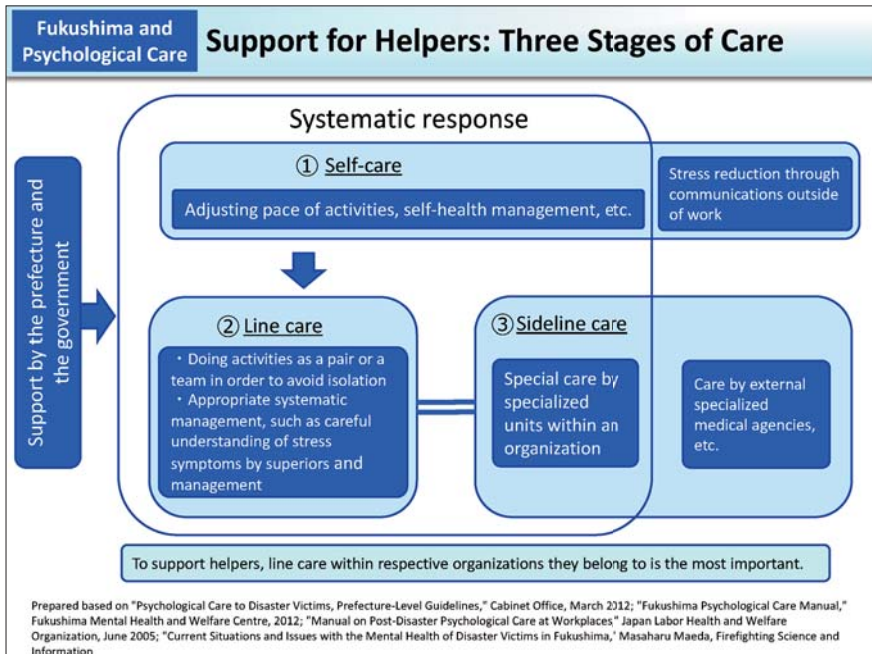
For example, resulting suicide attempts and alcohol addiction are harmful to the body.

There is a report that spontaneous abortions increased because of stress after the Chernobyl NPS Accident. There is also a report that induced abortions increased even in areas remote from the Chernobyl NPS. In Greece, the effect of the Chernobyl NPS Accident was minor within the level below 1 mSv, but the number of pregnant women who chose abortion increased in the next month after the accident and the number of births sharply declined in January of the next year. Based on the birth rate, it is estimated that 23% of fetuses in the early stage of fetation were aborted. On the other hand, in such countries as Hungary, where abortion is not allowed unless fetal exposure dose exceeds 100 mSv, no abortions were performed.

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Support for Helpers: Three Stages of Care



Support service providers to affected people, such as civil servants and medical personnel, are often in positions to closely witness the agony of the affected people and tend to feel helpless or guilty as no immediate solutions are available.

To provide psychological care to them, support within respective organizations they belong to is the most important and such support would help maintain the stability and constancy of the organizations. However, in Fukushima Prefecture, issues to be handled are too wide-ranging, long-term, and complex to find goals or processes for their solutions, so it is difficult to provide support solely by respective organizations.

It is important for such helpers to care for themselves by being aware of their difficult situation and trying to relieve stress by themselves in the first place. Secondly, it is also important for superiors, management or coworkers to detect any problematic symptoms at an early stage and provide care within respective organizations. Furthermore, establishing a specialized unit outside the organization that offers support would be one option. In order to construct such a support system, psychological education and awareness-raising activities targeting managers (also for their own sake) would be very important.

Fukushima Prefecture and the government are providing support for psychological care to the affected people directly and indirectly through psychological care support projects for the affected people, etc.

(Related to p.155 of Vol. 1, "Stress Measures for Helpers")

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Support for helpers within
respective organizations

- 1. Set work goals**
 - Clarify the importance and goals of jobs
 - Keep daily reports, diary or a note of activities to organize thoughts
- 2. Maintain the pace of life**
 - Get enough sleep, nutrition and water
- 3. Take rest when possible**
- 4. Figure out how to get refreshed**
 - Take a deep breath, close eyes, meditate, do stretches
 - Take a walk, do exercise, listen to music, have meals, take a bath, etc.
- 5. Socialize as a way of relieving stress**
 - Contact family, friends, etc. when possible (preferably people unrelated to work)

Self-support of helpers

- a. Avoid overworking**
 - Know your limits and adjust the pace of activities
- b. Be aware of stress**
 - Manage your own health and detect stress symptoms at an early stage
- c. Try to relieve stress**
 - Relaxation, body care, refreshment
 - Communicate with people outside work (family, friends, etc.)
- d. Avoid isolation**
 - Work as a pair or a team
- e. See things differently**

Source: Prepared based on the "Fukushima Psychological Care Manual," Fukushima Mental Health and Welfare Centre, 2012

"Fukushima Psychological Care Manual" by the Fukushima Mental Health and Welfare Centre provides guidelines regarding stress measures for helpers.

Helpers' self-support efforts include avoiding overworking and being aware of their own stress, etc. It might be difficult to avoid overworking given the situation they are in, but it is important for individuals to know their own limits so that they can adjust the pace of activities and to hand off work to someone else in order to avoid meeting too many affected people in a day. Having stress symptoms is not something to be ashamed of but an important clue for self-health checks. It is necessary to manage health by oneself and notice any symptoms at an early stage. Relaxation, body care, refreshment, and communication with people outside work (family, friends, etc.) are effective in relieving stress. Isolation should be avoided as much as possible in a situation where one can easily become stressed out, so it would be necessary to work as a pair or a team and to have opportunity to share experience (disaster situations individual helpers witnessed and their feelings) with coworkers on a periodic basis or to be given instructions from senior workers, etc. It is natural that individuals cannot change everything on their own, especially in difficult situations after disasters, so it is better to rate one's own activities positively and there is no need at all to have negative thoughts considering not being fit or competent for the job.

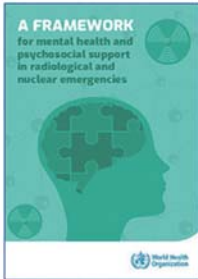
The manual also cites some concrete ways to provide care for helpers within respective organizations.

- Feeling guilty about taking a rest alone while others are working is a sign of stress.
- When noticing any physical or psychological symptoms, consult with a superior or coworkers at an early stage.
- Exchange words with coworkers as often as possible to encourage each other.
- Be careful about one's own health and coworkers' health and tell the relevant person and the supervisor if someone has too much workload.

(Related to p.154 of Vol. 1, "Support for Helpers: Three Stages of Care")

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- ◆ In 2020, the World Health Organization (WHO) published "A Framework for Mental Health and Psychosocial Support in Radiological and Nuclear Emergencies," material compiling concrete recommendations concerning psychological care in all radiological and nuclear emergencies based on existing guidelines published by the WHO and the Inter-Agency Standing Committee (IASC).
- ◆ This publication aims to integrate and promote psychological care and radiation protection and provide guidance targeting officials and specialists involved in planning radiation protection and countermeasures and risk management as well as mental health and psychosocial support (MHPSS) experts working in health emergencies.



As a **public health approach** with an emphasis on MHPSS interventions, the following are **essential for all phases of preparing for, responding to, and recovering** from radiological and nuclear emergencies:

1. **Cross-sector coordination** between radiation protection and MHPSS actors
2. **Community engagement**
3. **Risk communication**
4. Application of **core-ethics principles**

Source: Prepared based on "A Framework for Mental Health and Psychosocial Support in Radiological and Nuclear Emergencies" (2020), WHO [The Japanese version is posted on the website of the Department of Disaster Psychiatry, Fukushima Medical University (<https://www.d-kokoro.com/>).]

"A Framework for Mental Health and Psychosocial Support in Radiological and Nuclear Emergencies" published by the WHO in 2020 states that psychological care is indispensable at all phases of preparing (planning) for, responding to, and recovering from radiological and nuclear emergencies. Additionally, the significance of cross-sector coordination for bringing about successful recovery is emphasized.

For achieving timely and proper MHPSS interventions, the following are specifically recommended: General health and mental health professionals should advocate and work in partnership with other sectors (for instance, communication, education, community development, disaster coordination, child protection, police); A community-based approach should be adopted to encourage risk communication and community engagement so that affected people can play positive roles in activities for improving their own wellbeing.

This publication also explains key measures at the phases of planning and making responses concretely, such as the need to ensure consistency in messages and information provided by public organizations, to prepare messages regarding health risks and prediction thereof, protective measures and preventive measures that are clear and easy to understand for affected people, and to provide psychosocial support intensively to at-risk groups and to people having psychological distress. Additionally, core ethical considerations necessary for all people involved in the provision of psychological care are also explained.

Included in this reference material on March 31, 2022

People Especially in Need of Psychological Support after Emergencies

- People **directly** affected
- **Parents** concerned about the long-term impact on their children's health and prospective parents
- **Children** from affected areas
- People **with underlying health concerns**, such as people suffering from diseases, elderly people, and people with disabilities
- People **with low literacy levels**
- **Responders*** working in stressful conditions
- People living in **facilities for the elderly or other residential facilities and institutions**
- **Evacuees** and members of **hosting communities**
- People with pre-existing mental health and **psychosocial concerns**
- **Workers of the nuclear facility** where the accident occurred and their families



* Respondents: Healthcare workers, clean-up workers at the accident site, reporters and other responders

Source: Prepared based on "A Framework for Mental Health and Psychosocial Support in Radiological and Nuclear Emergencies" (2020), WHO [The Japanese version is posted on the website for lectures of the Department of Disaster Psychiatry, Fukushima Medical University (<https://www.d-kokoro.com/>).]

"A Framework for Mental Health and Psychosocial Support in Radiological and Nuclear Emergencies" published by the WHO in 2020 states that even in the case of a nuclear disaster, many people show resilience, meaning they are able to cope relatively well in adverse situations, and not everyone has significant psychological problems or develops depression, anxiety disorders or PTSD. However, it also calls for attention to the fact that risks for psychosocial problems may increase among specific groups of people depending on the circumstances of an emergency.

This framework points out, as responses to people particularly at risk, the significance of providing psychological care covering affected people as a whole and at the same time formulating good programs suited to individual groups, based on the understanding that those with higher risks also have resilience.

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Key MHPSS Elements at Each Phase after Emergencies

Preparation and planning phase	1) A risk and vulnerability analysis and needs assessment
	2) Formulation of general mental health policy while involving diverse sectors and people
	3) Mapping of existing resources
	4) Mental health and psychosocial support (MHPSS) integration into general health care
	5) Monitoring and evaluation of MHPSS implementation
Emergency response phase	1) Understanding of psychological impacts due to emergency protective actions
	2) Explanation of proper methods of emergency protective actions and communication
	3) Decision-making concerning the implementation of protective measures
	4) Identification of people at risk, interventions and advocacy
	5) Re-establishment of normal cultural and religious events, resumption of schooling, and re-establishment of healthy events
Recovery phase	1) Engagement of related parties in diverse fields for the recovery of communities
	2) Development of support services within a long-term perspective
	3) Appropriate responses to stigma
	4) Community-based interventions
	5) Planning and implementation of care for groups at risk (children, people with disabilities, etc.)
	6) Efforts to deal with a lack of financial resources and human capacity

Source: Prepared based on "A Framework for Mental Health and Psychosocial Support in Radiological and Nuclear Emergencies" (2020), WHO [The Japanese version is posted on the website for lectures of the Department of Disaster Psychiatry, Fukushima Medical University (<https://www.d-kokoro.com/>).]

"A Framework for Mental Health and Psychosocial Support in Radiological and Nuclear Emergencies" published by the WHO in 2020 compiles key MHPSS elements at the planning, response, and recovery phases after emergencies respectively by separating chapters.

Throughout all chapters, it is emphasized that MHPSS should never jeopardize the implementation of protective actions to reduce people's exposure to radiation at any phase, and for that purpose, radiation protection and MHPSS should be well-balanced with the involvement of individual communities.

At the preparation and planning phase, the assessment of actual radiation hazards and risks as well as mapping (positioning and description) of resources should be conducted to set priorities in MHPSS methods for individual protective actions, and plans for MHPSS integrating into general health care should be formulated. At the response phase, training should be provided to responders so that they can understand psychological impacts due to protective measures and can provide explanations focused on health regarding reasons why protective actions are necessary and offer support for decision-making. At the recovery phase, it is important to develop support services from a long-term perspective, while focusing on medium- and long-term development of community, and on evidence-based mental health services and psychosocial interventions, and conduct care for groups at risk and countermeasures against stigma on an ongoing basis.

Included in this reference material on March 31, 2022