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Psychosocial Factors and Mental Health Among Workers and Volunteers in Disaster Response

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Abstract: This study examined psychosocial factors associated with the mental health of workers and volunteers engaged in response activities related to the May 2024 floods in Rio Grande do Sul, Brazil. A total of 185 participants completed online versions of the Copenhagen Psychosocial Questionnaire and the Depression, Anxiety, and Stress Scale. Using an inferential design, the data were analyzed through structural equation modeling. The results indicated that work demands were positively associated with stress (β = 0.40, p < 0.001, 95% CI [0.309, 0.590]), whereas interpersonal relationships were negatively associated with depression (β = -0.33, p < 0.001, 95% CI [-0.388, -0.128]). The findings highlight the importance of favorable work relationships in strengthening resilience and mitigating the adverse psychological effects of disaster contexts. These findings underscore the relevance of

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implementing interventions in future disaster settings aimed at strengthening psychosocial support and promoting adaptive coping strategies among workers and volunteers.

Keywords: psychosocial factors, disasters, mental disorders, volunteers, resilience

Fatores Psicossociais e Saúde Mental de Trabalhadores e Voluntários em Desastres

Resumo: Objetivou-se examinar fatores psicossociais impactantes na saúde mental entre trabalhadores e voluntários envolvidos em ações relacionadas ao desastre de enchentes de maio de 2024 no Rio Grande do Sul, Brasil. 185 pessoas responderam ao Questionário Psicossocial de Copenhague e a Escala de Depressão, Ansiedade e Estresse. Assumido design inferencial, realizaram-se análises por meio da modelagem de equações estruturais. Os resultados mostraram que as demandas intensificam os sintomas de estresse (β = 0,40, p < 0,001, IC 95%: [0,309; 0,590]), e as relações interpessoais estão negativamente associadas à depressão β = -0,33, p < 0,001, IC 95%: [-0,388; -0,128]). Ficou evidente a importância das relações de trabalho favoráveis no reforço de processos resilientes e na redução do impacto psicológico adverso em situações de desastre. Recomendações a trabalhadores e voluntários em caso de futuros desastres incluem: fortalecimento do apoio psicossocial e instituição de programas de estratégias de enfrentamento adaptativas, dentre outras.

Palavras-chave: fatores psicossociais, desastres, transtornos mentais, voluntários, resiliência

Factores Psicosociales y Salud Mental de Trabajadores y Voluntarios en Desastres

Resumen: El objetivo de este estudio fue examinar los factores psicosociales que impactan la salud mental de trabajadores y voluntarios involucrados en acciones relacionadas con el desastre de las inundaciones de mayo de 2024 en Rio Grande do Sul, Brasil. Ciento ochenta y cinco personas respondieron a instrumentos administrados en línea: el Cuestionario Psicosocial de Copenhague y la Escala de Depresión, Ansiedad y Estrés. Utilizando un diseño

inferencial, se realizaron análisis utilizando modelos de ecuaciones estructurales. Los resultados mostraron que las demandas intensifican los síntomas de estrés, ansiedad y depresión. Se evidenció la importancia de las relaciones laborales favorables en el fortalecimiento de los procesos resilientes y la reducción del impacto psicológico adverso de las situaciones de desastre. Las relaciones interpersonales se asocian negativamente con la ansiedad, la depresión y el estrés. Se presentan recomendaciones de intervención para futuros desastres dirigidos a trabajadores y voluntarios, como el fortalecimiento del apoyo psicosocial y el establecimiento de programas de estrategias de afrontamiento adaptativas, entre otros.

Palabras clave: factores psicosociales, desastres, trastornos mentales, voluntarios, resiliencia

Catastrophic events, such as floods, significantly impact not only the infrastructure and economy of the affected regions, but also the health of the general population and of the workers and volunteers involved in response operations. In May 2024, the state of Rio Grande do Sul (RS), Brazil, was hit by a major flood. According to data from the Military House (*Casa Militar*) and Civil Defense of Rio Grande do Sul (2024), as of May 31, 2024, approximately 2.4 million people had been affected (39,595 were in shelters, 580,111 were displaced, 806 were injured, 169 confirmed deaths, 44 missing, 77,729 rescued). This event mobilized emergency teams and volunteers to respond rapidly under conditions of high physical and emotional demands. Although disasters cause economic and health damage, the harm caused to individuals' mental health remains underestimated, highlighting the need for studies to support the planning of interventions aimed at preserving and promoting the mental health of workers and volunteers in crisis scenarios (Dantas, 2021; Organização Pan-Americana da Saúde & Organização Mundial da Saúde [OPAS & OMS], 2020).

This study was conducted by a team of researchers from the fields of sociology, psychology, and health to analyze the psychosocial factors associated with disaster-related

activities, as distinct from routine work activities. The research problem involved examining whether these psychosocial factors affected the mental health of volunteers and workers exposed to situations outside their usual daily experiences, such as the May 2024 flood disaster in Rio Grande do Sul, Brazil. Another objective was to identify elements that may inform future similar interventions, given that catastrophes—particularly climate-related events—are becoming increasingly frequent. Among the main factors evaluated were the demands and social relationships present in work settings. The analysis of these variables provides a basis for understanding how their interaction may affect the mental health of those involved—particularly with respect to symptoms of stress, depression, and anxiety—and may also inform recovery practices in crisis contexts.

This study addresses the need to investigate the mental health of workers and volunteers in disaster scenarios, given the intense and lasting impact these events have on these professionals. In crisis situations, such as those analyzed here, exposure to extreme physical and emotional demands may compromise psychological health and work effectiveness, increasing the risk of mental health disorders and burnout.

A literature review indicates that most studies on this topic focus on formal healthcare professionals, especially nurses and first responders, revealing a relative scarcity of research on non-professional volunteers (Naushad et al., 2019; Padmanabhanunni & Pretorius, 2025; Vedovato et al., 2021). Thus, few studies address the psychological impact on volunteers involved in disaster situations, indicating a gap in scientific knowledge regarding this group's specific demands and vulnerabilities (Naushad et al., 2019; Padmanabhanunni & Pretorius, 2025). Furthermore, as highlighted by Naushad et al. (2019), Padmanabhanunni and Pretorius (2025), and Vedovato et al. (2021), there is insufficient research examining variables related to resilience, social support, and personal and community coping strategies, limiting understanding of protective factors in crisis and disaster contexts. In addition, Naushad et al.

(2019) and Padmanabhanunni and Pretorius (2025) highlight the lack of studies analyzing the dynamics and interrelationships between professional and volunteer teams, as well as the effects of these interactions on collective mental health. Finally, Araújo et al. (2025) and Gomes and Vargas (2023) note a scarcity of research investigating the sociocultural and environmental specificities of Southern Brazil, particularly in post-flood contexts, which are essential for understanding how these factors shape psychosocial responses and collective mental health outcomes. Therefore, the literature remains limited with respect to effective interventions aimed at preserving the psychological well-being of workers and volunteers in emergency response contexts, especially in Brazil (Dantas, 2021).

Therefore, this study contributes to addressing these gaps by examining the specific psychosocial factors that influence mental health outcomes in disaster contexts, thereby providing a foundation for more targeted support strategies. By incorporating factors such as work demands and interpersonal relationships, the study offers a more integrated understanding of the mechanisms associated with psychological distress, which in turn informs the development of interventions aimed at strengthening professional resilience (Demerouti & Bakker, 2023). Drawing on these findings, the study seeks to provide guidance for managers and civil society organizations committed to implementing preventive and protective measures in future crisis situations. The following section outlines the key theoretical contributions that frame the present investigation and situate it within the broader scholarly literature.

Psychosocial Factors at Work: Demands and Interpersonal Relationships

Psychosocial factors at work refer to the interaction between the work environment, the content and conditions of work activities, and organizational and individual aspects that influence workers' health, performance, and job satisfaction (International Labour Office [ILO], 1986). In disaster contexts, this concept is particularly relevant, as not all individuals

involved operate within formal relief, social assistance, or healthcare settings. Many participants serve as volunteers, while others are professionals already engaged in disaster response activities.

Psychosocial factors in disaster contexts, particularly interpersonal relationships among team members, contribute to fostering empathy, compassion, and solidarity among those involved. In such situations, cooperation and mutual trust are essential, and relationships—especially between situational leaders and their teams—help cultivate a more cohesive and supportive work environment, thereby reducing the risk of further emotional strain among workers and volunteers. Practices such as active listening and the provision of social and emotional support play a crucial role in strengthening social bonds and reinforcing a sense of belonging and collective security (Inter-Agency Standing Committee [IASC], 2007). By promoting open communication and mutual assistance, such relational dynamics become a central element of team resilience in crisis situations, functioning as a protective "safety net" that mitigates the adverse effects of psychological distress and enhances collective response capacity (Zanelli & Kanan, 2019). In this context, interpersonal relationships encompass leadership support in task execution, mutual assistance, recognition of work performed, and effective planning and task allocation.

Another central concept is that of work demands, which refer to the quantity, pace, decision-making requirements, energy expenditure, and complexity of the tasks workers must perform—often under pressure, in adverse conditions, and with repercussions for their personal lives (Luna & Gondim, 2019). According to Karasek (1979), work demands include factors such as tight deadlines, heavy workloads, and sustained physical and mental effort that continually challenge professionals' capacities. In emergency contexts, where activities require immediate response and frequently involve risk, these demands intensify, requiring extraordinary adaptive effort from workers. The Demand-Control theory posits that the

combination of high demands and low decision latitude increases stress levels and may lead to adverse mental health outcomes, including emotional exhaustion and heightened vulnerability to stress (Karasek & Theorell, 1992). This model has been widely applied to explain the impact of the extreme demands faced by first responders in disasters, such as the flood in Rio Grande do Sul, as limited control over one's environment exacerbates stress associated with high workloads.

In disaster situations, work demands are intensified by the nature of the context, which involves not only task complexity but also prolonged and intensive work shifts, often under inadequate conditions. Studies indicate that, for emergency care professionals, these demands are intertwined with psychosocial risk factors, such as the pressure to maintain accuracy and rapid response under adverse conditions and frequently without sufficient rest breaks (Cowlishaw et al., 2020; Demerouti & Bakker, 2023). Although the impact of these demands may be mitigated by social support and the availability of adequate resources, crisis scenarios often create an imbalance between high demands and limited resources, increasing the risk of psychological exhaustion and the development of conditions such as burnout and Post-Traumatic Stress Disorder (PTSD).

Mental Health and Risk Factors

Mental health is an essential component of overall well-being, influencing how individuals think, feel, and act in their daily lives. The World Health Organization (WHO, 2001) defines mental health not merely as the absence of mental disorders, but as a state of well-being in which individuals realize their abilities, cope with the normal stresses of life, work productively, and contribute to their communities. It encompasses the capacity to recognize one's strengths and limitations, demonstrate resilience, manage everyday stressors

effectively, engage in positive social interactions and participate meaningfully in work and community life.

The presence of disorders such as depression, anxiety, and stress directly affects individuals' quality of life and daily functioning. In addition to depleting psychological resources, these conditions increase vulnerability in crisis situations, hindering both adaptation and recovery from adverse events. Accordingly, mental health initiatives should extend beyond clinical treatment to include policies and programs that expand access to care and strengthen social support networks to sustain community resilience (Onyejesi et al., 2025).

Depressive disorders frequently emerge in response to emotional and physical exhaustion experienced in highly demanding environments, such as those encountered by volunteers and professionals involved in disaster response. Work overload, combined with reduced control and repeated exposure to traumatic situations, substantially increases vulnerability to depressive symptoms and, in more severe cases, suicidal ideation (Brondani, 2024). Braga et al. (2024) note that inadequate support and adverse working conditions contribute to the development of depressive symptoms, including chronic fatigue, hopelessness, and difficulty concentrating. The risk of depression is associated not only with the physical demands imposed but also with perceptions of isolation and insufficient resources to cope with sustained stress, reinforcing the importance of preventive interventions and strengthened support networks to mitigate the impact of this condition on disaster response professionals.

Similarly, anxiety is a common psychological response in disaster contexts, intensified by the unpredictability and urgency inherent in crisis situations. Continuous exposure to risk, coupled with the need for rapid and accurate decision-making, elevates anxiety levels and

may trigger physical and psychological responses such as tachycardia, irritability, and impaired concentration (Costa et al., 2022).

Extreme pressure to ensure accuracy in life-threatening decisions leads to a continuous accumulation of tension, making it difficult for professionals to experience adequate periods of rest and emotional recovery (Yadav et al., 2023). In emergency contexts, anxiety also arises from feelings of powerlessness in the face of overwhelming events, resulting in heightened emotional arousal, impaired concentration, increased likelihood of errors, and intensified stress.

Stress can be understood as a response to demands that exceed an individual's available resources. Although stress is almost inevitable in highly demanding or traumatic situations, maintaining well-being is essential for preserving mental health (Vieira et al., 2020). In occupational settings, stress is conceptualized as a complex response arising from the imbalance between job demands and individual resources, in which perceived pressures surpass one's coping capacity (Demerouti & Bakker, 2023).

Cooper et al. (1988) extend this perspective by noting that stress has both physical and psychological consequences, affecting not only individuals but also organizations, particularly in contexts involving the loss or threat of essential resources. Workers engaged in direct interaction with the general population are especially vulnerable to occupational health risks (Osey-Mireku et al., 2020). Exposure to serious accidents, violence, and medical emergencies is common in their routines, increasing the risk of severe stress-related conditions such as burnout and PTSD, as well as anxiety and depression (Campos et al., 2023).

Based on this evidence, the primary hypothesis is that psychosocial factors at work, such as job demands and interpersonal relationships, are associated with mental health symptoms (depression, anxiety, and stress). The secondary hypothesis posits that job demands function as risk factors, increasing symptom severity, whereas interpersonal relationships

serve as protective factors, reducing symptom severity. The following section outlines the methodological procedures used for data collection and analysis, as well as the instruments employed to assess the association between psychosocial factors and the mental health of professionals and volunteers exposed to disasters.

Method

This study employed a survey design to collect and analyze data on psychosocial factors and mental health symptoms in work settings within disaster contexts. Data were analyzed using descriptive statistics for sociodemographic variables and multivariate inferential methods, including structural equation modeling (SEM; regression-based approach) and confirmatory factor analysis (CFA). Model estimation was conducted using the Robust Diagonally Weighted Least Squares (RDWLS) method, appropriate for categorical data, with model fit evaluated using the scaled-and-shifted correction (Shi & Maydeu-Olivares, 2020). Internal consistency was assessed using Cronbach's alpha, adopting a cutoff value of 0.70 as recommended by Field (2020).

The goodness-of-fit indices used to evaluate the overall model included χ^2, the χ^2/df ratio, the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Standardized Root Mean Residual (SRMR), and the Root Mean Square Error of Approximation (RMSEA). The χ^2 statistic should be non-significant; the χ^2/df ratio should be below 5 (preferably < 3); CFI and TLI values should exceed 0.90 (preferably > 0.95); and RMSEA values should be below 0.08 (preferably < 0.06), with a confidence interval (upper limit) below 0.10 (Brown, 2015). Internal consistency was assessed using Cronbach's alpha. Statistical power for the structural model was evaluated using the pwrSEM v0.1.2 program (Wang & Rhemtulla, 2020), based on the model's factor loadings, regressions, covariances, and variances, as well as the sample size (N = 185), significance level (0.05), and 1,000 Monte Carlo resamples. This procedure

simulates statistical power through resampling, verifying the adequacy of the sample under study. Therefore, a result equal to or higher than 80% indicates adequate statistical power (Wang & Rhemtulla, 2020).

Participants

Snowball sampling was employed, whereby each invited participant referred additional respondents, allowing the sample to expand through contact networks (i.e., volunteer groups formed during the 2024 flood period in Rio Grande do Sul, Brazil). The final sample consisted of 185 workers and volunteers who participated in flood response activities in May 2024 in Rio Grande do Sul. Among participants, 68% were women and 32% were men. The predominant age group was 25–49 years (72%), followed by 18–24 years (12%) and over 50 years (16%). Regarding educational attainment, 60% had completed higher education, 25% had completed high school, and 15% had completed some level of postgraduate education. With respect to employment status, 85% of participants served as volunteers, whereas 15% were employed by public or private institutions. The majority (65%) were in direct contact with victims and affected areas, and 74% provided assistance for six days or more during response and mitigation activities. These data indicate a diverse sample profile, predominantly composed of women with higher education who were directly engaged in emergency response activities for an extended period.

Instruments

The instruments used for data collection included the Questionário Psicossocial de Copenhague (COPSOQ II-Br), developed by the National Research Centre for the Working Environment (NRCWE) and adapted by Luna and Gondim (2019). It was used to assess psychosocial factors in the work environment, including work demands and interpersonal

relationships. This questionnaire consists of 21 items rated on a five-point Likert scale (always, frequently, sometimes, rarely, never). For the study sample, confirmatory factor analysis (CFA) of the COPSOQ II-Br supported the two-factor structure (work demands and interpersonal relationships), with adequate fit indices [$\chi^2 = 196.96$, $df = 89$, $\chi^2/df = 2.21$, CFI = 0.97, TLI = 0.97; RMSEA (90% CI) = 0.08 (0.07–0.09); SRMR = 0.06], indicating the plausibility of this structure. The standardized covariance between the two factors was negative and non-significant (-0.10, $p > 0.05$). Each factor demonstrated adequate reliability, with Cronbach's alpha values of 0.88 for the work demands factor and 0.93 for the interpersonal relationships factor.

- The Depression, Anxiety, and Stress Scale (DASS-21), Brazilian version adapted by Martins et al. (2019), was also employed. It assesses the severity of symptoms related to depression, anxiety, and stress. The DASS-21 consists of 21 items rated on a four-point Likert scale, reflecting the frequency or severity of experiences over the past seven days. For the study sample, the confirmatory factor analysis (CFA) of the DASS-21 supported the three-factor structure (depression, stress, and anxiety), with adequate fit indices [$\chi^2 = 336.93$, $df = 186$, $\chi^2/df = 1.81$, CFI = 0.98, TLI = 0.98; RMSEA (90% CI) = 0.07 (0.05–0.08); SRMR = 0.05], suggesting the plausibility of this structure. The three factors showed positive and significant covariances, with standardized estimates of 0.90 ($p < 0.01$) between stress and anxiety; 0.83 ($p < 0.01$) between stress and depression; and 0.87 ($p < 0.01$) between anxiety and depression. Each factor demonstrated adequate reliability, with Cronbach's alpha values of 0.92 for stress, 0.90 for anxiety, and 0.90 for depression.

Procedures

Data collection. Data were collected online using a Google Forms questionnaire, ensuring accessibility for participants and facilitating rapid response collection. The form was available from May 27, 2024 to June 26, 2024.

Data Analysis. Data were analyzed in two main stages, encompassing both descriptive and inferential procedures. In the descriptive stage, frequencies, means, and standard deviations were calculated for the sociodemographic variables. In the inferential stage, Structural Equation Modeling (SEM) was applied to examine the relationships between independent variables (work demands and interpersonal relationships) and dependent variables (depression, anxiety, and stress), taking into account multiple levels of measurement and the complexity of the psychosocial factors involved (Muthén & Muthén, 2017). Data processing was performed using JASP software (version 0.19.1).

Ethical Considerations

The study was registered on Plataforma Brasil in accordance with CNS Resolution 510/16 and received ethical approval from the Research Ethics Committee of a university in Rio Grande do Sul (Opinion No. 6,852,012). All procedures were explained to participants through the Informed Consent Form. Data collection and analysis were conducted with full respect for participants' integrity. Anonymity, confidentiality of responses, and the voluntary nature of participation were ensured. Participants were also informed that, in the event of physical or emotional discomfort, they could notify the research team and would be referred to support services free of charge. No conflicts of interest were identified at any stage of the study.

Results

The structural model demonstrated adequate fit, supporting its plausibility [χ^2 = 864.28, df = 584, χ^2/df = 1.48, CFI = 0.99, TLI = 0.99, RMSEA (90% CI) = 0.027

(0.013–0.036), SRMR = 0.064]. As shown in Table 1, the psychosocial factors of work demands and interpersonal relationships significantly predicted the three mental health symptoms (depression, anxiety, and stress). The direction of the effects differed; work demands were positively associated with mental health symptoms, whereas interpersonal relationships were negatively associated. The coefficients of determination indicate small effect sizes for the relationships between the variables. Anxiety showed $R^2 = 0.18$ ($p < .01$), depression $R^2 = 0.18$ ($p < .01$), and stress $R^2 = 0.25$ ($p < .01$).

Analysis of the work demands factor, assessed using the COPSOQ II-Br, indicated that 78% of participants reported high levels of work demands, with a mean score of 4.2 on a scale ranging from 1 to 5. Regarding the interpersonal relationships factor, also measured by the COPSOQ II-Br, 62% of participants reported an adequate level of positive working relationships, with a mean score of 3.8.

Table 1

Structural Equation Modeling (SEM) for psychosocial factors and mental health symptoms

Dependent variables	Independent variables	Estimate	Standard error	*z*	*p*	95% Confidence Interval		Standardized estimate
						lower	upper	
Anxiety	DEM	0.265	0.069	3.813	< .001	0.129	0.401	0.278
	REL	-0.268	0.077	-3.486	< .001	-0.419	-0.117	-0.295
Depression	DEM	0.188	0.063	2.995	0.003	0.065	0.310	0.230
	REL	-0.258	0.066	-3.890	< .001	-0.388	-0.128	-0.331
Stress	DEM	0.450	0.072	6.270	< .001	0.309	0.590	0.403
	REL	-0.283	0.078	-3.606	< .001	-0.437	-0.129	-0.266

Note. z = test statistic; p = significance level; DEM = work demands factor; REL = interpersonal relationships factor

The covariances between the factors indicate that the two psychosocial factors (work demands and interpersonal relationships) were not significantly associated ($p > .05$). In contrast, depression, stress, and anxiety showed positive and significant covariances, with

standardized estimates exceeding 0.80 for all three associations (anxiety–stress, anxiety–depression, and depression–stress).

The work demands factor showed positive standardized associations with anxiety (β = .28, $p < .01$), depression (β = .23, $p < .05$), and stress (β = .40, $p < .01$). These results indicate that workers and volunteers exposed to higher work demands tend to report higher levels of mental health symptoms. As illustrated in Table 1, greater work demands were associated with increased frequency of anxiety, depression, and stress among participants.

SEM results indicated that support in interpersonal relationships was negatively associated with anxiety (β = - .29, $p < .01$), depression (β = - .31, $p < .01$), and stress (β = -0.27, $p < .01$), suggesting that positive working relationships contribute to reducing mental health symptoms in crisis situations.

The statistical power analysis indicated that, despite the relatively small sample size, the power estimates for the regression paths were high, ranging from 88% to 100% (work demands on stress 100%; interpersonal relationships on stress 96%; work demands on anxiety 97%; interpersonal relationships on anxiety 98%; work demands on depression 88%; and interpersonal relationships on depression 99%). These results suggest that the sample size was sufficient to test the proposed regression model, indicating a high probability of detecting the specified effects.

Discussion

The results of this study indicate that psychosocial factors, such as work demands and interpersonal relationships, significantly influence the mental health of workers and volunteers in disaster situations, particularly during the flood response operations examined. These findings are consistent with the literature emphasizing the importance of psychosocial factors in high-pressure work settings, especially among emergency professionals, for whom

exposure to extreme demands may intensify stress and other adverse psychological outcomes (Demerouti & Bakker, 2023; Vieira et al., 2020).

These factors affect the mental health of workers and volunteers, potentially contributing to stress, anxiety, and depression (Zanelli & Kanan, 2019). As emphasized by the World Health Organization (WHO, 2001), a healthy work environment enhances resilience and productivity. Accordingly, mental health-focused promotion strategies constitute a fundamental approach to mitigating the adverse effects of work-related psychosocial risk factors.

The positive association observed between work demands and stress is consistent with the Job Demands–Resources (JD–R) model, which posits that excessive demands, particularly when coupled with limited resources and low job control, intensify stress and increase emotional exhaustion (Bakker et al., 2023). In the present study, 78% of participants reported high levels of demands, which were associated with elevated stress. This finding suggests that the intense workload typical of disaster settings, combined with insufficient rest and sustained pressure, heightens emotional vulnerability and represents a psychosocial risk factor for mental health problems among workers and volunteers.

Current literature indicates that prolonged exposure to conditions typical of disasters and crises increases the risk of mental health disorders such as burnout and PTSD, particularly when team relationships lack adequate psychosocial support and job control is limited (Campos et al., 2023). In this context, interpersonal relationships that enhance perceived support and psychosocial assistance emerge as important protective factors against stress, PTSD, and burnout. Evidence further suggests that social support—whether from family, friends, or colleagues—constitutes a critical resource for reducing vulnerability to stress, promoting emotional well-being, and strengthening individual resilience (Karadaş & Duran, 2022). In the present study, participants who reported positive interpersonal

relationships and adequate psychosocial support exhibited lower levels of stress, anxiety, and depression, suggesting that strengthening support networks may mitigate the adverse effects of extreme demands.

The Conservation of Resources (COR) theory proposed by Hobfoll et al. (2018) is also relevant for understanding the observed effects. This framework posits that stress arises when individuals perceive a threat of resource loss—such as energy and social support—or when efforts to cope with demands are viewed as insufficient (Hobfoll et al., 2018). The persistent need for recovery and support is particularly salient, as workers in disaster settings often expend substantial resources without adequate opportunities for restoration. Accordingly, interventions aimed at preserving and expanding existing resources, including social support and recovery strategies, may be essential for mitigating the effects of the extreme demands observed in this study. With respect to anxiety, the findings indicate that increases in disaster-related demands are associated with higher anxiety levels. This pattern suggests that anxiety represents a common psychological response in disaster and crisis contexts, closely linked to prolonged exposure to adverse and uncertain conditions. The need to make decisions under uncertainty—particularly when information is incomplete or ambiguous—can further heighten anxiety. According to Costa et al. (2022), such circumstances may give rise to symptoms including tachycardia, irritability, and difficulty concentrating. Anxiety is also associated with feelings of helplessness in the face of severe events, resulting in emotional hyperarousal that disrupts task organization, increases the likelihood of errors, and may intensify stress.

These findings reinforce the need for interventions aimed at promoting social support and strengthening collaborative networks among workers. Planning integrated actions that address both work demands and the quality of interpersonal relationships appears to be a

potentially effective strategy for reducing stress and enhancing resilience among workers and volunteers in disaster settings, as suggested by Karadaş and Duran (2022).

Given the impact of the observed psychosocial factors, interventions aimed at strengthening resilience and supporting the mental health of workers in disaster settings should be prioritized. In particular, psychosocial support should be reinforced through the promotion of support networks and collective initiatives that enhance communication and cooperation among team members. The implementation of support groups and the encouragement of open communication and information sharing may help reduce emotional isolation and vulnerability to stress.

Additionally, training programs focused on adaptive coping strategies should be implemented to develop skills in stress management and emotion regulation. Self-care interventions, including relaxation and mindfulness techniques, have been shown to effectively reduce stress among frontline professionals and may be adapted for workers and volunteers in disaster settings.

Another important consideration is fostering a culture of mental health support that values self-care and facilitates access to psychological interventions when needed. Establishing crisis management protocols and providing regular disaster response training can better prepare workers to handle extreme situations, thereby contributing to a safer and more efficient work environment. Initiatives that promote skill development and active participation in addressing emergency challenges may strengthen team resilience and engagement, fostering a more adaptable and cohesive work environment.

This study examined the effects of psychosocial factors on the mental health of workers and volunteers involved in disaster response operations, specifically in the context of the May 2024 floods in Rio Grande do Sul, Brazil. The findings indicate that high work

demands and insufficient interpersonal support are strongly associated with elevated levels of stress, depression, and anxiety.

The results underscore the importance of interventions that strengthen social support and enhance workers' and volunteers' control over their work activities. Training in adaptive coping strategies and the promotion of social support networks are recommended measures to safeguard the mental health of professionals in crisis situations. Furthermore, organizational policies that foster a culture of self-care and provide access to psychological support may contribute to workers' resilience and well-being, thereby facilitating a more efficient and sustainable response in disaster settings, in line with the guidelines of the IASC (2007).

The study's limitations include the restriction of the sample to a single disaster event in a specific region, which may limit the generalizability of the findings to other contexts and types of disasters. Furthermore, the use of self-report instruments may introduce response biases, such as the underestimation or overestimation of emotional symptoms and stress levels, due to participants' subjective perceptions. It is also noteworthy that the sample was predominantly female, reflecting not only the demographic profile of volunteer groups commonly involved in disaster response in Brazil but also the local dynamics observed during the 2024 floods in Rio Grande do Sul. Similarly, online recruitment and participant referral through networks (snowball sampling) may have preferentially engaged individuals who were more sensitive to the issue, which is an expected consequence in situations that constrain conventional recruitment strategies. Thus, both the gender imbalance and potential self-selection effects reflect the specific mobilization conditions of workers and volunteers during the study period.

Future research should adopt longitudinal designs to follow workers and volunteers over time, enabling the assessment of the development of psychological conditions, such as burnout and PTSD, as well as the identification of preventive interventions. Examining the

role of contextual variables, including organizational culture and institutional resources, may provide additional insights into factors that influence resilience and coping in disaster settings. Furthermore, expanding the sample to include different regions and types of disasters would contribute to a more comprehensive understanding of the mental health needs of professionals working in adverse contexts.

One of the study's limitations concerns the sample size (N = 185), which limited the statistical power to detect small effects. Statistical power was estimated using Soper's (2023) guidelines for structural equation modeling. This approach accounts for model complexity based on the number of structural paths specified. Given the six structural relationships tested in the proposed model and a minimum detectable effect size of $\beta = 0.18$, the recommended minimum sample size to achieve 80% power would be 750 cases. The final sample comprised 185 participants, representing 24.7% of the recommended size. However, all estimated effects were statistically significant, and the observed effect sizes were moderate ($\beta = 0.23–0.40$). These findings partially mitigate concerns regarding statistical power, suggesting that the model demonstrated sufficient sensitivity to detect meaningful effects. Future studies should replicate these analyses with larger samples.

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Research Data Availability

The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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