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The spirituality of family members of those deceased in the Great East Japan Earthquake: A text mining analysis of dream narratives in the book *She came to see me in my dream*

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Abstract: Having a dream is a way to meet the deceased for survived family members. We make it clear what kind of dream the bereaved family sees, to resume communication with the deceased. Twenty-seven interview stories in the book *She came to see me in my dream* were analyzed by the text mining technique. The most frequently used words were nouns such as "togetherness," "earthquake disaster," "tsunami," "dream," and verbs such as "be," "get together," "think," "see," and "talk". The future of the dream was clarified by frequency analysis of dependency and reputation analysis. It will be discussed how surviving family members often have an orientation and sense of values that are together with those of the departed soul in the dream by experiencing the encountering of shadows and the soul of the dead.

Keywords: dream, 3.11 earthquake, text mining, tsunami, spirituality, ambiguous loss

1. Introduction

On March 11, 2011 at 14:46, an earthquake with a magnitude of 9.0 caused great damage to Tohoku region prefectures of Fukushima, Miyagi, and Iwate and the northern Kanto region prefecture of Ibaraki . It was the most powerful earthquake ever recorded in Japan, and the fourth most powerful earthquake in the world since modern record-keeping began in 1900. The earthquake triggered powerful tsunami waves that reached heights of up to 40.5 meters in Miyako, Iwate Prefecture, and which, in the Sendai area of Miyagi Prefecture, traveled up to 10 km inland. The earthquake and tsunami also caused extensive and severe structural damage in northeastern Japan, including heavy damage to roads and railways as well as fires in many areas, and a dam collapse.

The tsunami caused events that lead to a level 7 nuclear accident, with meltdowns at three reactors in the Fukushima Daiichi Nuclear Power Station, and the associated evacuation zones affected hundreds of thousands of residents. Residents within a 20 km radius of the Fukushima Daiichi Nuclear Power Plant were evacuated.

The latest report (June 29, 2018) from the Japanese National Police Agency confirms 15,895 deaths, and 2,539 people missing across twenty prefectures, and that report indicated 228,863 people were still living away from their home. As of now, the bereaved families who lost their families and friends are living with feelings of sadness, loss, and guilt to be alive now.

For the bereaved families, dreams are the only way to meet people who passed away. We would like to clarify the relationship between the change in the living style and the spirituality of the bereaved families.

2. Purpose

The purpose of this study was to analyze narratives of Japanese experiences in the 3.11 earthquake, from the book of 27 interviews on dreams: *She came to see me in my dream*, and reveal the relationship between their experience and spirituality, especially in the situation of ambiguous loss.

3. Methods

Text for analysis

We analyzed 27 interviews presented in the book *She came to see me in my dream: after 3.11 earthquake* written as part of the Tohoku Gakuin University Earthquake Disaster Record Project by Prof. Kanabishi and his seminar class (hereinafter referred to as "in my dream") and published in 2018 by Asahi Newspaper Publishers.

Procedure

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We converted PDF files of "in my dream" to sentence files with PC software "reading revolution ver 15", and to Excel files with tab delimited text. And then, by using "Text Mining Studio ver 6.1.1", we analyzed those Excel files using the text mining method.

Ethical consideration

Copyright and related issues did not apply because the contents of the narratives were commercially available in a published book, available in the public domain, and utilized exclusively in the analysis.

4. Results

4.1 Basic statistics

The number of whole sentences of the 27 interviews was 2715, and the average number of characters per interview was 33.7. The average number of characters was 3393.2 per interview. The total number of words used in the 27 interview was 19821, the variety of words was 4492. The type token ratio was 0.226, which means the same word tended to appear repeatedly.

4.2 Word frequency analysis

We analyzed the words of 27 interviews in "in my dream" and listed the top 20 words with high frequency appearance. The most frequently used nouns were "togetherness," "earthquake disaster," "tsunami," "dream," and most frequently used verbs were "be," "get together," "think," "see," and "talk."

4.3 Dependency parsing frequency analysis

Dependency is the relationship between how one word is connected to another word in the sentences. For example, a relationship between subject and predicate, a relationship between a modifier and the modified word, an auxiliary relationship, and a parallel relationship. In this research, the relationship between a noun and a verb was analyzed. In this analysis, a dream of the tsunami, the situation of the dream such as speaking, hearing, talking to and body contraction, and the contents of the dream (the tsunami, the earthquake, the death) were shown frequently.

4.4 Positive/ negative analysis

In reputation analysis, we extracted the top 20 frequencies of positive words (words with positive images) and negative words (words with negative images) leading to the words contained in this book. The same word, "dream" was extracted in both positive and negative words with high frequency.

In positive words, people that appeared in the dream (such as families and friends), relations, stories, connections, dead bodies, and luck were extracted.

In negative words, feelings, thoughts, language, experience, states, earthquake disasters, damages, waves, and outside were extracted.

4.5 Specified word information analysis

In specified word information analysis, we analyzed the word "dream". We revealed the relationships by clarifying the words connected with the following specific words were often associated with "dream": "next world", "this world", "positive", "live", "togetherness", "tsunami", and "after disaster".

5. Discussion

5.1 Summary of the results

In this study, we examined the relationship of the spirituality of persons who lost family members or significant others in the 3.11 earthquake using a text mining method.

The unique point of the analytical research of the study was that the same words (such as "accompany", "see", "think", "say", "speak", "feel", "mind", "dead body' and "near") were appearing repeatedly. We concluded there is a connection of the same time and space between bereaved family members and the deceased through the dream.

The word "dream" was extracted most in both positive and negative words. This may be because in the dream seen when looking for the missing person (before the dead body was discovered) and the dream when death was fixed (after the dead body was discovered) were different, the same word was derived in both positive and negative words which may have seemed completely different.

In addition, "dead body" was extracted as positive words, we can assume after the dead body was discovered, the contents of the dream were positive, on the contrary, before the dead body was discovered, the contents of the dream were negative, thus, the result showed both ways. The reason "people", "dead body", "wave", "earthquake", "damage" and "situation" were extracted as negative words was because of the influence of the tsunami.

Moreover, from the network diagram of attention word information analysis, the relationships of "next world", " this world", "feel", "I'm here", "soul", "tell", "live" and "positive" were extracted. The result of the network diagram indicates reunion with the deceased in the dream, or the spirituality of the world that is not real.

5.2 Spirituality defined by Kubodera

As an explanation of spirituality, Kubodera (2004) states "Spirituality is a function to ask for self-identity to the transcendental existence from outside or inside of yourself, when identity is lost".

Kubodera (2004) also states "transcendental existence is an existence which governs and protects my life, like God. When one becomes conscious of it, the new view opens and one is released from self-attachment and freedom is experienced. Encounter with

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transcendental existence is discovery of yourself as a new self within. Through this discovery, one can grasp the purpose of life." From this point of view, we analyzed the results of the study.

The crisis of life experienced by the bereaved families of the 3.11 earthquake awakens their spirituality. We refer to the original texts of some narrations deeply connected to the spirituality of the bereaved families.

"Although it is invisible, it is keeping a very close watch on what is happening by my side." "Two people of a dream are the form of the soul." "Both H and Y will continue to live as a family" "There should be many people who want to talk of the deceased like myself. I wanted to make the place where such people can speak without hesitation."

"They may be living happily in the world after death." "I hope I could tell even a little about the mind of the deceased through the stage."

"Where is the limit of dying?" "I feel like my family is cheering me to work hard." "I feel a sense of some mission through dream." "My view of life and death changed." "I was taught what a memorial service was."

The bereaved families could feel the sign of missing friends, experience what cannot be regarded as of this world, sense a soul or thing which is originally invisible, and feel something between dream and reality. Those bereaved families showed the purpose to the future and the positive direction to live.

Seven years have passed since the 3.11 earthquake, families that still have a missing person have no choice but to face ambiguous death and continue their everyday life.

The bereaved families who lost their family members must live with the guilty feeling of having survived. The meaning of telling the contents of the dream is significant.

5.3 Ambiguous loss and reunion

After the collision of the Japanese fishery high-school training ship, Ehime Maru, and the USS Greeneville in Hawaii, Nakamoto (2018) pointed out that the Japanese bereaved family members "hoped strongly that they would see the dead body far much more than to receive monetary compensation" from the US Navy. This comment illustrates that the Japanese have a unique mentality towards ambiguous loss. In the present study, we acknowledged this kind of psychological characteristic of the tsunami survivors. It was a rare occasion to find the dead body immediately after the tsunami. Instead, the bodies were usually swept away and lost for some period. The bodies often were broken and only some parts were found, or even just a memento such as a part of their clothing was discovered later. The interviewees often expressed their feeling at this moment of reunion with their lost family member. After the reunion, the frequency of their encounter with the bereaved in the dreams was often decreased dramatically. In the ambiguous loss condition, the survivors may have wanted to cure themselves by an encounter with the dead in their dreams. Did the dead people appear in the dream in order to help cure their family members intentionally? Or, did the survivors unconsciously call the dead to come back to their former living place? Or, in the ambiguous boundary between this world and another world, did this occur as unintentional phenomena, which cannot be attributed to either side? As Kokubo (2017) put it, the phenomena cannot be attributed to intentional acts but might be explained as a genus medium or middle voice. After the encounter with the dead body and the following funeral ceremony, the bereaved family members shifted from the ambiguous loss to the next step in their life.

5.4 Limitations and significance of this study

Since the target of our analysis was only 27 interviews, we cannot deny the quantitative insufficiency of the research. Through an analysis with such restrictions, though, we found the relation between the experience of the bereaved and their spirituality in relation to ambiguous loss.

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