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Relationship between Teachers' Awareness of Disaster Prevention and Concerns about Disaster Preparedness

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Abstract: Disaster preparedness in schools is critical for the health and well-being of students and staff. To enhance disaster preparedness, awareness of disaster prevention should be raised among teachers. The aim of the current study was to assess disaster prevention awareness among teachers and to clarify the relationship between disaster prevention awareness and concern regarding disaster preparedness. Teachers from special needs schools, for which disaster preparedness is particularly important, were selected. Study questionnaires were sent to 1310 schools for children with special health care needs across 47 Japanese prefectures. Five-hundred-and-thirty-one complete responses were obtained. The disaster preparedness in the schools was insufficient. Teachers were concerned about child management, life saving, life maintenance, evacuation shelter management, and school management. There was a positive correlation between disaster prevention awareness and concern about disaster ($r = 0.217$, p-value = 0.000). The disaster awareness scale items "A sense of crisis about disaster" and "Anxiety" were positively correlated with concern about disaster, whereas "Imagining the disaster situation" was negatively correlated with concern about disaster. The current study analyzed the relationship between disaster prevention awareness and concern regarding disaster preparedness, which is relevant for the practice and indicates the importance of imagination strengthening.

Keywords: disaster preparedness; disaster awareness; schools for children with special health care needs

1. Introduction

Preparedness for natural disasters is the key to ensure an efficient and timely response of individuals and organizations to them and to minimize the damage they cause. The preparedness of schools for natural disasters is especially important to ensure the safety and well-being of students and staff [1,2]. Recommendations for schools' disaster preparation include ensuring that the learning facilities are safe, preparing for disasters, resilience training, and reducing the disaster risk [3]. The measures for risk reduction in schools should be comprehensive and systematic. In Japan, the disaster preparedness of schools has been prioritized by the National Authorities and is included in the legislative framework [4]. The vast majority of public schools in Japan have been designated as potential evacuation sites and shelters in case of a natural disaster, further increasing the complexity of the measures required to ensure schools' disaster preparedness [5]. Moreover, public schools have also been used as evacuation sites in other Asian countries [6,7]. Reportedly, the involvement in both children's education and shelter operations after a disaster is stressful for teachers [8]. Further, teachers have not been educated in how to operate shelters [9]. Such lack of training, coupled with the attendant stressors of their job, may lead to teachers' exhaustion and burnout [10]. The development of an educational program aiming to improve the gap and alleviate teachers' exhaustion has been considered [11]; however,

it was conducted only in the context of a trial and not during normal teaching activities. Teachers are very busy and often have an overwhelming workload [12]. Digitalization of teachers' education may facilitate the training process of busy teachers [13]. Notably, teachers' education on disasters has not been highly prioritized. In order for teachers to recognize the need for disaster training, the awareness of disaster prevention should be raised. Increasing individual awareness of a problem is essential for the implementation of countermeasures [14]. There is a possibility that disaster prevention awareness can be raised by clarifying specific associated activities and situations and engaging teachers in specific events.

Disasters and emergencies have a large impact on individuals with disabilities, especially children [15–17]. Moreover, ensuring the disaster preparedness of schools for children with special health care needs is particularly important, because in such schools there is a high percentage of people who need support and equipment in the event of a disaster. The creation of an efficient plan for disaster management, including children with special health care needs, would help to achieve better outcomes [18].

Disaster prevention awareness may be influenced by demographic and cultural factors as well as by personal experiences and attitudes [19,20]. Many teachers have not previously experienced a disaster [21]. Therefore, teachers need education to raise awareness of disaster prevention. However, the definition of disaster prevention awareness is ambiguous. Further, the education for disaster prevention awareness includes various measures, such as disaster education awareness and even disaster recovery awareness [22–24]. Education to raise disaster awareness is a valuable tool for risk reduction and disaster preparedness [25]. Due to the vagueness of the definition of disaster prevention awareness, the impact of education was not systematically assessed [26]. It is important to identify factors that may improve disaster prevention awareness to specifically promote it. Effective information delivery on disaster preparedness and response may have positive implications for the psychological well-being of individuals [27]. Concerns about disaster preparedness point to a gap between given knowledge (information provision) and actions that should be closed [25]. Education to detect this gap can raise awareness of disaster prevention. However, the relationship between disaster prevention awareness and concern regarding disaster readiness is unclear. The aim of the current study was to clarify the relationship between items of disaster prevention awareness and concern regarding disaster preparedness.

2. Materials and Methods

2.1. Study Subjects and Survey Distribution

All teachers should be prepared for disaster mitigation, but teachers in schools for children with special health care needs should be even more sensitive to preparedness than regular teachers, because, in these schools, there is a high percentage of people who need support and equipment in the event of a disaster. Therefore, teachers working in schools for children with special health care needs, mainly managers, were included in the current study and were targeted before general teachers. In Japan, 47 prefectures have listed public schools for children with special health care needs, excluding branch schools.

The study was conducted between 20 November 2020 and 18 December 2020. Overall, 1310 schools were contacted, and one mail survey set was sent per school. The number of collected responses was 604 (46.1%), whereas the number of valid responses was 531 (87.9% of the collected responses). The surveys, in which all questions were answered, were considered valid.

2.2. Ethical Approval/Informed Consent

The study was approved by the Ethical Committee for Epidemiology of Hiroshima University (approval number E-2224). Responding to the survey was considered an indication of informed consent.

2.3. Disaster Prevention Awareness Scale and Concern Regarding Readiness

The disaster prevention awareness scale developed by Ozeki et al. was used [28–30]. This scale is specific in terms of its subscales. Further, the scale can be easily utilized to plan an interventional approach based on each item, and it contributes to future educational support plans and evaluations. For the disaster prevention awareness scale, scores for each of the disaster prevention awareness items A ("Imagining the disaster situation"), B ("A sense of crisis about disaster"), C ("Other-oriented"), D ("Interest in disasters"), and E ("Anxiety"), as well as the total score were calculated.

To assess their concern regarding readiness, participants were asked whether they are worried about certain aspects related to disaster situations and preparation (about their degree of concern regarding disaster response), and we used a previously published questionnaire [21]. The questions focused on the aspects "Child management", "Life saving", "Life maintenance", "Evacuation shelter management", and "School management". The replies were treated as categorical data. The four options were defined as follows: "1—Not worried" and "2—Not worried too much" were defined as "Not worried", whereas "3—A little worried" and "4—Very worried" were defined as "Worried".

Based on two studies, prevention and preparedness were defined as "actions to minimize damage" and "readiness to minimize damage", respectively.

2.4. Statistical Analysis

The responses of the teachers were categorized and presented under the following categories: demographic and social characteristics, questions related to the school's disaster prevention status, and questions related to the host community. The differences in the degree of concern about disaster were assessed with the Chi-squared goodness-of-fit test to determine whether the distribution of cases (level of worries about disaster) differed significantly between the groups. To determine the degree of concern, the choices were added as scores for each category. The average scores for disaster prevention awareness and degree of concern about disaster were calculated. Frequencies and percentages were generated for qualitative variables, while means and standard deviations (SD) were generated for quantitative variables. The Pearson correlation coefficient was generated to assess the relationship between disaster prevention awareness and degree of concern about disaster. All statistical analyses were performed with the Statistical Package for the Social Sciences (SPSS), version 20.

3. Results

3.1. Demographic and Socioeconomic Characteristics of the Participants

The demographic and social characteristics of the respondents are presented in Table 1. The average experience of the teachers was 29.12 years, and they had been working in various special support schools for an average of 21.02 years. Moreover, 71.2% of the respondents were already at the managerial level (principals and vice-principals). Most participants (78.7%) were male. Furthermore, 63.8% had never experienced natural disasters. The percentage of teachers in high, elementary, and junior high schools was 87.2%, 85.1%, and 84.2%, respectively. Among the participating teachers, 69.1% taught students with intellectual impairments. Regarding facilities available for disaster management in schools, 65.3%, 26.4%, and 49.7% of the teachers claimed that they had secured power, communication, and a toilet (a manhole or simple toilet), respectively. However, 46.5% did not have facilities, such as LP gas, that could be secured and used in the event of a disaster.

Table 1. Demographic and social characteristics of the study participants.

Question	Response	Mean	SD
How many years have you been teaching?		29.12	8.356
How many years have you been working at a special support school?		21.02	11.092

Question	Response	Frequency	Percent
Job title	Principal	209	39.4
	Sub-principal	27	5.1
	Vice-principal	169	31.8
	Chief of Education	1	0.2
	Chief teacher, Chief in Disaster prevention	1	0.2
	Chief teacher, Other than those above	1	0.2
	Chief teacher	33	6.2
	Chief Health officer	3	0.6
	Chief in Disaster prevention/Teacher	1	0.2
	Chief in Disaster prevention/Other than those above	2	0.4
	Chief in Disaster prevention	52	9.8
	Teacher	25	4.7
	School health teacher	3	0.6
	Other than those above	4	0.8
Gender	Male	418	78.7
	Female	113	21.3
Have you ever been affected by a natural disaster?	I have not	339	63.8
	Although there was a disaster, I have never evacuated	123	23.2
	I have temporarily evacuated to a shelter	27	5.1
	I have lived at an evacuation center	6	1.1
	I have been involved in shelter management at my school	36	6.8
Status of infants and students enrolled in the school you are currently working at	Kindergarten	92 *	17.3
	Elementary school	452 *	85.1
	Junior high school	447 *	84.2
	High school	468 *	87.2
Type of disability affecting students enrolled in the school you are currently working at	Visual impairment	59 *	11.1
	Hearing impairment	72 *	13.6
	Intellectual disability	367 *	69.1
	Physical handicap	177 *	33.3
	Valetudinarian/physical weakness	84 *	15.8
	Other	2 *	0.4
Is power secured in the event of a power outage?	No	163	30.7
	We own private power generation equipment	347	65.3
	Priority can be used for power generation equipment due to agreements, etc.	6	1.1
	I do not know	15	2.8
Is communication secured in the event of a communication failure?	No	307	57.8
	We own equipment capable of mutual communication	140	26.4
	We own equipment that allows only unidirectional communication	34	6.4
	I do not know	50	9.4
Is a toilet secured in the event of a disaster?	No	232	43.7
	We own a simple toilet	240	45.2
	We own a manhole toilet	24	4.5
	We have a toilet that can use pool water and rainwater as washing water when the water is cut off	29	5.5
	I do not know	6	1.1
Are facilities that can be used in the event of a disaster, such as LP gas, secured?	No	247	46.5
	Priority can be used for LP gas equipment, etc.	78	14.7
	We have secure equipment that uses cassette stoves, firewood, pellets, etc. as fuel	188	35.4
	I do not know	18	3.4
A power outage, water outage, or telephone internet communication failure has occurred. Can someone stay overnight (from after school until breakfast the next day) at the school?	No	163	30.7
	Yes	362	68.2
	Unknown	6	1.1

* N = 531.

3.2. Questions Related to the Schools' Disaster Prevention Status and Host Community

The responses to questions related to the schools' disaster prevention status and host community are presented in Table 2. The majority of respondents (68.9%) claimed the school they worked at is not designated as a welfare shelter. Moreover, 62.3% of the study

participants did not think that their school is ready to accept residents in the event of a disaster. Among the respondents, 87.8% agreed that their school interacts with local residents. Further, 84.6% of the respondents had not carried out any training under the assumption that their school would be an evacuation center, and 75.0% claimed their community is not involved in their schools' management. Even though 54.9% of the study participants stated their schools do not have a stockpile warehouse, 89.5% claimed that their schools have plastic bottles as stockpiles for drinking water.

Table 2. Questions related to the schools' disaster prevention status and host community.

Question	Response	Frequency	Percent
Is the school you are currently working at designated as a welfare shelter?	Yes	165	31.1
	No	366	68.9
Is your school ready to accept residents in the event of a disaster?	Yes	197	37.1
	No	331	62.3
	Unknown	3	0.6
Does your school interact with local residents?	Once a year	85	16.0
	Twice a year	112	21.1
	Three times a year	70	13.2
	Four times a year	23	4.3
	Five times or more a year	176	33.1
	It does not	65	12.2
Do you carry out training assuming that you will be an evacuation center?	Yes	82	15.4
	No	449	84.6
Have you decided on the division of roles with local government employees in the event of a disaster?	Yes	173	32.6
	No	343	64.6
	Unknown	15	2.8
Do residents participate in school management?	Yes	122	23.0
	No	398	75.0
	Unknown	11	2.1
Have you ever imagined an issue when your enrolled children are mixed with temporary evacuees?	Yes	241	45.4
	No	250	47.1
	Unknown	40	7.5
Do the residents understand the children in your school?	They understand fully	18	3.4
	They understand	283	53.3
	They don't understand much	203	38.2
	They understand a little	27	5.1
Does the school have a stockpile warehouse?	Yes	245	46.1
	No	286	54.9
Do you have a stockpile of drinking water? Please circle all that apply.	None	48 *	9.0
	We have plastic bottles	475 *	89.5
	We have pool water purifiers	41 *	7.7
	We have a well	8 *	1.5
	Drinking water is secured through agreements, etc.	18 *	3.4

* N = 531.

3.3. Degree of Concern about Disaster

Table 3 shows the Chi-squared test results for the degree of concern about disaster. The *p*-values for all questions raised in this study regarding the degree of concern about disasters were <0.001. The Chi-squared values ranged from 77.606 to 407.203, indicating a significant difference between the groups of teachers worried about disaster and not worried about disaster. The values were clearly higher in the group worried about disasters (367–498 individuals) than in the group not worried about disasters (33–164 individuals).

Table 3. Characteristics of the degree of concern about disaster.

Question	Response	Observed N	Expected N	Residual	Chi-Squared	*p*-Value
Are you worried about evacuation guidance for * children in school in the event of a disaster?	Not worried	154	265.5	−111.5	93.652 [a]	0.000
	Worried	377	265.5	111.5		
Are you worried about the safety of your children * at school in the event of a disaster?	Not worried	164	265.5	−101.5	77.606 [a]	0.000
	Worried	367	265.5	101.5		
Are you worried about the safety of your children * at home in the event of a disaster?	Not worried	59	265.5	−206.5	321.222 [a]	0.000
	Worried	472	265.5	206.5		
Are you worried about handing school children over to * their parents in the event of a disaster?	Not worried	134	265.5	−131.5	130.262 [a]	0.000
	Worried	397	265.5	131.5		
Are you worried about the behavior of residents during § an evacuation?	Not worried	105	265.5	−160.5	194.051 [a]	0.000
	Worried	426	265.5	160.5		
Are you worried about keeping your school's § facilities safe as a shelter?	Not worried	123	265.5	−142.5	152.966 [a]	0.000
	Worried	408	265.5	142.5		
Are you worried about accepting evacuees in your § school as a shelter?	Not worried	94	265.5	−191.5	221.561 [a]	0.000
	Worried	437	265.5	191.5		
Are you worried about getting water and food in § your school as a shelter?	Not worried	104	265.5	−161.5	196.476 [a]	0.000
	Worried	427	265.5	161.5		
Do you worry about shelter hygiene? ¶	Not worried	53	265.5	−212.5	340.160 [a]	0.000
	Worried	478	265.5	212.5		
Are you worried about infectious disease control ¶ at shelters?	Not worried	33	265.5	−232.5	407.203 [a]	0.000
	Worried	498	265.5	232.5		
Are you worried about accepting pets in shelters? ¶	Not worried	93	265.5	−172.5	224.153 [a]	0.000
	Worried	438	265.5	172.5		
Are you worried about how to accept and ¶ distribute relief supplies?	Not worried	102	265.5	−163.5	201.373 [a]	0.000
	Worried	429	265.5	163.5		
Are you worried about the establishment of an ‖ autonomous organization that operates evacuation centers?	Not worried	106	265.5	−159.5	191.640 [a]	0.000
	Worried	425	265.5	159.5		
Are you worried about accepting volunteers to ‖ help?	Not worried	125	265.5	−140.5	148.702 [a]	0.000
	Worried	406	265.5	140.5		
Are you worried about the division of evacuation ‡ and educational activities and the development of rules?	Not worried	102	265.5	−163.5	201.373 [a]	0.000
	Worried	429	265.5	163.5		
Are you worried about educating children during ‡ an evacuation?	Not worried	81	265.5	−184.5	256.424 [a]	0.000
	Worried	450	265.5	184.5		
Are you worried about school events being ‡ evacuated?	Not worried	155	265.5	−110.5	91.979 [a]	0.000
	Worried	376	265.5	110.5		
Are you worried about managing evacuees moving ‖ in and out of evacuation centers?	Not worried	127	265.5	−138.5	144.499 [a]	0.000
	Worried	404	265.5	138.5		
Are you worried about collecting information about ‖ shelters and supplies?	Not worried	91	265.5	−174.5	229.380 [a]	0.000
	Worried	440	265.5	174.5		
Are you worried about managing evacuees' pets ‡?	Not worried	81	265.5	−184.5	256.424 [a]	0.000
	Worried	450	265.5	184.5		
Are you worried about trouble between evacuees ‖ and solutions?	Not worried	65	265.5	−200.5	302.827 [a]	0.000
	Worried	466	265.5	200.5		
Are you worried about your child's mental care? *	Not worried	34	265.5	−231.5	403.708 [a]	0.000
	Worried	497	265.5	231.5		
Are you worried about managing your child's diet * and exercise (play)?	Not worried	54	265.5	−211.5	336.966 [a]	0.000
	Worried	477	265.5	211.5		

[a] 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 301.0. The signs denote the degree of concern about the disaster category to which each question belongs. * Child management, § Life saving, ¶ Life maintenance, ‖ Evacuation shelter management, and ‡ School management.

3.4. Questions Related to Disaster Prevention Awareness and Degree of Concern about Disaster

The average scores for disaster prevention awareness and degree of concern about disaster are presented in Table 4. The mean score for the imagination of a disaster situation was 14.01, whereas the scores for a sense of crisis, being other-oriented, interest in disasters,

anxiety, and the total score for disaster prevention awareness were 19.94, 16.05, 18.47, 14.59, and 83.09, respectively. Further, the mean score for child management was 19.17, whereas the scores for life saving, life maintenance, evacuation shelter management, school management, and the total degree of concern about disaster were 12.41, 13.30, 15.49, 12.53, and 72.91, respectively.

Table 4. Mean scores for disaster prevention awareness and degree of concern about disaster.

Major Categories	Sub-Categories (Scores)	Mean $\pm$ SD
Disaster Prevention Awareness Scale	Imagination of the disaster situation (A score)	14.01 $\pm$ 2.334
	A sense of crisis (B score)	19.94 $\pm$ 2.712
	Being other-oriented (C score)	16.05 $\pm$ 3.202
	Interest in disasters (D score)	18.47 $\pm$ 2.547
	Anxiety (E score)	14.59 $\pm$ 3.405
	Total	83.09 $\pm$ 8.492
Degree of Concern about Disaster	Child management	19.17 $\pm$ 3.341
	Life saving	12.41 $\pm$ 2.340
	Life maintenance	13.30 $\pm$ 2.145
	Evacuation shelter management	15.49 $\pm$ 3.815
	School management	12.53 $\pm$ 2.402
	Total	72.91 $\pm$ 10.608

3.5. Relationship between Disaster Prevention Awareness and the Degree of Concern about Disaster

The relationship between disaster prevention awareness and the degree of concern about disaster is presented in Table 5. There was a weak but significant positive correlation between disaster prevention awareness and degree of concern about disaster ($r = 0.217$, p-value = 0.000). Further, among all components of disaster prevention awareness, the sense of crisis in times of disaster had the highest significant correlation with the components of the degree of concern about disasters (p-value < 0.001 for all items, and r ranging from 0.182 for school management to 0.283 for overall disaster prevention awareness). Therefore, the sense of crisis in times of disaster seemed to be affected by the items of concern about disaster more than the remaining components of disaster prevention awareness. Interest in disasters seemed not to be influenced by the degree of concern about disaster or its components, and there was no significant correlation between it and any of the components of the degree of concern about disaster (p-value > 0.05).

Table 5. Correlation between disaster prevention awareness and degree of concern about disaster.

Correlation between Disaster Prevention Awareness and Degree of Concern about Disaster	Child Management	Life Saving	Life Maintenance	Evacuation Shelter Management	School Management	Total
	r (p-Value)	r (p-Value)	r (p-Value)	r (p-Value)	r (p-Value)	r (p-Value)
Imagination of the Disaster Situation (A Score)	−0.031 (0.476)	−0.150 (0.001) **	−0.115 (0.008) **	−0.179 (0.000) **	−0.139 (0.001) **	−0.148 (0.001) **
A Sense of Crisis (B Score)	0.262 (0.000) **	0.227 (0.000) **	0.261 (0.000) **	0.237 (0.000) **	0.182 (0.000) **	0.283 (0.000) **
Other-Oriented (C Score)	0.087 (0.044) *	0.087 (0.046) *	0.080 (0.066)	0.036 (0.407)	0.086 (0.049) *	0.083 (0.057)
Interest in Disasters (D Score)	0.081 (0.062)	0.058 (0.184)	0.028 (0.514)	0.048 (0.265)	0.033 (0.452)	0.056 (0.194)
Anxiety (E Score)	0.332 (0.000) **	0.276 (0.000) **	0.227 (0.000) **	0.220 (0.000) **	0.161 (0.000) **	0.297 (0.000) **
Total	0.261 (0.000) **	0.205 (0.000) **	0.187 (0.000) **	0.141 (0.001) **	0.116 (0.008) **	0.217 (0.000) **

** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

4. Discussion

Teachers are involved not only in children's education but also in the management of evacuation centers at schools that become shelters after the disaster [31,32]. Therefore, teachers need to be prepared for disasters [33]. However, teacher education does not include disaster preparedness training [9]. The creation and evaluation of teacher education

programs had been considered previously [34], but the training had been conducted only within the context of a trial. To promote teacher education on disaster prevention, it is necessary to raise awareness of disasters and to identify factors that may promote it. Disaster prevention awareness is defined as the degree to which an individual is aware on a daily basis that information, materials, and social preparation for disasters are necessary [30,35]. In this study, we used a scale with five scores: imagination of the disaster situation, sense of crisis, being other oriented, interest in disasters, and anxiety. We used this scale due to its previously demonstrated suitability for the Japanese population. First, our study assessed the actual situation of disaster prevention awareness among teachers. Second, it clarified the relationship between items of disaster prevention awareness and concern regarding disaster preparedness. This survey targets teachers, but first of all it targets teachers from high-priority schools for special needs, because they need to be especially sensitive to disaster preparedness. This is due to the particular importance of preparing children enrolled in special needs schools for disasters [25,36].

We have previously identified factors that influence disaster preparation in Japanese schools, including the role of study participants (teachers versus parents) and whether they have previously experienced a disaster [21]. As in previous studies [21], many faculty members examined in the current study had never evacuated. The schools were equipped with in-house power generation, telecommunications, and drinking water, but many realized they were not well prepared. In addition, local residents were not involved in school management. In the context of school events, there were many schools where residents, teachers, and children interacted. Allowing evacuees to run shelters and allowing teachers to rely on children have been discussed [21]. Children in special needs schools in particular need a great degree of support. Understanding the condition of children by residents should be facilitated. This is in line with previous publications demonstrating the need for effective communication in disaster risk education [37]. In the current study, we focused on the role of another potentially important factor: concern regarding disaster preparedness. Teachers have been shown to be loyal and responsible [11]. Even students aspiring to become teachers were shown to be sensitive to the "duties of a teacher" [11,34]. Many teachers were significantly concerned about all aspects of disasters (child management, life saving, life maintenance, evacuation shelter management, and school management). Teachers' concerns showed the highest average score in "child management" in times of disasters. For example, it is unlikely that children who need special care would be able to cope, if traffic was cut off, and they were staying at school. The cooperation with residents and school disaster preparedness were not sufficient, indicating that teachers' concerns were reasonable [36].

The degree of disaster prevention awareness of teachers in schools for children with special healthcare needs was compared to that of administrative staff in a study by the National Research Institute [28]. Teachers had the same scores for "Imagination of the disaster situation" and "Interest in disasters", lower scores for "A sense of crisis" and being "Other-oriented", and a higher score for "Anxiety". In Japan, evacuation centers are generally operated by administrative staff. However, when a school becomes a shelter, it may be provisionally run by teachers. Teachers had a low sense of crisis and being other-oriented (of helping each other). However, they had a high level of anxiety, which could be attributed to the lack of a clear strategy how to manage their responsibilities during a time of an emergency or disaster. Under normal circumstances, teachers are not supposed to consult with residents, and no consultation training has been included in teachers' education [11], which impedes their preparation for a potential disaster.

In the current study, we found that "A sense of crisis about disaster" was positively correlated with concern regarding disaster preparedness. However, "Imagining the disaster situation" was negatively correlated with concern regarding disaster preparedness. Notably, the ability to imagine future events may help to predict and avoid dangerous situations [38]. The psychological aspects of disaster awareness were previously identified as a factor that may influence disaster preparedness [30]. It was shown that the ingenuity to promote

imagination is important for education that raises teachers' awareness of disasters. Case studies developed for prospective teachers might also be effective for teachers. When a set situation is specifically imagined, it reminds an individual of an actionable response. Interestingly, in the current study, "Anxiety" was correlated with measures related to concern regarding disaster preparedness. It was previously demonstrated that the sense of crisis and anxiety should not be too high [39], indicating that pronounced worry about children might negatively affect disaster preparation. Since concern is consistent among many teachers, disaster preparedness is necessary to reduce concerns and to alleviate the sense of crisis.

The findings of the current study suggest the need for comprehensive educational efforts, aiming to address areas that are of particular concern to schools' staff members. The following areas presented in this study were of interest to teachers: child management, life saving, life maintenance, evacuation shelter management, and school management. In particular, the findings indicated that interventions that boost imagination in areas of child management in times of disasters may be effective.

The current study has several limitations, including its cross-sectional design and the use of a self-report measure. Activities that reduce concerns and alleviate the sense of crisis should be developed. The current study did not target teachers in general but rather teachers in special needs schools, who should be particularly sensitive to disaster preparedness. In comparison with general teachers, differences between teachers' personal characteristics, their stage of life, and their positions should be further examined and validated.

5. Conclusions

In this study, to raise teachers' awareness of disaster prevention, we clarified the relationship between disaster prevention awareness and concerns about disaster prevention measures. Teachers from special needs schools were selected. Many teachers were concerned about child management, life saving, life maintenance, evacuation shelter management, and school management. Most concerning among these areas was child management. In comparison to general staff, the teachers had a high level of anxiety, which could be attributed to the lack of a clear strategy on how to manage their responsibilities during a time of an emergency or disaster. We found that "A sense of crisis about disaster" was positively correlated with concern regarding disaster preparedness. However, "Imagining the disaster situation" was negatively correlated with concern regarding disaster preparedness. Boosting teachers' imagination about disaster may help teachers be more prepared and less concerned. Presumably, a decrease in concerns may reduce the sense of crisis and lead to teacher stability. This study identified a relationship between disaster prevention awareness and concern regarding disaster preparation readiness that is of high relevance for the practice. For the stability of teachers, disaster preparedness education is recommended.

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