

Perceptions of Police Officers in Crisis Situations -Why did Fukushima Police Officers Continue Their Duties in the field During the Nuclear Plant Disaster ? -

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Perceptions of Police Officers in Crisis Situations:

**Why did Fukushima Police Officers Continue Their Duties
in the field During the Nuclear Plant Disaster?¹**

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Abstract

Purpose: This study presents an examination of police officers' motivations to continue their duties during a crisis. It is based on a case study of the Fukushima Prefecture Police in Japan when the Fukushima Daiichi Nuclear Power Station exploded in 2011. The research questions are as follows: (1) At the time of the nuclear power station explosion in 2011, how did the police officers working near the plant perceive the situation and their fate? (2) What were the police officers' motivations to carry out their duties despite possible nuclear contamination and other dangers?

Methodology: The present study conducted empirical analyses on the abovementioned issues; notably, they were based on quantitative surveys and qualitative interviews of police officers working near the power station at the time of explosion. The present study also relied on academic frameworks in sociology and criminology regarding the abandonment of duties and deviant behaviors.

Findings: As to the first research question, the conclusion in the present study was Fukushima's police officers continued their duties with deep personal inner conflicts during critical circumstances. Regarding the second research question, the conclusion was that various complex factors motivated police officers to continue their duties. In particular, a sense of mission and responsibility and a sense of solidarity with colleagues were the most important factors, while shame also had some influence.

Research limitations: Although the present study contains several policy implications, it remains abstract. Further research is necessary to formulate more tangible policies.

Originality/value: The present study is the first academic research dealing with this issue based on firsthand empirical data on Fukushima's historic incident. This research has made particular contributions to obtaining valuable lessons from the Fukushima explosion in an academic manner for future crisis management.

Keywords: crisis management, police administration, Fukushima, Great East Japan Earthquake

1. Introduction

The objectives of the present study were as follows: (1) to analyze the perceptions of police officers who were working near the site of the explosion at the Fukushima Daiichi Nuclear Power Station on March 12, 2011; and (2) to elucidate the motivations of police officers in the field to carry out their duties in a crisis.

1 (1) Background and issues involved

At 3:36 pm on March 12, 2011, the day after the Great East Japan Earthquake, a hydrogen explosion occurred at Unit 1 of the Fukushima Daiichi Nuclear Power Station, which was owned

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by TEPCO (Tokyo Electric Power Company Holdings). A hydrogen explosion also occurred at 11: 01 am on March 14 in the Unit 3 reactor. Around this time, the government issued the following evacuation orders: within a radius of 3 km of the Fukushima Daiichi Nuclear Power Station on March 11; within a radius of 20 km on March 12; and within a radius of 20 km to 30 km on March 15.

More than 100 police officers, including members of the Futaba Police Station and the Special Task Force of the Fukushima Police Headquarters, were on duty within 20 km or 30 km of the Fukushima Daiichi Nuclear Power Station between March 12 and 14.² The media reported that, during this period, police officers on the scene did not abandon their duties and were bravely engaged in their missions. All parties have highly praised their attitudes.

However, on a global scale, this situation is not always natural. For example, in August 2005, when Hurricane Katrina hit the southeast coast of the United States, it was reported that around 250 of the 1,500 police officers in the New Orleans Police Department in the State of Louisiana abandoned their duties.³ The question worth examining is what caused the difference in police officers' responses in these two cases. This could be attributed to cultural or moral differences between the United States and Japan. However, there may also be other factors at play. If this is the case, the optimism regarding Japanese police officers being so diligent that they will always perform their duties, even in times of crisis such as a major disaster, may no longer hold. In such a case, to build a police force that can carry out its duties even in a crisis such as a major disaster in the future, it is necessary to implement proactive measures rather than resting on optimism.

1 (2) Objective of the study

Given the background of the abovementioned situation, the objectives of the present study were: (1) to analyze the perceptions of police officers who were working near the site of the explosion at the Fukushima Daiichi Nuclear Power Station on March 12, 2011; and (2) to elucidate the motivations of police officers in the field to carry out their duties in a crisis.

1 (3) Previous studies

A few previous academic studies are relevant to the subject (see Chapter 2). For example, there are studies on American soldiers' behavior during World War II, comparative studies of Japanese and American culture in general, and criminological studies on deviant behavior. However, no academic research has focused on Japanese police officers' activities which examines the specific issues mentioned above. Notably, there is no academic research on this matter based on empirical data on first responders directly involved in the Great East Japan Earthquake in 2011.

2 At the time of the explosion at the Fukushima Daiichi Nuclear Power Station, many police officers from outside Fukushima Prefecture were also serving in Fukushima. However, for the sake of convenience, the scope of the present study is limited to Fukushima Prefectural Police officers, especially those of the Futaba Police Station and the members of the Special Task Force deployed to the nuclear power station at the time.

3 "N. O. police fire 51 for desertion," *The Associated Press*, October 30, 2005; "Katrina made police choose between duty and loved ones," *USA TODAY*, February 20, 2006.

1 (4) Research questions and hypotheses

To achieve these objectives, the present study created two research questions. The first question (RQ1), is as follows: When the Fukushima Daiichi Nuclear Power Station exploded on March 13, 2011, how did the police officers who worked near the plant perceive the situation and their fate? The second question (RQ2), is as follows: What were the police officers' motivations to carry out their duties despite possible nuclear contamination and other dangers?

To answer these research questions, three hypotheses were tested, focusing on the period from March 12 to 14, 2011 when the explosion occurred at the Fukushima power station. These hypotheses were: (1) The police officers on the scene may have been dealing with their duties with deep conflicts. (2) The motivation for police officers to continue their duties amid the crisis may have been from only a "sense of mission and responsibilities," but also from a variety of other complex factors. (3) In particular, "a sense of solidarity with colleagues" and "a sense of shame" may have been essential motivations for continuing the mission.

1 (5) Data and methodologies

To test these hypotheses, both quantitative and qualitative analyses were conducted based on the following data: (1) A questionnaire survey of police officers working in a field near a nuclear plant when an explosion occurred; (2) individual interviews with police officers; and (3) the analysis of police officers' memoirs.

The present study only involved the time period of March 12 to 14, 2011 when the Fukushima Daiichi Nuclear Power Station exploded. The situation after that period is also an important issue to be considered in other studies.

1 (6) The structure of this paper

The structure of this paper is as follows:

Chapter 2 reviews previous research related to "abandonment of duty" as a premise for this research's overall discussion and develops hypotheses for the present study.

Chapter 3 examines the results of opinion surveys and individual interviews with police officers working at the scene at the time of the nuclear plant explosion.

Chapter 4 examines the study's research questions and hypotheses based on the discussion in Chapter 3. Moreover, this section also presents some policy implications for building a "resilient police organization that can carry out its mission even in a crisis."

The final section provides the conclusions of the study and briefly discusses the remaining issues.

2. Literature Review and Developing the Hypotheses of the Study

This chapter reviews previous research related to "abandonment of duty" as a premise for this research's overall discussion and develops hypotheses for the present study.

2 (1) Previous studies on the issue of “abandonment of duty”

To the best of our knowledge, no previous research has examined Japanese police officers' psychological perceptions at the time of a crisis from an academic perspective based on the present study's viewpoint. However, some academic studies have dealt with similar issues, such as a study on soldiers' motivations to fight on the battlefield, a study on the Japanese general behavioral pattern, and a criminological study on preventing individual deviant behaviors.

2 (1) (a) Research on American soldiers' motivation for combat in World War II

The American psychologist Samuel A. Stouffer and others conducted a study on the motivations for American combat soldiers on the battlefield during World War II. **Table 1** summarizes his research results (Stouffer, Lumsdaine, Lumsdaine, Williams, Smith, Janis, Star, & Cottrell [1949], pp. 105-191).

First, the results of the survey indicate that soldiers are motivated by a variety of factors, including a “desire to finish the mission quickly,” a “sense of solidarity with fellow soldiers,” a “sense of mission and self-esteem,” a “love of family,” and a “sense of self-preservation.” At the very least, it shows that there are complex factors that go beyond a simple sense of mission.

The second characteristic is that “solidarity with the group” is emphasized as a motive for fighting by both soldiers and officers. Although a “sense of mission and self-esteem” and “love of family” are also considered essential motivations, they are in a slightly lower priority than “solidarity with the group.”

Table 1. Combat incentives named by U.S. Army company officers and enlisted infantryman during World War II

Question 1: Generally, in your combat experience, what was most important to you in making you want to keep going and do as well as you could?

Question 2: When the going is tough for your men, what do you think are the incentives that keep them fighting?

(Percentage of comments naming each incentive)

	(1) Enlisted Infantryman	(2) Company Officers
Ending the task	39%	14%
Solidarity with group; “My friends around me.”	14%	15%
Sense of duty and self-respect	9%	15%
Thoughts of home and loved ones	10%	3%
Self-preservation; “kill or be killed.”	6%	9%
Idealistic reasons; “Making a better world.”	5%	2%
Vindictiveness: “anger, revenge, etc.”	2%	12%
Leadership and discipline	1%	19%
Miscellaneous	14%	11%
TOTAL	100%	100%

Time of Survey: April 1944

Sample Size: (1) 568, (2) 1,116

* Source: Prepared by the author based on Stouffer et al. (1949), pp. 105-112.

ilarity with a group.” In this regard, a previous study by Hitoshi Kono, a Japanese scholar who conducted a similar study on Japanese and American soldiers during World War II, also pointed out that “it is not hard to imagine that a strong sense of solidarity among comrades-in-arms (omission) was an essential factor motivating Japanese and American soldiers to fight” (Kawano, 2012, pp. 42–59).

2 (1) (b) **Research on the general behavioral style of Japanese people**

Many believe that “Japanese people are more collectivist than Americans” (i.e., they have a mental disposition to put the interests of the group ahead of the interests of the individual) regarding the general behavioral style of Japanese people and not just only in crises.⁴ Such a perception can explain the aforementioned differences in Japanese and American police officers’ behaviors in the Hurricane Katrina crisis and the Fukushima nuclear explosion.

However, various previous studies in social psychology by Toshio Yamagishi and others have pointed out that such a commonly shared perception is not necessarily academically supported (Yamagishi, 2010, pp.20–31).⁵ In his study, Yamagishi acknowledges that many Japanese seem to superficially act in a “collectivist” manner, but argues that this is not necessarily because they have “a mind that puts the group’s interests ahead of their interests,” but is the result of other factors (Yamagishi, 2010, p. 45).

As “other factors” that make Japanese people behave in such a way as to appear collectivist, Yamagishi points to “social mechanisms that prevent them from acting against the interests of the group,” especially “the mechanisms of mutual surveillance and regulation that exist in Japanese society (Yamagishi, 2010, pp. 39–40).

Besides, Nagafusa’s previous research in psychology has also verified that the “sense of shame” in relationships with peers (the depression that arises when one acts in a way that could be blamable in the eyes of others or the ideal self) has an impact on deterring deviant behaviors among Japanese people (Nagafusa, 2008, pp. 2–29).

2 (1) (c) **Criminological research on the prevention of deviant behavior**

Abandonment of duty by police officers or soldiers in a crisis is considered a type of deviant behavior. The social bond theory, developed by Travis Hirschi, an American criminologist, argues that the weakening of the “social bonds” that bind individuals to society can cause crime, delinquency, and deviance. There are four types of social bonds: (1) attachment bonds, (2) commitment bonds, (3) involvement bonds, and (4) belief bonds.

The first type, “bonds of attachment,” refers to the attachment to family members and close friends. In other words, the sentiment of “I do not want to cause trouble to my family and friends” is thought to be a deterrent to crime, delinquency, and deviant behavior.

The second, “bonds of involvement,” refers to “meritorious connections to values and behavioral goals” or “fear and attachment to the loss of what one has done or invested in.” Specifically, “the fear of losing what one has gained in one’s life after weighing the benefits and losses associated with crime, delinquency, and deviant behavior” may be a deterrent to these

4 The definitions of “collectivism” and “collectivist” are in Yamagishi (2010), p. 18.

5 According to Yamagishi, various academic experiments have verified that Americans tend to act more cooperatively in groups than Japanese in some cases. Conversely, the Japanese tend to act more as loners apart from the group than Americans (Yamagishi [2010] pp. 39–40).

behaviors.

The third category, “bonds of entanglement,” refers to the situation where “small people stay quiet and do bad things.” In other words, a situation in which a person is immersed in legitimate activities such as work and schoolwork and has no time to fall into criminal, delinquent, or deviant behavior is considered a deterrent to these behaviors.

The fourth, “bonds of belief” (normative consciousness), refers to the perception that one has to follow social rules. Namely, if there is a strong sense of guilt about a particular crime or deviant behavior, such a sense is considered to be a deterrent to these behaviors (Fujimoto, 2003, pp. 267–293; Segawa, 1998, pp. 111–113).

The idea that emphasizes “a sense of mission and responsibilities” as a motive to deter deviant abandonment of duty by soldiers and police officers seems to emphasize “bonds of belief or normative consciousness” as described in the social bond theory. On the other hand, the idea that emphasizes “solidarity with one’s peers” seems to emphasize “bonds of attachment” as described in the same theory, and the idea that emphasizes “mechanisms of mutual monitoring and regulation in society” and “sense of shame” seems to emphasize “bonds of involvement” or “bonds of attachment.”

2 (2) Hypotheses of the study

2 (2) (a) Developing the study’s hypotheses

As mentioned in Chapter 1, the present study featured two research questions. The first one, RQ1, went as follows: When the Fukushima Daiichi Nuclear Power Station exploded on March 13, 2011, how did the police officers who worked near the plant perceive the situation and their fate? The second question, RQ2, then asked: What were the police officers’ motivations to carry out their duties despite possible nuclear contamination and other dangers.

To answer these research questions, there were attempts to test the following hypotheses, focusing on the period from March 12 to 14, when the Fukushima explosion occurred.

Hypothesis 1: The police officers on the scene may have been dealing with their duties with deep conflicts.

Hypothesis 2: The police officers’ motivation to continue their duties amid their crisis may have been not only a “sense of duties and responsibilities” but also a variety of other complex factors.

Hypothesis 3: In particular, “a sense of solidarity with comrades and colleagues” and “a sense of shame” may have been essential motivations for continuing the mission.

2 (2) (b) Data and methodologies

To test these hypotheses, both quantitative and qualitative analyses were conducted based on the following data:

- A questionnaire survey of police officers working in the field near the nuclear plant when an explosion occurred
- Individual interviews with those police officers
- Analysis of police officers’ memoirs (Fukushima Prefecture Police [2012])

3. Surveys of first responders in the Fukushima Prefecture Police

This chapter provides an overview of the qualitative and quantitative surveys conducted on police officers of the Fukushima Prefecture Police.

3 (1) Outline of the survey

For this research, the present study conducted a questionnaire survey of 126 police officers with the cooperation of the Fukushima Prefectural Police. Seventy-four law enforcement employees worked at the Futaba Police Station on March 12, 2011, when Unit 1 of the Fukushima Daiichi Nuclear Power Station exploded. This police station has a nuclear power station within its jurisdiction. Fifty-two police officers who belonged to the Special Task Force of the Fukushima Prefectural Police were on duty in the vicinity of the plant at the time of the explosion.

The following is an overview of the survey implementation.

- Survey period: September 5, 2012 to October 1, 2012.
- Method: The Fukushima Prefectural Police Headquarters sent questionnaires to each subject's current department and asked for their cooperation.
- Number of valid responses: 125 out of 126.
- Questionnaire items: See Appendix.
- Breakdown of respondents' attributes (rank and age group): See **Table 2**.

In October 2012, the author interviewed 11 respondents regarding their behaviors and perceptions after the explosion.⁶

Table 2. Demographics of survey respondents (by rank and age)

	Constable	Junior Sergeant	Sergeant	Inspector	Chief Inspector	Super-Intendent	Total
The 20s	23	23	4	0	0	0	50 (40%)
The 30s	0	14	17	10	2	0	43 (34%)
The 40s	0	2	5	5	4	0	16 (13%)
The 50s	0	0	5	8	0	3	16 (13%)
TOTAL	23 (18%)	39 (13%)	31 (25%)	23 (18%)	6 (5%)	3 (2%)	125 (100%)

* The 20s included a 19-year-old officer.

Source: Prepared by the author based on the survey results.

⁶ The author conducted direct face-to-face interviews with 11 police officers on October 1 and 26, 2012, in a conference room at the Fukushima Prefectural Police Headquarters. The breakdown of the 11 interviewees is as follows: (Affiliation) Futaba Police Station: 4; Special Task Force: 7. (Rank) superintendent: 2; chief inspector: 0; inspector: 5; sergeant: 2; and junior sergeant: 2. (* The affiliations and ranks were as of the explosion.)

3 (2) Survey results

3 (2) (a) Recognition of the explosion (location, time, and method)

Questions (1) through (3) of the questionnaire asked about each respondent's situation at the time of the first explosion at the Fukushima power station (3: 36 pm, March 12).

Almost all of the 125 valid respondents were engaged in rescue and evacuation work when the first explosion occurred. The earthquake and tsunami that occurred the day before (March 11) had already caused significant damage.

At the time of the explosion, the work location varied from respondent to respondent. Still, almost all of them were engaged in rescue and evacuation work within the Futaba Police Station jurisdiction — that is, in the Fukushima power station area, within 20 to 30 km of the plant.

Most of the respondents became aware of the explosion within approximately 30 minutes after it happened (3: 36 pm). There were various ways of recognizing the explosion, but as shown in **Table 3**, listening to the police radio and reports from superiors and colleagues were relatively common. Those serving near the power station directly saw the smoke of the explosion. Many claimed that they perceived sound and vibration caused by the explosion.

Table 3. How did you become aware of the first information about the explosion at the Fukushima Daiichi Nuclear Power Station on March 12, 2011?

Question 3: How did you get the first information about a nuclear power plant explosion? Please select the most appropriate option from the choices listed below.	
(1) Self-directed observation	18 (14%)
(2) Listening to police radio	66 (53%)
(3) Reporting by superiors or colleagues	14 (11%)
(4) Reporting from other institutions	1 (01%)
(5) Media reporting (TV, radio news, etc.)	15 (12%)
(6) Other	9 (07%)
N/A	2 (02%)
TOTAL	125 (100%)

Source: Prepared by the author based on the survey results.

3 (2) (b) Whether or not “the concern about the danger of radiation” has arisen

3 (2) (b) (i) Overview

Question (4) of the questionnaire asked, “During the period from March 12 to 14, when the explosions at the Fukushima Daiichi Nuclear Power Station continued, did you ever feel a ‘concern for the danger of radiation’ (concern for your own life, physical safety, or fear of death)?”

Table 4-1 shows the responses to this question. Nearly 70% (68%) of the respondents answered that they “strongly felt concerned about the danger of radiation, including fear of death. Adding the response, “I felt a certain amount of concern, but not the fear of death.” (24%), more than 90% of the respondents continued working after the explosion, with some concern about radiation.

Table 4-1. How strongly did each police officer feel concerned about the danger of radiation between March 12 and 14? (General Overview)

Question 4: During the period from March 12 to 14, when the explosions at the Fukushima Daiichi Nuclear Power Plant continued, did you ever feel a “concern for the danger of radiation,” such as a concern for your own life, physical safety, or fear of death? Please select the most appropriate option from the choices listed below.

(1) Strongly felt concerned about the danger of radiation, including the fear of death.	85 (68%)
(2) Felt a certain amount of concern, but not the fear of death.	30 (24%)
(3) Felt little (or no) concern.	6 (05%)
(4) Other	4 (03%)
TOTAL	125 (100%)
(*) The average degree of intensity of concern felt	1.6 / 2.0

(*) The “average degree of intensity of concern felt” is the weighted average of the above responses, with the following: (1) receiving two points; (2) receiving one point; and (3) and (4) receiving zero points. The full score was 2.0, and the higher the score, the stronger the concern or feeling.

Source: Prepared by the author based on the survey results.

3 (2) (b) (ii) Analysis by rank and age groups

Tables 4-2 and 4-3 show the responses to this question by rank and age group. No statistically significant characteristics were detected in these results.^{7,8}

3 (2) (b) (iii) Comments in the free-response section

The following are examples of comments received in the questionnaire’s free-response section and individual interviews regarding the question.⁹

- When I saw the smoke coming from the nuclear power station, I prepared for death. I had the image in my head that a nuclear accident means the Chernobyl disaster.”
- “Some experts said, ‘*This is going to be like Chernobyl,*’ and I seriously thought this is going

7 Regarding the responses to **item (1) in Table 4-2**, it seems that the constable rank group felt a lower degree of a concern than the other rank groups. However, in comparing the constable rank group (23 officers) and the sergeant and above rank group (102 officers), the chi-square test failed to prove that the difference between the two groups was statistically significant. The p-value (significance probability) was 0.0406, but the adjusted p-value was 0.1317, which was above the significance level (0.05).

8 Regarding the responses to **item (1) in Table 4-3**, it seems that the age group in their 30s felt a higher degree of concern than the other age groups. Nevertheless, in comparing the age group in their 30s (43 officers) and the different age groups (82 officers), the chi-square test failed to prove that the difference between the two groups was statistically significant. The p-value (significance probability) was 0.0691, and the adjusted p-value was 0.1683 for the comparison, both above the significance level (0.05).

Regarding the responses to item (3), it seems that there were relatively more people in the age group in their 20s who felt little or no concern. However, in comparing the age group in their 20s (50 participants) and the other age groups (75 participants), the chi-square test failed to prove that the difference between the two groups was statistically significant. The p-value (significance probability) was 0.0264, but the adjusted p-value was 0.0729, which was above the significance level (0.05).

9 To protect the respondents’ privacy, the author slightly modified these comments from the original text. The same policy applies to the rest of the article.

Table 4-2. How strongly did each police officer feel concerned about the danger of radiation between March 12 and 14? (by rank group)

	Constable (n=23)	Junior Sergeant (n=39)	Sergeant (n=31)	Inspector (n=23)	Chief Inspector Superintendent (n=9)
(1) Strongly felt concerned about the danger of radiation, including the fear of death.	11 (48%)	27 (69%)	24 (77%)	18 (78%)	5 (56%)
(2) Felt a certain amount of concern, but not the fear of death.	8 (35%)	9 (23%)	6 (19%)	3 (13%)	4 (44%)
(3) Felt little (or no) concern.	3 (13%)	2 (5%)	0 (0%)	1 (4%)	0 (0%)
(4) Other	1 (4%)	1 (3%)	1 (0%)	1 (4%)	0 (0%)
TOTAL	23 (100%)	39 (100%)	31 (100%)	23 (100%)	9 (100%)
(*) The average degree of intensity of concern felt by this rank group.	1.3 / 2.0	1.6 / 2.0	1.7 / 2.0	1.7 / 2.0	1.6 / 2.0

Source: Prepared by the author based on the survey results.

Table 4-3. How strongly did each police officer feel concerned about the danger of radiation between March 12 and 14? (by age group)

	The 20s (n=50)	The 30s (n=43)	The 40s The 50s (n=32)
(1) Strongly felt concerned about the danger of radiation, including the fear of death.	29 (58%)	35 (81%)	21 (66%)
(2) Felt a certain amount of concern, but not the fear of death.	15 (30%)	8 (19%)	7 (22%)
(3) Felt little (or no) concern.	5 (10%)	0 (0%)	1 (3%)
(4) Other	1 (2%)	0 (0%)	3 (9%)
TOTAL	50 (100%)	43 (100%)	32 (100%)
(*) The average degree of intensity of concern felt by this rank group.	1.5 / 2.0	1.8 / 2.0	1.7 / 2.0

Source: Prepared by the author based on the survey results.

to be the end for the world.”

- “Rumors were flying around, ‘The plant was going to explode after the meltdown.’ People from the city hall, fire department, and other organizations had already evacuated. So, we were prepared to die.”
- “I was working near the nuclear power station and had to fight against the fear of invisible radiation. I did not think I would make it alive.”

- “I did not know about radiation, and I still remember how fearful I was whenever the electronic beeping of the dosimeter sounded.”
- “I did not know exactly the extent of the effects of radiation, and it was horrifying because it was invisible.”

Several comments, particularly from relatively young police officers, indicated that their lack of knowledge about radiation amplified their fears. On the contrary, some respondents commented that they had received appropriate training on radiation beforehand and had proper equipment such as dosimeters. It helped them to judge on their own that the radiation had not reached an imminent threat level.

3 (2) (c) Whether or not a “desire to abandon duty” has arisen

3 (2) (c) (i) Overview

Question (5) of the questionnaire asked, “During the period from March 12 to 14, did you ever have a feeling in your mind that you wanted to abandon the duties from the concerns about the danger of radiation?” **Table 5-1** shows the responses to this question.

Eleven percent of the respondents answered “strongly,” and 30% answered “somewhat.” Thus, approximately 40% to 50% of the total respondents dealt with their work with the feeling of “wanting to abandon the mission” in some way.

3 (2) (c) (ii) Causes of the desire to abandon duties

For those who answered in question (5) that they “felt a strong desire to abandon duties” or “felt some desire to abandon duties,” question (6) asked, “What were the specific reasons that made you want to abandon your mission?” For this question, the respondents were requested to answer “Yes” or “No” to both (1) “Concern for one’s own life and physical safety” and (2) “Concern for the safety and well-being of family members and relatives.”

Of the 53 respondents, 45 (about 85%) answered “Yes” to (1), and 48 (about 91%) answered “Yes” to (2).

Table 5-1. How strongly did each police officer feel a desire to abandon their duties between March 12 and 14? (General Overview)

Question 5: During the period from March 12 to 14, did you ever feel in your mind that you wanted to “abandon the duties” caused by the “concerns about the danger of radiation.” Please select the most appropriate option from the choices listed below.

(1) Felt a strong desire to abandon duties.	14 (11%)
(2) Felt some desire to abandon duties.	38 (30%)
(3) Felt little (or no) desire to abandon duties.	70 (56%)
(4) Other	3 (02%)
TOTAL	125 (100%)
(*) The average degree of desire to abandon duties.	0.5 / 2.0

(*) The “average degree of desire to abandon duties” is the weighted average of the above responses, with (1) receiving two points; (2) receiving one point; and (3) and (4) receiving zero points. The full score was 2.0, and the higher the score, the stronger the desire.

Source: Prepared by the author based on the survey results.

The results of these responses and the comments in the free-response section below (see section 3 [2] [c] iv) suggest that not only “concern for the safety of the respondents themselves” but also “concern for the safety of the respondents’ families” was an essential factor behind the feelings of abandonment.

3 (2) (c) (iii) Analysis by rank and age groups

Tables 5-2 and 5-3 show the responses to the questions by rank and age groups. The results by rank show that “the middle-rank group (inspector, sergeant, and junior sergeant) are

Table 5-2. How strongly did each police officer feel a desire to abandon duties between March 12 and 14? (by rank group)

	Constable (n=23)	Junior Sergeant (n=39)	Sergeant (n=31)	Inspector (n=23)	Chief Inspector Superintendent (n=9)
(1) Felt a strong desire to abandon duties.	2 (9%)	3 (8%)	6 (19%)	3 (13%)	0 (0%)
(2) Felt some desire to abandon duties.	3 (13%)	16 (41%)	12 (39%)	7 (30%)	0 (0%)
(3) Felt little (or no) desire to abandon duties.	18 (78%)	19 (49%)	13 (42%)	11 (48%)	9 (100%)
(4) Others	0 (0%)	1 (3%)	0 (0%)	2 (9%)	0 (0%)
TOTAL	23 (100%)	39 (100%)	31 (100%)	23 (100%)	9 (100%)
(*) The average degree of desire to abandon duties by this rank group.	0.3 / 2.0	0.6 / 2.0	0.8 / 2.0	0.6 / 2.0	0.0 / 2.0

Source: Prepared by the author based on the survey results.

Table 5-3. How strongly did each police officer feel a desire to abandon duties between March 12 and 14? (by Age group)

	The 20s (n=50)	The 30s (n=43)	The 40s The 50s (n=32)
(1) Felt a strong desire to abandon duties.	4 (8%)	8 (19%)	2 (6%)
(2) Felt some desire to abandon duties.	13 (26%)	17 (40%)	8 (25%)
(3) Felt little (or no) desire to abandon duties.	32 (64%)	18 (42%)	20 (63%)
(4) Others	1 (2%)	0 (0%)	2 (6%)
TOTAL	50 (100%)	43 (100%)	32 (100%)
(*) The average degree of desire to abandon duties by this age group.	0.4 / 2.0	0.8 / 2.0	0.4 / 2.0

Source: Prepared by the author based on the survey results.

more likely to have a strong feeling of abandoning their duties than the upper and lower rank groups (superintendent, chief inspector, and sergeant). The statistical test verified that the difference between the two groups was statistically significant^{10,11} and that the age group in their 30s was more likely to have a strong feeling of abandonment than the groups above and below them (20s, 40s, and 50s). The statistical test also verified that the difference between the two groups was statistically significant.¹² In other words, it is not merely the case that those who are higher in rank or age are less likely to feel compelled to abandon their duties.

Although the reasons for this situation are not always clear, there may be several factors. For instance, mid-level officers were more likely to be stressed because they struggled with their superiors and their subordinates. Also, those in their 30s were more likely to be married than those in their 20s, but their children were younger than those in their 40s, and they were more likely to be concerned about the safety of their families.

3 (2) (c) (iv) Comments in the free-response section

The following are examples of the comments received in the questionnaire's free-response section and individual interviews.

While many denied their feelings of abandoning their duties, many frankly expressed their wavering feelings. As mentioned above, many of the comments admitting that they had the desire to abandon their duties cited "concern for their families' safety."¹³

- "I could not think about myself when there were people in front of me who needed help."
- "There was no way I could abandon my mission when my colleagues were working so hard."
- "I was so focused on my task at hand that I had no time to think about abandoning it."
- "I wanted to run away, but I also thought, '*Someone has to do this job,*' so I was torn between running away and doing my duty, and I decided I had to do my duty."
- "I did not know where my family was, and I was unsure if I should abandon my job."
- "I did not know where my family was, so I wanted to go and look for them."
- "The nuclear power station exploded while I did not know if my family was safe, so I wanted to know if they were safe."
- "I was thinking of resigning, depending on the situation."
- "If I had been single, I think I would have been less inclined to abandon my mission."

10 Regarding the responses to **item (1) in Table 5-2**, in comparing the mid-level cadre (inspector, sergeant, and junior sergeant: 90 officers) and the other rank groups (superintendent, chief inspector, and constable: 32 officers), the chi-square test indicates the difference between the two groups is statistically significant. The p-value (significance probability) was 0.0003, and the adjusted p-value was 0.0007, both below the significance level (0.05).

11 Apart from this, it is also noteworthy that in the group of superintendents and chief inspectors (9 officers), they all answered that they had little (or no) feeling of abandoning their duties. It may indicate a high sense of responsibility on the part of the senior officers. However, due to the small sample size, it remains to be seen whether the conclusion can be generalized.

12 Regarding the responses to **item (1) in Table 5-3**, in comparing the age group in their 30s (43 officers) and the other age groups (20s, 40s, and 50s: 79 officers), the chi-square test indicates the difference between the two groups is statistically significant. The p-value (significance probability) was 0.0106, and the adjusted p-value was 0.0180, both below the significance level (0.05).

13 Contrary to this, one respondent commented, "I was able to see my family healthy for a moment while I was on duty, so I was able to think that I would have no problem losing my life."

- “If I had been alone, I would not have been inclined to abandon my mission.”
- “Seeing my seniors and colleagues busy checking on the safety of their families made me think that if I had a family, I would have been more vulnerable.”

3 (2) (d) Reasons for being able to continue the mission

3 (2) (d) (i) Overview

Question (7) of the questionnaire asked, “What were the specific motivations that enabled you to continue your duties in the field despite concerns about radiation hazards during the period of March 12 to 14?” The questionnaire listed eight possible reasons for this question, and each respondent was requested to select “applicable” or “not applicable” for each item. **Table 6-1** shows the responses to this question. This indicates the following points:

First, most of the respondents answered “applicable” to several items to continue the mission. In other words, out of the eight items shown, the average number of items answered as “applicable” was 4.3 per person.¹⁴ The results suggest that, for many police officers, their motives for continuing their duties were too complicated. Specifically, the motive for continuing the mission cannot necessarily be any one reason.

Second, there were two items which received the highest points as “applicable” motives for

Table 6-1. What motivated each police officer to continue his or her duties during March 12-14? (General Overview)

Question 6: During the period from March 12 to 14, what were the specific motivations that enabled you to continue your duties in the field despite concerns about radiation hazards? For each of the following items, please select “Yes” or “No.”

* The numbers in the table indicate the number and percentage of respondents who answered “Yes” to the question.

(1) I was aware that there was little danger of radiation.	4 (03%)
(2) I just followed the ordinary police discipline. There was nothing special.	82 (66%)
(3) I had a sense of solidarity and bond with colleagues (seniors, colleagues, subordinates, etc.) at work.	115 (92%)
(4) I was able to receive sufficient encouragement and instructions from my superiors at work.	67 (54%)
(5) I wanted to meet the expectations of my family and relatives.	51 (41%)
(6) I was concerned about my social evaluation and “the eyes of others” at work.	37 (30%)
(7) I had a sense of mission and pride as a police officer.	107 (86%)
(8) I felt a love for my hometown and wanted to respond to residents’ appreciation and encouragement.	71 (57%)

Source: Prepared by the author based on the survey results.

14 Thirteen respondents answered that seven out of eight items were “applicable.” Twenty-one respondents indicated six items. Twenty-seven respondents indicated five items. Twenty-three respondents indicated four items. Twenty respondents indicated three items. Twelve respondents indicated two items. Six respondents indicated one item and three respondents indicated no item.

continuing the mission. They were: (1) “I had a sense of solidarity and bond with colleagues (seniors, colleagues, and subordinates) at work” (92%); and (2) “I had a sense of mission and pride as a police officer” (86%). The points for these two items were far ahead of the other items, indicating that “a sense of mission as a police officer” and “a sense of solidarity with colleagues” were the main factors motivating the majority of the respondents to continue their duties. It is also noteworthy that “solidarity with colleagues” was considered more important than “sense of mission as a police officer” — although by a small margin.

Third, the percentage of respondents who answered “Yes” to the other items as motivation for continuing their duties are presented in this section. Some respondents considered these items as essential factors in motivating them, although they are less influential in general than the two most essential factors mentioned before. They are as follows:

- “I just followed the ordinary police discipline. There was nothing special.” (66%)
- “I felt a love for my hometown and wanted to respond to residents’ appreciation and encouragement.” (57%)
- “I was able to receive sufficient encouragement and instructions from my superiors at work.” (54%)
- “I wanted to meet the expectations of my family and relatives.” (41%)
- “I was concerned about my social evaluation and ‘the eyes of others’ at work.” (30%).

Fourth, only a few respondents (3%, four respondents) answered “Yes” to the item, “I was aware that there was little danger of radiation.” As mentioned above, some pointed out that, on the contrary, the lack of knowledge about radiation amplified their fear.

3 (2) (d) (ii) Analysis by rank and age groups

Tables 6-2 and **6-3** show the responses to this question by rank and age group. For this question, there were few significant characteristics by rank and age group. For example, “a sense of mission as a police officer” and “a sense of solidarity with colleagues.” Accordingly, these two characteristics seemed to be the two pillars of motivation for performing duties, and received high scores almost regardless of rank or age group.

First, in comparison by rank, the percentage of sergeants who answered that “sense of mission as a police officer” was “applicable” was 74%, which was slightly lower than other ranks (the overall average was 86%). The statistical test verified that the difference between the rank group of sergeant and the rank group of inspector and above is statistically significant.¹⁵

Second, “effective encouragement and direction from superiors” was selected as “applicable” by 83% of constables and 76% of those in their 20s, which is relatively higher than other ranks and age groups, respectively (the overall average is 54%). The statistical test

15 Regarding the responses to **item (7) in Table 6-2**, in comparing the rank group of sergeant (31 officers) and the rank group of inspector and above (inspector, chief inspector, and superintendent: 32 officers), the chi-square test indicates the difference between the two groups is statistically significant. The p-value (significance probability) was 0.0101, and the adjusted p-value was 0.0270, both below the 0.05 level.

However, regarding the responses to **item (7) in Table 6-3**, in comparing the age group in their 30s (43 officers) and the other age groups (20s, 40s, and 50s: 79 officers), the chi-square test which failed to verify the difference between the two groups is statistically significant. The p-value (significance probability) was 0.1321, and the adjusted p-value was 0.2158, both above the significance level (0.05).

Table 6-2. What motivated each police officer to continue his or her duties during March 12-14? (by Rank group)

	Constable (n=23)	Junior Sergeant (n=39)	Sergeant (n=31)	Inspector (n=23)	Chief Inspector Superintendent (n=9)	TOTAL [All Ranks] (n=125)
(1) I was aware that there was little danger of radiation.	0 (0%)	3 (8%)	0 (0%)	0 (0%)	1 (11%)	4 (3%)
(2) I just followed the ordinary police discipline. There was nothing special.	18 (78%)	21 (54%)	17 (55%)	19 (83%)	7 (78%)	82 (66%)
(3) I had a sense of solidarity and a bond with colleagues (seniors, colleagues, subordinates, etc.) at work.	23 (100%)	35 (90%)	29 (94%)	21 (91%)	7 (78%)	115 (92%)
(4) I was able to receive sufficient encouragement and instructions from my superiors at work.	19 (83%)	23 (59%)	13 (42%)	10 (43%)	2 (22%)	67 (54%)
(5) I wanted to meet the expectations of my family and relatives.	11 (48%)	20 (51%)	9 (29%)	10 (43%)	1 (11%)	51 (41%)
(6) I was concerned about my social evaluation and “the eyes of others” at work.	5 (22%)	8 (21%)	11 (35%)	8 (35%)	5 (56%)	37 (30%)
(7) I had a sense of mission and pride as a police officer.	20 (87%)	33 (85%)	23 (74%)	22 (96%)	9 (100%)	107 (86%)
(8) I felt a love for my hometown and wanted to respond to residents’ appreciation and encouragement.	12 (52%)	25 (64%)	12 (39%)	16 (70%)	6 (67%)	71 (57%)

Source: Prepared by the author based on the survey results.

Table 6-3. What motivated each police officer to continue his or her duties during March 12-14? (by age group)

	The 20s (n=50)	The 30s (n=43)	The 40s and 50s (n=32)	TOTAL [All Ranks] (n=125)
(1) I was aware that there was little danger of radiation.	3 (6%)	0 (0%)	1 (3%)	4 (3%)
(2) I just followed ordinary police discipline. There was nothing special.	36 (72%)	19 (44%)	27 (84%)	82 (66%)
(3) I had a sense of solidarity and a bond with colleagues (seniors, colleagues, subordinates, etc.) at work.	48 (96%)	38 (88%)	29 (91%)	115 (92%)
(4) I was able to receive sufficient encouragement and instructions from my superiors at work.	36 (72%)	20 (47%)	11 (34%)	67 (54%)
(5) I wanted to meet the expectations of my family and relatives.	23 (46%)	19 (44%)	9 (28%)	51 (41%)
(6) I was concerned about my social evaluation and “the eyes of others” at work.	11 (22%)	15 (35%)	11 (34%)	37 (30%)
(7) I had a sense of mission and pride as a police officer.	44 (88%)	34 (79%)	29 (91%)	107 (86%)
(8) I felt a love for my hometown and wanted to respond to residents’ appreciation and encouragement.	28 (56%)	24 (56%)	19 (59%)	71 (57%)

Source: Prepared by the author based on the survey results.

verified that both these differences were statistically significant.¹⁶

The reason for these characteristics is not always apparent, but there may be a factor that “those in lower ranks and ages tend to be dependent on their superiors and older people. Incidentally, all 23 constables are in the 20s age group. Of the 50 respondents in their 20s, 23 were constables.

3 (2) (d) (iii) Comments in the free-response section

The following are the main comments received from the questionnaire in the free-response section and during individual interviews.

– Comments related to a “sense of mission as a police officer”

- “I felt a sense of responsibility. As a police officer, I had no choice but to do so. If the Futaba Police Station did not do it, no one would.”
- “I could not imagine abandoning the many evacuees in front of myself. As a police officer, I felt a sense of mission. *Now is the time to play my role.*”
- “As a police officer, I felt that I could not just turn my back on the dangers and fears of radiation and run away. I wanted to help the people of this prefecture. I was ready to die when I rescue the residents. I wanted to meet the expectations of residents who were waiting for us to come. Such a feeling became the source of my strength.”
- “If you think about who is going to help the stranded residents and hospitalized patients who are unable to move, there is no way you can abandon your mission. I am a policeman, and there are people who can be helped in the field. I must perform as a policeman. That is why I continued my mission.”
- “I did not have any great sense of pride or mission as a police officer, but I just acted as I thought I should. Someone has to do it, and I was in a position to do it.”
- “After the nuclear power station explosion, there were many people left behind in this town, and only the police could rescue them.”
- “When I was assigned to work in a place where radiation levels were feared to be high, I went to the scene with my colleagues in tears. However, I did not run away from this mission since I had a sense of duty.”
- “As a person in a position to lead subordinates in the field, I could not run away.”
- “I felt that I had no choice but to do it myself. As a mid-level executive, I could not leave my young subordinates in danger.”

– Comments related to a sense of solidarity with colleagues

- “I felt a sense of solidarity that I had never felt before, as the entire police station worked

16 Regarding the responses to **item (4) in Table 6-2**, in comparing the rank group of constables (23 officers) and the rank group of junior sergeants and above (junior sergeants, sergeants, inspectors, chief inspectors, and superintendents: 102 persons), the chi-square test indicates the difference between the two groups is statistically significant. The p-value was 0.0020, and the adjusted p-value was 0.0043, both below the significance level (0.05).

Regarding the responses to **item (4) in Table 6-3**, in the comparison between the age group in their 20s (50 officers) and the age group in their 30s or older (75 officers), the chi-square test indicates the difference between the two groups is statistically significant. The p-value was 0.0008, and the adjusted p-value was 0.0014, both below the significance level (0.05).

together to cope with the disaster.”

- “I felt confident since many of my colleagues would work together with me. However, if we had been a small group, we might have run away.”
- “I was able to do my best because I was with my colleagues, and the bond between members of the Futaba Police Station was strong.”
- “The human relations at work were excellent. Thus, I would not regret it if I die at work with these nice people.”
- “The sense of solidarity with my superiors and colleagues was solid. Thus, I could maintain a high level of sense of duty.”
- “I could work hard because of the good relationships and trust with my colleagues. I remembered the importance of trusting relationships with superiors, subordinates, and colleagues. There was an atmosphere of *‘let us do it together.’*”
- “At the dangerous site, I took a commemorative photo with my colleagues with smiles on our faces. At that moment, I threw away the idea that I want to go home.”
- “I felt sorry for my supervisor and colleagues who stayed with the residents near the nuclear power plant while I stayed at the police station.”
- “If I throw away my mission and run away, the workload of my remaining colleagues would increase even more. I thought it was unacceptable.”

– **Comments related to “sense of shame and public decency”**

- “As an officer at the management level, I never put up with the humiliation of being criticized for running away, leaving my subordinates in danger.”
- “I thought that running away before my subordinates and juniors would be more embarrassing and shameful than dying.”
- “On the one hand, I was afraid of my life, but on the other hand, I felt that if I abandoned my duties, I would lose my job, and my livelihood would be in jeopardy.”
- “I was afraid of the danger to my life. However, I thought that even if I were the only one who survived, I would face the shame of living.”
- “There was a group mentality at a workplace, and I felt resigned to life.”

– **Comments related to “appropriate instructions and encouragement from superiors**

- “When it became clear that the nuclear power station was in danger, the chief of the police station said to us, *‘Though the plant is in danger, the police can never run away. So, please be prepared for the worst.’* I will never forget those words” (Fukushima Prefecture Police [2012], pp. 52–54).
- “My supervisor instructed me, *‘As a police officer, you cannot run away before letting the residents evacuate.’*”
- “The most succinct comment I received from my superior was, *‘Do not die,’* which motivated me to do my best.”
- “When I saw my supervisor taking the initiative to go to the dangerous worksite, I thought I would be willing to risk my life with him.”
- “Some of my colleagues were worried because of the high radiation level at the worksite. However, my supervisor encouraged us by saying, *‘This is our mission,’* and *‘We are not taking you to a dangerous place.’* These were the words of a boss I trusted daily, so I felt at ease.”

4. Discussions

This chapter tests the present study's research questions and hypotheses based on the discussion in the previous chapter. After that, the present study offers several policy implications for "building a police organization that can carry out its mission even in a crisis."

4 (1) Examining the hypotheses and research questions

The survey's results indicated that many Fukushima police officers working in the field at the time of the nuclear power station explosion had an intense fear of radiation and sometimes struggled with the emotional conflict of wanting to "abandon their duties." These findings support the first hypothesis of the present study, Hypothesis 1: Fukushima police officers in the field may have been dealing with their work with deep conflicts. This result also answers RQ1: When the Fukushima nuclear power station exploded on March 13, 2011, how did the police officers who worked near the plant perceive the situation and their fate?

In the survey, the respondents were asked, "What motivates you to continue your duties despite your concerns about radiation hazards?" They answered "it applies" to an average of 4.3, out of 8 possible reasons given. These results supported the present study's second and third hypotheses, starting with Hypothesis 2: Police officers' motivation to continue their duties amid their crisis may have been not only a "sense of duties and responsibilities," but also a variety of other complex factors. Correspondingly, there is Hypothesis 3: In particular, "a sense of solidarity with comrades and colleagues" and "a sense of shame" may have been essential motivations for continuing the mission. However, while "solidarity with comrades" was recognized as an essential motive, a "sense of shame" was not necessarily strongly recognized by the majority. These results also answer RQ2: What were the police officers' motivations to carry out their duties despite possible nuclear contamination and other dangers?

4 (2) Policy implications

The results of examining the established research questions and hypotheses suggest that the optimism that "Japanese police officers are serious and will always do their duties even in a crisis such as a major disaster" may not necessarily be genuine. In other words, Fukushima police officers could continue their duties even under challenging circumstances because their circumstances satisfied several crucial conditions, such as "a strong sense of solidarity among comrades and colleagues" and "excellent leadership by senior officers." No one can guarantee that these favorable conditions will be satisfied in all workplaces in the event of a future crisis.

Therefore, to build a police organization that can carry out its mission in a future crisis, proactive measures must be implemented. Otherwise, it may be possible that a situation such as that of Hurricane Katrina may occur in Japan in the future.

Based on the results of this study, this section highlights some policy implications. These proposals may help build a resilient police organization capable of carrying out missions in a future crisis, although further research is needed to carefully formulate actual policies.

4 (2) (a) **Fostering a “sense of mission as a police officer” and a “sense of solidarity with colleagues”**

The present study confirmed that police officers have various motivations to continue to carry out their duties even in times of crisis. Among them, “a sense of mission and responsibility as a police officer” and “a sense of solidarity with colleagues” are essential. Therefore, to build a police organization that is resilient to crises, it is essential to further promote these senses among police officers through effective education and training.

More importantly, the present study revealed that a meaningful “sense of solidarity with colleagues” is not just an abstract idea but a tangible feeling (see section 3 [2] [d] [iii]). Such a sense cannot be fully developed through education and training alone, but must be recognized and accumulated through the actual actions and words of colleagues and superiors in daily work activities. For instance, during the individual interviews, one of the Fukushima police senior officials testified as follows:

The tragedy occurred just before the normal annual personnel reshuffle period (which is mid-March), so the members of the police station had been working together for at least almost one year and had developed a mutual trust and good human relations to some extent. If the incident occurred at a different time and the mutual trust in the workplace had been weaker, we would have been unable to work so effectively.

4 (2) (b) **Developing leadership in the field**

The present study reveals that many police officers who were engaged in their duties during the crisis were dealing with personal inner conflicts (e.g., the desire to abandon their duties). How to cope with such personal struggles is ultimately up to the judgment of each police officer. Simultaneously, the present study shows that others’ behavior often influences each police officer’s final decision.¹⁷

In particular, strong statements by the head of each group or opinion leader often have a strong influence.¹⁸ Therefore, to encourage police officers who have internal conflicts to make up their minds to carry out their duties, it would be critical for senior officers in the field to show appropriate leadership and share a “clear intention to carry out their missions” within the group.

According to the questionnaire survey, this tendency is more substantial, especially among the lower ranks (e.g., constables) and relatively younger age groups (e.g., those in their 20s). Many of the open-ended comments also suggest that their reliable superiors’ encouraging words and actions helped them make up their minds.

17 The concept of “frequency-dependent behavior” in psychology supports this phenomenon. The term “frequency-dependent behavior” refers to “behavior in which the decision to engage in a given behavior depends on how many other people are engaged in that behavior (Yamagishi [2010], p. 48). If a behavior is a “frequency-dependent behavior,” then the more other people are engaging in the same behavior, the less cost you incur by performing the same behavior. Therefore, if many other people are engaged in the same behavior, it will be easier for you to do the same (Yamagishi [2010], p. 57). The concept of “atmosphere of the place” also can explain a similar phenomenon (Yamamoto [1983], p. 22).

18 The psychological concepts of “critical mass” and “complementary equilibrium” support this phenomenon that the intentions and actions of top managers and opinion leaders have a significant impact on the frequency-dependent behavioral decisions of group members (Yamagishi [2011], pp. 46–84).

In contrast, in the case of Hurricane Katrina in 2005, the New Orleans police commissioner “went into hiding” after the disaster and failed to deliver a clear message to the police officers on the scene. The results of some follow-up investigations indicated that the police department had serious leadership issues (Baum, 2006).

Furthermore, according to the present study, “encouragement and instruction from superiors” in a crisis can only be practical if it is backed up with a sense of trust in the superiors. Such faith in supervisors cannot be built overnight but is accumulated through daily work in regular time.¹⁹ Therefore, to create a resilient police organization that can carry out its mission even in times of crisis, it is necessary for executives not only to exercise clear leadership in actual crises but also to daily demonstrate good governance in the workplace during regular times.²⁰

4 (2) (c) Establishing a method to confirm the safety of family members

According to the present study, not only “concern for one’s safety” but also “concern for the safety of one’s family” cannot be ignored as a factor that causes police officers to abandon their duties in crises.

Criminological theories also explain that an individual’s “social bonds” are an essential factor that defines each individual’s behavior (see section 2 [1] [c]). Individual police officers’ social bonds (especially attachment bonds) may include solidarity with colleagues and solidarity with the family. Therefore, it is natural for conflicts to arise between sentiments in a crisis. Moreover, when the latter outweighs the former, it is not an unusual theory that police officers tend to abandon their duties for the sake of their family.

Many police officers cited in this survey that their anxiety increased from a lack of communication. In some cases, family members asked police officers to abandon their duties and evacuate with their families. On the other hand, one police officer said, “I was upset until I could confirm the safety of my family, but once I did, I could concentrate on my work with peace of mind.” Similarly, many of the New Orleans police officers who abandoned their duties during Hurricane Katrina reportedly cited ensuring their families’ safety as the reason for leaving their duties.²¹

Therefore, to build a resilient police force that can carry out its duties even in times of crisis, it is useful to establish a system to confirm each police officer’s family’s status quo during the crisis. In addition, it would be helpful for each family to consult in advance during periods of normality about evacuation plans in case of an emergency.

4 (2) (d) Educating mid-level officers

The present study confirms that the middle-rank cadre (e.g., inspector, sergeant, and junior sergeant) are more likely to abandon their duties than the upper- and lower-rank groups. Police

19 These points are consistent with the argument made in 4 (2) (a) that a meaningful “sense of solidarity with colleagues” is not just an abstract idea but a tangible feeling that must be recognized and accumulated through the actual actions and words of colleagues and superiors in their daily work activities.

20 Kono’s previous study on a commander’s leadership on the battlefield also points out the importance of “taking care of subordinates in daily life” for commanders to demonstrate their leadership in a crisis. In other words, trivial daily “care” for subordinates (e.g., priority access to food and leave) may positively impact building trust in the commander during a crisis (Kono [2012], pp. 53–54).

21 “Katrina made police choose between duty and loved ones,” *USA TODAY*, February 20, 2006.

officers in their 30s also tended to have a stronger feeling of abandoning their duties than other age groups. It is worth noting that there is considerable overlap between the rank-and-file mid-level cadre and the group in their 30s.

The cause of this phenomenon is not exactly known, but several factors may be involved. For example, middle-ranking executives may be more likely to be stressed because they are between their superiors and subordinates. Officers in their 30s may bear higher family responsibilities than those in their 20s, while their job security may be more vulnerable than those in their 40s. Thus, officers in their 30s may be more concerned about their families' safety than other age groups.

Besides, as mentioned above, to build a police organization that can carry out its mission even in a crisis, it is crucial to foster a good sense of solidarity in each workplace on a daily basis. Organizational leaders must play a primary role in this mission. Simultaneously, the role played not only by organizational leaders but also by rank-and-file mid-level officers who are actual opinion leaders in the workplace is often essential.

In light of this situation, it is vital to provide more detailed training for mid-level officers and improve their sense of leadership.

5. Conclusion

The objectives of this study were as follows: (1) to analyze the perceptions of police officers who were working near the site of the explosion at the Fukushima Daiichi Nuclear Power Station on March 12, 2011, and (2) to elucidate the motivations of police officers in the field to carry out their duties in a crisis.

For these objectives, the present study implemented two research questions. The first, RQ1, is as follows: When the Fukushima nuclear power station exploded on March 13, 2011, how did the police officers who worked near the plant perceived the situation and their fate? The second, RQ2, is as follows: What were the police officers' motivations to carry out their duties despite possible nuclear contamination and other dangers?

Based on the results of qualitative and quantitative surveys of police officers working near the nuclear plant at the time of the explosion, the answers to the above research questions were as follows:

Answer to RQ1: The police officers at the scene continued their duties with deep personal inner conflicts.

Answer to RQ2: Various complex factors motivated police officers in the field to continue their duties despite their conflicts. In particular, "a sense of mission and responsibility" and "a sense of solidarity with colleagues" were the most important factors, while "a sense of shame" also had some influence.

Based on these analysis results, the present study further indicated that the optimism regarding "Japanese police officers are serious and will always do their duty even in a crisis such as a major disaster" may not necessarily hold in a future crisis. The present study also highlighted the following policy implications for building a resilient police organization that can carry out its duties even under future crises. These suggestions were: (1) fostering a "sense of mission as a police officer" and a "sense of solidarity with colleagues," (2) developing leadership in the field, (3) establishing a method to confirm the safety of family members, and (4) educating

mid-level officers.

The present study's conclusions may appear to be a common argument that lacks uniqueness and could be considered by some as "tacit knowledge." However, the present study is significant and unique because it is the first to examine these issues based on theoretical frameworks and empirical data. Notably, the present study has some limitations. The policy implications suggested remain abstract; subsequently, to realize them in tangible policies, more related studies are needed.

One crucial issue that is not within the scope of this study is how to build an organization that can withdraw when it has to. If the idea of "building a resilient police organization that can carry out its mission even in a crisis," goes too far, has the potential danger of cultivating a false perception that police should never withdraw even when they should. To avoid this, it is essential to develop the "value of proper withdrawal" within the police and society as a whole.²² Theoretically, the value of continuing the duties and the value of proper withdrawal are both critical and not exclusive to each other. However, simultaneously cultivating both values in the same organization is a severe managerial challenge.²³

²² "Fire departments face similar challenges," (*The Asahi Shimbun*, September 24, 2012).

²³ Nagafusa's previous research argues that shame consciousness has a significant influence on Japanese people's behavior and that "denial," "consensus," and "justification" of shame are useful measures to prevent inappropriate behavior based on excessive shame consciousness. Specifically, Nagafusa points out that "denial of shame" is particularly useful in this regard. For example, it is persuasive that someone (e.g., superiors or colleagues) with whom the person feels solidarity advises him or her that "it is not shameful to withdraw or escape in this occasion" (Nagafusa [2008], p. 26).

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APPENDIX**Questionnaire (Excerpt)**

Please tell us about your own situation from March 12 to 14, 2011.

(Question 1)

At 3: 36 pm on March 12, the Fukushima Daiichi Nuclear Power Station of Tokyo Electric Power Company (TEPCO) exploded. When did you learn about this explosion? (Please do not adjust the margins)

(Question 2)

Were you on duty when you learned about the explosion? If so, where were you working, and what were you working on?

(Question 3)

How did you obtain the initial information about the nuclear power station explosion? Please select the most appropriate option from the choices listed below.

- (1) Self-directed observation
- (2) Listening to the police radio
- (3) Reporting by superiors or colleagues
- (4) Reporting from other institutions
- (5) Media reporting (TV, radio news, etc.)
- (6) Other

(Question 4)

During the period from March 12 to 14, when the explosions at the Fukushima Daiichi Nuclear Power Station continued, did you ever feel a “concern for the danger of radiation,” such as a concern for your own life, physical safety, or the fear of death? Please select the most appropriate option from the choices listed below.

- (1) I strongly felt concerned about the danger of radiation, including the fear of death.
- (2) I felt a certain amount of concern, but not the fear of death.
- (3) I felt little (or no) concern.
- (4) Other

(Question 5)

During the period from March 12 to 14, did you ever have a feeling in your mind that you wanted to “abandon my duties” caused by “concerns about the danger of radiation?” Please select the most appropriate option from the choices listed below.

- (1) I felt a strong desire to abandon my duties.
- (2) I felt some desire to abandon my duties.
- (3) I felt little (or no) desire to abandon my duties.

- (4) Other

(Question 6)

* This question is only for those who answered either items (1) or (2) in Question 5.

At that time, what were the specific reasons that made you want to “abandon the mission,” at least to some extent? For each of the following items, please select “Yes” or “No.”

- (1) Concern for one’s own life and physical safety.
- (2) Concern for the safety and well-being of family members and relatives.

* If there are other important factors, or if you have a specific explanation for any of the above items, please feel free to write it below.

(Question 7)

During the period around March 12 to 14, what were the specific motivations that enabled you to continue your duties in the field despite concerns about radiation hazards? For each of the following items, please select “Yes” or “No.”

- (1) I was aware that there was little danger of radiation.
- (2) I just followed the ordinary police discipline. There was nothing special.
- (3) I had a sense of solidarity and bond with my colleagues (seniors, colleagues, and subordinates) at work.
- (4) I was able to receive sufficient encouragement and instructions from my superiors at work.
- (5) I wanted to meet the expectations of my family and relatives.
- (6) I was concerned about my social evaluation and “the eyes of others” at work.
- (7) I had a sense of mission and pride as a police officer.
- (8) I felt a love for my hometown and wanted to respond to residents’ appreciation and encouragement.