

# Disaster Literacy Levels of Families with Special Needs Children and Associated Factors: A Descriptive-Correlational Study

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## What is already known on this topic?

- Disaster literacy (DL) is the ability to access, understand, evaluate, and apply information related to disaster prevention, preparedness, and recovery.
- Families of children with special needs constitute one of the vulnerable groups in disasters.
- Assessing DL among families of children with special needs is especially crucial for mitigating the impacts of disasters.

## What does this study add on this topic?

- This study highlights insufficient DL levels among families of children with special needs.
- There is a relationship between DL and factors such as education level, marital status, survival kit possession, and having a family disaster preparedness plan.
- The findings emphasize the need to strengthen DL among families of children with special needs.

## ABSTRACT

**Objective:** The study aimed to determine the levels of disaster literacy (DL) and related factors among families of children with special needs.

**Methods:** The descriptive-correlational study was conducted with 151 participants between March and April 2024 at a private rehabilitation center in İstanbul. Data were collected using the descriptive information form and the Disaster Literacy Scale (DLS). Independent samples *t*-tests and one-way ANOVA were used for data analysis.

**Results:** The average total DLS of the participants was  $22.49 \pm 4.64$ . A significant association was observed between the DLS score and education level, marital status, survival kit possession, and having a family disaster preparedness plan. High school graduates exhibited higher DL levels than primary school graduates, and single participants demonstrated higher DL levels than married participants. Participants who had a survival kit and a family disaster preparedness plan at home demonstrated higher DL levels.

**Conclusion:** This study demonstrated that families of children with special needs had insufficient DL levels. Assessing their DL is crucial for developing strategies to enhance disaster management and reduce associated risks. Future studies should prioritize efforts to improve DL levels among families of children with special needs.

**Keywords:** Disaster, disaster literacy, family, special needs children

## Introduction

A disaster is a natural or human-made event that adversely affects human life, the environment, and social order to varying degrees of severity.<sup>1,2</sup> Natural disasters include earthquakes, floods, storms, landslides, volcanic eruptions, and droughts, while human-made disasters comprise fires, chemical leaks, nuclear accidents, and wars.<sup>2</sup> According to the United Nations Office for Disaster Risk Reduction, approximately 7250 disasters occurred between 1998 and 2017, resulting in the loss of over 1 million lives.<sup>3</sup> While floods and storms accounted for most of these events, earthquakes were reported to cause the highest number of fatalities.<sup>3</sup> Türkiye is considered a high-risk country for disasters due to its geological, meteorological, and topographic characteristics.<sup>4</sup> Notably, Türkiye ranks fourth globally in terms of major earthquakes that have occurred since 1900. Additionally, the region's seasonal characteristics make it prone to disasters such as floods, landslides, and avalanches.<sup>1</sup>

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Certain individuals and groups are more vulnerable to disasters due to characteristics such as age, gender, and gender identity, race, culture, religion, disability, socio-economic status, geographic location, or migration status.<sup>5</sup> Given their varying levels of exposure to hazards and crises, these vulnerable populations must be considered in disaster risk management.<sup>6</sup> These vulnerable groups may face difficulties accessing emergency services due to pre-existing health conditions or other vulnerabilities. Major disasters often place the greatest burden on vulnerable populations, who require the most resources. In disaster situations, the disparity between healthcare needs and available resources can have a devastating impact on these groups, underscoring the need for effective community disaster planning.<sup>7</sup> The United Nations' 2015-2030 Sendai Framework identifies strengthening vulnerable groups and increasing their resilience to disasters as priority actions.<sup>7</sup> Therefore, assessing and enhancing the preparedness, knowledge, skills, and awareness of vulnerable groups is crucial for mitigating the impacts of disasters.<sup>8</sup>

Families of children with special needs constitute one of the vulnerable groups in disasters.<sup>9</sup> Compared to their peers, children with special needs require more support in personal, health, educational, economic, and environmental domains due to their physical, mental, or behavioral differences.<sup>10</sup> In disaster situations, these children and their caregivers face numerous challenges, including difficulties with the healthcare system, communication, education, access to healthcare services, care coordination, and safety.<sup>11</sup> A study conducted 10 months after the 2011 Great East Japan Earthquake found that 68% of children and adults with developmental disabilities and epilepsy had stocked medication for 7 days or less, while 29% had little to none.<sup>12</sup> Numerous studies indicate that families of children with special needs are inadequately prepared for disasters.<sup>13-15</sup> For example, Toor et al<sup>16</sup> (2018) found that over half of families with chronically ill children did not have a disaster emergency plan, and more than 40% lacked a basic emergency supply kit. Similarly, Wolf-Fordham et al (2015)<sup>15</sup> reported that most caregivers of children with developmental disabilities required education on disaster preparedness. Therefore, enhancing families' knowledge, skills, education, and preparedness in disasters is essential for minimizing potential challenges.

Recently, the concept of "disaster literacy" has gained increasing importance.<sup>17</sup> Disaster literacy refers to individuals' ability to access, understand, evaluate, and apply information related to disaster prevention, preparedness, and recovery. It encompasses the awareness, knowledge, and techniques required to help individuals make quick decisions when faced with challenges during a disaster.<sup>18,19</sup> Studies conducted in various countries, including China, Vietnam, and the Netherlands, indicate that the disaster literacy levels of communities are generally low.<sup>20-22</sup> Similarly, a study conducted in Türkiye found that more than half of the population had insufficient or moderate levels of disaster literacy.<sup>23</sup> However, research on disaster literacy remains limited, particularly in children with disabilities and their families.<sup>23,24</sup> Assessing disaster literacy among this population is especially crucial, as it can help mitigate human and material losses in disasters.<sup>18</sup> This study offers a significant contribution by examining disaster literacy levels among families of children with special needs and the factors associated with them. To the best of our knowledge, this study is the first to examine disaster literacy levels among families of children with special needs in Türkiye.

This study aimed to determine the levels of disaster literacy and the related factors among families of children with special needs. The research questions are as follows:

- What is the disaster literacy level among families of children with special needs?

- What are the factors related to disaster literacy levels among families of children with special needs?

## Methods

### Study Design

The study employed a descriptive-correlational research design. The descriptive component was used to assess participants' sociodemographic characteristics and their disaster literacy levels. The correlational component examined the association between disaster literacy and variables such as sociodemographic factors and disaster-related characteristics.

### Setting and Sample

This study was conducted in a private rehabilitation center in Istanbul, where 300 children with special needs received supportive education services. A convenience sampling method was used to recruit families of children with special needs. Inclusion criteria were age between 18 and 60 years, being a family member of a child with special needs, and voluntary agreement to participate. A total of 151 family members who met these criteria participated in the study. A post hoc power analysis based on correlation analysis was performed using G\*Power 3.1.9.7. The minimum power value required for post hoc analysis is 0.67.<sup>25</sup> When type 1 error was set at 0.05, post hoc power (1-β) was determined as 1.00 for the sample of 151 participants.

## Instruments

### Descriptive Information Form

The descriptive information form, prepared by the researchers based on the literature, comprised 12 questions.<sup>23,24,26</sup> The form focuses on the sociodemographic characteristics of family members (age, gender, education level, marital status, income level, family role) and their disaster-related features (disaster experience, survival kit possession, family disaster preparedness plan, disaster education received, membership of a civil society organization).

### Disaster Literacy Scale (DLS)

The DLS was developed in 2022 by Caliskan and Uner to assess the disaster-related knowledge and skills of individuals aged 18-60 in Turkish society. The scale, designed to measure self-reported disaster literacy levels, comprises 61 items, none of which are reverse-scored. It includes four sub-dimensions: mitigation, preparedness, response, and recovery. Each item on the Likert-type scale is rated as "1-very difficult," "2-difficult," "3-undecided," "4-easy," and "5-very easy." The total score is calculated using the formula:  $\text{Index} = (\text{arithmetic mean} - 1) \times (50/4)$ . The resulting score is evaluated as inadequate (0-<30), limited (30-<36), sufficient (36-<42), or excellent (42-50). Higher scores indicate higher disaster literacy levels. The Cronbach's  $\alpha$  coefficient for the overall scale and its subscales were reported as 0.95, 0.87, 0.86, 0.83, and 0.88, demonstrating good internal consistency.<sup>27</sup> The Cronbach's  $\alpha$  coefficients in the present study were 0.92, 0.90, 0.63, 0.78, and 0.88 for the subscales and the overall scale, respectively.

### Data Collection

Data collection commenced on March 11, 2024, following ethics committee approval and institutional permission, and concluded on April 30, 2024, after reaching the target number of voluntary participants. Family visits to the rehabilitation center varied depending on the children's diagnoses. To ensure participant recruitment, the researcher consulted with the center's director to determine the specific days and times when families brought their children for educational and rehabilitative services. Participants were informed of the study's purpose and scope, assured that participation was entirely voluntary, and guaranteed confidentiality. The data collection process was conducted through face-to-face interviews with participants in a designated room

at the center. Each participant spent approximately 15 minutes to complete the descriptive information form and the DLS.

### Ethical Consideration

Written permission to use the DLS was obtained via email from its developers. Ethics committee approval was obtained from the Istanbul University-Cerrahpaşa Social and Human Sciences Ethics Committee for the research (Date: 06.02.2024 Approval no: 2024/48). Institutional permission was obtained from the rehabilitation center. In accordance with the Declaration of Helsinki, participants were provided with detailed information about the study, and their written and verbal informed consent was obtained.

### Data Analysis

Data were analyzed using IBM SPSS Statistics 26.0 (IIBM SPSS Corp.; Armonk, NY, USA). The normality of the data distribution was assessed using skewness and kurtosis values ( $<+1.5$ ), confirming that the study variables followed a normal distribution. Descriptive statistics (frequency, percentage, mean, standard deviation, minimum, maximum) were used to summarize participant characteristics. Independent samples *t*-tests were conducted to compare two independent groups, while one-way ANOVA was used for comparisons between more than two independent groups. Where significant differences were found in one-way ANOVA, Bonferroni and Tamhane's T2 post hoc tests were applied. Statistical significance was set at  $P < .05$  (95% CI).

### Results

The mean total DLS score of participants was  $22.49 \pm 4.64$ . The mean scores for the subscales were  $25.84 \pm 9.72$  for Mitigation,  $27.37 \pm 9.22$  for Preparedness,  $15.97 \pm 5.22$  for Response, and  $19.15 \pm 6.09$  for Recovery (Table 1).

Table 2 presents the sociodemographic characteristics of the participants and their comparison with DLS scores. Among the participants, 36% were aged 40-49, 30.7% were aged 30-39, 18.7% were aged 18-29, and 14.7% were aged 50 years or older. Regarding education, 27.3% were high school graduates, and 24% had completed primary education. Additionally, 82% were women, 18% were men, 80.7% were married, and 62% were mothers. Regarding income, 38.7% earned below the minimum wage, 32.0% earned the minimum wage, and 29.3% earned above the minimum wage. A significant association was observed between the DLS score and participants' education level and marital status ( $P < .01$ ). High school graduates exhibited higher disaster literacy levels than primary school graduates, and single participants demonstrated higher disaster literacy levels than married participants. The total DLS score did not vary significantly by age ( $F = 1.41, P = .243$ ), gender ( $t = 1.08, P = .282$ ), family role ( $F = 1.92, P = .119$ ), employment status ( $t = 1.02, P = .307$ ), profession ( $F = 1.89, P = .115$ ), or income level ( $F = 1.62, P = .202$ ). However, Mitigation and Preparedness subscale scores differed significantly by participants' marital status and profession ( $P < .05$ ). Additionally, mothers scored significantly higher on the Response subscale compared to participants in other family roles, including fathers and grandparents ( $P < .05$ ).

**Table 1.** DLS Scores of Families of Children with Special Needs

Subscales of DLS	$\bar{X} \pm SD$	Minimum-Maximum
Mitigation	$25.84 \pm 9.72$	0-49
Preparedness	$27.37 \pm 9.22$	0-47
Response	$15.97 \pm 5.22$	0-33
Recovery	$19.15 \pm 6.09$	0-38
DLS total	$22.49 \pm 4.64$	8-29

Table 3 presents the comparison of DLS scores with the descriptive findings related to disaster-related characteristics. A statistically significant association was found between having a survival kit and a family disaster preparedness plan at home and the total DLS score ( $P < .05$ ). The total DLS score did not significantly differ based on disaster experience ( $t = 1.84, P = .068$ ), disaster education received ( $t = 1.08, P = .281$ ), membership in a civil society organization related to disasters ( $t = 0.12, P = .901$ ), or experience of loss in a disaster ( $t = -1.66, P = .098$ ). Participants with disaster experience had higher Mitigation ( $P < .01$ ) and Preparedness subscales scores ( $P < .05$ ) than those without disaster experience. Participants who received disaster education had higher Mitigation scores ( $P < .05$ ) but lower Recovery scores ( $P < .01$ ) than those who did not receive such education. Furthermore, participants who experienced loss in a disaster had lower Response and Recovery subscale scores than those who did not experience loss ( $P < .05$ ).

### Discussion

Disaster literacy refers to an individual's ability to comprehend the necessary actions before, during, and after disasters, obtain information from reliable sources, understand the potential impacts of disasters, and take preventive measures to mitigate those impacts.<sup>17</sup> Studies suggest that individuals with special needs have inadequate disaster coping skills, highlighting the need for education on disaster emergency coping strategies.<sup>28,29</sup> Disaster literacy is crucial for this population, as it can mitigate disaster-related losses and enhance individual resilience.<sup>18</sup> To the best of our knowledge, this is the first study to examine disaster literacy levels among families of children with special needs, a group particularly vulnerable to disasters. The findings indicate that these families had inadequate disaster literacy levels. Similarly, community-based studies conducted in various countries have shown generally low disaster literacy levels among individuals.<sup>22,23,30,31</sup> Therefore, future research should prioritize strategies to improve disaster literacy among families of children with special needs to enhance their resilience to disasters.

The findings revealed that families with higher education levels demonstrated higher disaster literacy levels. This finding is consistent with previous studies examining disaster literacy in individuals aged 18 and over.<sup>23,24</sup> Current disaster-related information is typically disseminated via the internet, social media, or mobile applications. However, individuals with lower education levels may struggle to access critical information due to difficulties in effectively using technology or limited internet access. Furthermore, lower educational levels can impede the comprehension of information containing complex disaster-related terminology.<sup>32</sup> Therefore, it is recommended that information on disaster prevention, preparedness, and recovery processes be evaluated for readability and presented in a simplified and comprehensible format.

In this study, single individuals had higher disaster literacy levels than married individuals. These findings contrast with the results of Torpus et al (2024)<sup>33</sup> and Genc et al (2023),<sup>23</sup> who reported higher disaster literacy levels among married individuals. These findings suggest that married individuals' higher disaster literacy is attributable to their natural tendency to protect family members and the responsibilities associated with familial roles.<sup>23,33</sup> Some studies have also reported no significant relationship between marital status and disaster literacy in elderly populations.<sup>34,35</sup> These conflicting findings indicate a lack of consensus regarding the relationship between marital status and disaster literacy. In this study, the target group comprised family members of children with special needs, a vulnerable population often requiring additional care and support. Single participants may bear sole responsibility for safety and preparedness, potentially leading them to actively seek out and retain more disaster-related information.

**Table 2.** Comparison of DLS Scores with Sociodemographic Characteristics (n = 151)

Variables	n (%)	DLS Total	Mitigation	Preparedness	Response	Recovery
		X ± SD	X ± SD	X ± SD	X ± SD	X ± SD
<b>Education status</b>						
Illiterate	14 (9.3)	20.05 ± 5.72	20.70 ± 12.37	24.00 ± 12.44	14.29 ± 4.83	20.12 ± 6.49
Literate	3 (2.0)	23.57 ± 2.05	33.58 ± 2.36	29.43 ± 3.93	13.46 ± 3.47	14.72 ± 3.85
Primary school	36 (24.0)	20.56 ± 4.81	20.81 ± 9.49	23.22 ± 9.47	17.04 ± 4.89	20.46 ± 5.60
Secondary school	27 (18.0)	23.41 ± 4.65	27.59 ± 8.93	27.98 ± 8.74	16.17 ± 4.18	20.09 ± 6.07
Higher school	41 (27.3)	23.51 ± 4.15	28.10 ± 7.94	29.27 ± 8.43	16.46 ± 5.57	18.27 ± 5.50
University and above	29 (19.3)	23.68 ± 3.73	28.96 ± 9.06	30.69 ± 7.07	14.85 ± 6.14	17.87 ± 7.21
<b>Test value</b>		F = 3.29 <sup>b</sup> P = .008** 5 > 3 <sup>c</sup>	F = 4.86 <sup>b</sup> P = .000*** 5,6 > 3 <sup>c</sup>	F = 3.20 <sup>b</sup> P = .009** 6 > 3 <sup>c</sup>	F = 1.08 <sup>b</sup> P = .374	F = 1.29 <sup>b</sup> P = .272
<b>Marital status</b>						
Married	121 (80.7)	22.10 ± 4.76	25.21 ± 9.70	26.51 ± 9.53	15.82 ± 5.01	19.31 ± 5.97
Single	19 (12.7)	25.50 ± 1.98	32.47 ± 5.09	33.06 ± 5.08	16.04 ± 5.92	17.72 ± 7.58
Divorced	10 (6.7)	21.60 ± 5.01	20.95 ± 11.56	27.03 ± 8.19	17.69 ± 6.57	19.92 ± 4.38
<b>Test value</b>		F = 4.83 <sup>b</sup> P = .009** 2 > 1 <sup>d</sup>	F = 6.37 <sup>b</sup> P = .002** 2 > 1.3 <sup>d</sup>	F = 4.34 <sup>b</sup> P = .015* 2 > 1 <sup>d</sup>	F = 0.59 <sup>b</sup> P = .555	F = 0.64 <sup>b</sup> P = .528
<b>Family role</b>						
Mother	93 (62.0)	22.54 ± 4.33	25.30 ± 9.12	27.03 ± 8.64	16.69 ± 4.96	19.69 ± 5.52
Father	28 (18.7)	21.03 ± 5.50	24.32 ± 10.99	25.03 ± 10.44	15.01 ± 6.09	18.27 ± 7.13
Sibling	17 (11.3)	24.45 ± 4.44	29.97 ± 9.04	30.74 ± 9.50	16.12 ± 4.75	18.68 ± 7.12
Other (grandparent etc.)	12 (8.0)	22.80 ± 4.56	27.76 ± 11.41	30.73 ± 9.17	12.50 ± 4.45	17.64 ± 6.48
<b>Test value</b>		F = 1.92 <sup>b</sup> P = .119	F = 1.52 <sup>b</sup> P = .212	F = 1.97 <sup>b</sup> P = .121	F = 2.77 <sup>b</sup> P = .044* 1 > 4 <sup>c</sup>	F = 0.72 <sup>b</sup> P = .543
<b>Employment status</b>						
Yes	62 (41.3)	22.96 ± 4.49	27.99 ± 8.92	28.76 ± 8.94	14.76 ± 4.92	18.17 ± 5.65
No	88 (58.7)	22.17 ± 4.74	24.33 ± 10.03	26.40 ± 9.35	16.83 ± 5.28	19.84 ± 6.33
<b>Test value</b>		t = 1.02 <sup>a</sup> P = .307	t = 2.30 <sup>a</sup> P = .023*	t = 1.55 <sup>a</sup> P = .123	t = -2.42 <sup>a</sup> P = .017*	t = -1.66 <sup>a</sup> P = .099
<b>Profession</b>						
Civil servant	25 (16.7)	23.92 ± 3.81	31.15 ± 8.42	32.03 ± 7.35	13.27 ± 5.25	16.30 ± 5.78
Freelance	22 (14.7)	22.57 ± 3.77	23.93 ± 8.95	28.76 ± 7.57	17.27 ± 5.19	19.02 ± 7.28
Worker	18 (12.0)	22.13 ± 5.33	24.84 ± 10.15	26.78 ± 10.88	15.65 ± 2.81	19.72 ± 5.86
Housewife	76 (50.7)	22.50 ± 4.48	25.41 ± 9.25	26.74 ± 8.64	16.62 ± 5.19	19.77 ± 5.86
Retired	9 (6.0)	19.06 ± 7.25	21.49 ± 13.89	17.54 ± 11.58	15.49 ± 7.31	21.02 ± 4.93
<b>Test value</b>		F = 1.89 <sup>b</sup> P = .115	F = 2.73 <sup>b</sup> P = .031* 1 > 5 <sup>c</sup>	F = 4.84 <sup>b</sup> P = .001** 1.2,4 > 5 <sup>c</sup>	F = 2.43 <sup>b</sup> P = .051	F = 1.86 <sup>b</sup> P = .121

DLS, disaster literacy scale.

<sup>a</sup>t, Independent samples t-test.<sup>b</sup>F, One-way ANOVA.<sup>c</sup>Bonferroni test.<sup>d</sup>Tamhane's T2 test.

\*P &lt; .05.

\*\*P &lt; .01.

\*\*\*P &lt; .001.

In this study, the participants' disaster literacy levels did not differ by gender. Several studies support this finding.<sup>23,30,31</sup> However, Bulut (2023) examined factors influencing disaster literacy and found higher disaster literacy levels among women than men.<sup>24</sup> The findings also revealed that mothers scored higher on the response subscale compared to other family members, including fathers and grandparents. This finding may be related to gender role attitudes within the family structure, with mothers typically assuming responsibility for caring for family members, providing rescue, and assisting others.<sup>36,37</sup>

Families who had a survival kit and a disaster preparedness plan at home exhibited higher disaster literacy levels, indicating that individuals with higher disaster literacy had taken proactive measures to

prepare for disasters. This finding is consistent with numerous studies conducted in different populations.<sup>23,24,30,38</sup> Additionally, the findings revealed that individuals who had experienced loss in a disaster scored lower in the response and recovery domains. Disaster literacy plays a vital role in fostering individual resilience and confidence in coping with disasters.<sup>33,34</sup> This finding underscores the importance of key competencies, such as accessing information on reconstruction applications, understanding and interpreting recovery information, evaluating improvement practices, and making informed decisions regarding their implementation.

The study also found that families who had received disaster training scored higher on the mitigation subscale of disaster literacy but lower

**Table 3.** Comparison of DLS Scores with Disaster-Related Characteristics (n = 151)

Variables	n (%)	DLS Total	Mitigation	Preparedness	Response	Recovery
		X ± SD	X ± SD	X ± SD	X ± SD	X ± SD
Disaster experience						
Yes	57 (38.0)	23.38 ± 3.77	28.63 ± 7.97	29.51 ± 8.35	14.83 ± 5.82	18.30 ± 6.56
No	93 (62.0)	21.95 ± 5.05	24.14 ± 10.33	26.06 ± 9.53	16.68 ± 4.72	19.67 ± 5.77
<b>Test value</b>		<i>t</i> = 1.84 <sup>a</sup> <i>P</i> = .068	<i>t</i> = 2.81 <sup>a</sup> <i>P</i> = .006**	<i>t</i> = 2.25 <sup>a</sup> <i>P</i> = .026*	<i>t</i> = -2.13 <sup>a</sup> <i>P</i> = .035*	<i>t</i> = -1.34 <sup>a</sup> <i>P</i> = .184
Disaster education received						
Yes	29 (19.3)	23.33 ± 4.37	29.82 ± 8.81	29.80 ± 7.09	14.99 ± 6.33	16.32 ± 5.32
No	121 (80.7)	22.29 ± 4.70	24.89 ± 9.72	26.79 ± 9.60	16.21 ± 4.92	19.83 ± 6.09
<b>Test value</b>		<i>t</i> = 1.08 <sup>a</sup> <i>P</i> = .281	<i>t</i> = 2.49 <sup>a</sup> <i>P</i> = .014*	<i>t</i> = 1.59 <sup>a</sup> <i>P</i> = .115	<i>t</i> = -1.13 <sup>a</sup> <i>P</i> = .258	<i>t</i> = -2.85 <sup>a</sup> <i>P</i> = .005**
Survival kit possession						
Yes	38 (25.3)	23.79 ± 3.60	30.96 ± 8.00	31.11 ± 7.78	13.97 ± 5.32	16.38 ± 6.47
No	112 (74.7)	22.05 ± 4.88	24.11 ± 9.67	26.10 ± 9.36	16.66 ± 5.03	20.09 ± 5.69
<b>Test value</b>		<i>t</i> = 2.01 <sup>a</sup> <i>P</i> = .046*	<i>t</i> = 3.93 <sup>a</sup> <i>P</i> = .000***	<i>t</i> = 2.96 <sup>a</sup> <i>P</i> = .004**	<i>t</i> = -2.80 <sup>a</sup> <i>P</i> = .006**	<i>t</i> = -3.35 <sup>a</sup> <i>P</i> = .001**
Family disaster preparedness plan						
Yes	38 (25.3)	23.81 ± 3.80	29.18 ± 7.79	30.72 ± 7.57	14.95 ± 4.61	18.03 ± 6.71
No	112 (74.7)	22.05 ± 4.83	24.71 ± 10.08	26.24 ± 9.49	16.32 ± 5.39	19.53 ± 5.85
<b>Test value</b>		<i>t</i> = 2.04 <sup>a</sup> <i>P</i> = .043*	<i>t</i> = 2.49 <sup>a</sup> <i>P</i> = .014*	<i>t</i> = 2.64 <sup>a</sup> <i>P</i> = .009**	<i>t</i> = -1.40 <sup>a</sup> <i>P</i> = .164	<i>t</i> = -1.32 <sup>a</sup> <i>P</i> = .190
Membership of a civil society organisation						
Yes	15 (10.0)	22.64 ± 4.84	27.40 ± 9.73	30.6 ± 39.70	13.78 ± 5.06	16.39 ± 8.37
No	135 (90.0)	22.48 ± 4.64	25.67 ± 9.74	27.01 ± 9.14	16.22 ± 5.20	19.46 ± 5.75
<b>Test value</b>		<i>t</i> = 0.12 <sup>a</sup> <i>P</i> = .901	<i>t</i> = 0.65 <sup>a</sup> <i>P</i> = .514	<i>t</i> = 1.45 <sup>a</sup> <i>P</i> = .150	<i>t</i> = -1.73 <sup>a</sup> <i>P</i> = .087	<i>t</i> = -1.87 <sup>a</sup> <i>P</i> = .064
Experience of loss in a disaster						
Yes	11 (7.3)	20.27 ± 5.31	25.14 ± 10.82	28.62 ± 10.86	11.45 ± 6.24	13.49 ± 7.93
No	139 (92.7)	22.67 ± 4.56	25.90 ± 9.67	27.27 ± 9.12	16.33 ± 4.99	19.60 ± 5.72
<b>Test value</b>		<i>t</i> = -1.66 <sup>a</sup> <i>P</i> = .098	<i>t</i> = -0.25 <sup>a</sup> <i>P</i> = .803	<i>t</i> = 0.47 <sup>a</sup> <i>P</i> = .641	<i>t</i> = -3.07 <sup>a</sup> <i>P</i> = .003**	<i>t</i> = -3.31 <sup>a</sup> <i>P</i> = .001**

DLS, disaster literacy scale.

<sup>a</sup>*t*, Independent samples *t*-test. \**P* < .05. \*\**P* < .01. \*\*\**P* < .001.

on the recovery subscale. Disaster training may be crucial for families in comprehending the severity of disasters and acquiring the necessary knowledge and skills for taking precautions. However, recovery is a prolonged process, encompassing the knowledge and skills required to enhance holistic resilience—physical, psychological, social, and economic—after a disaster.<sup>17,18</sup> Therefore, disaster education programs for families of children with special needs should focus on developing strategies to improve their knowledge and skills regarding the post-disaster recovery process.<sup>39</sup>

### Limitations and Strengths of the Study

The study has some limitations. The data were collected from a single institution, which may limit the generalizability of the findings. Another limitation is the reliance on self-reported data. However, a significant strength of this study is that it is the first in Türkiye to examine disaster literacy and related factors among families of children with special needs.

### Conclusion

This study demonstrated that families of children with special needs had insufficient disaster literacy levels. The total DLS score varied according to their education level, marital status, possession of a survival kit, and presence of a family disaster preparedness plan. Participants with higher education levels and those who were single demonstrated higher disaster literacy. Similarly, families possessing a

survival kit and a disaster preparedness plan at home exhibited higher disaster literacy. Participation in disaster training was observed to be effective in enhancing the skills of accessing, understanding, and evaluating accurate information related to disaster risk reduction and mitigation. Identifying and addressing the needs of families of children with special needs is essential for disaster risk reduction. Strengthening disaster literacy in these families can contribute to building resilience by equipping them with the necessary knowledge, skills, and resources for disaster preparedness and response. Future studies should prioritize efforts to improve disaster literacy levels among families of children with special needs.

**Data Availability Statement:** The data that support the findings of this study are available upon request from the corresponding author.

**Ethics Committee Approval:** Ethics committee approval was obtained from the Istanbul University-Cerrahpaşa Social and Human Sciences Ethics Committee for the research (Date: February 06, 2024, Decision No: 2024/48)

**Informed Consent:** Written and verbal informed consent was obtained from families of children with special needs who participated in this study.

**Peer-review:** Externally peer-reviewed.

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