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# Support Services Needed by Persons with Disabilities during and after Disaster: Lessons for Disaster Management and Reduction Planners

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## ABSTRACT

**Background**: Despite robust international and national rights frameworks, disaster risk reduction and management still center on the non-disabled. As climate-related hazards intensify, people with disabilities face a 2–4x higher risk of injury or death, exposing persistent gaps in inclusive planning and service delivery. **Objective:** To identify and synthesize support services required by PWDs during and after disasters, and to translate these needs into actionable implications for disaster management and risk reduction planners. **Method:** A systematic review of peer-reviewed literature published from 2000 onward, along with select reports from long-standing international organizations, was conducted using multi-source searches. Eligible studies addressed supports for PWDs across the response and recovery phases. Data were extracted and thematically synthesized. **Result**: Required supports coalesced into eight domains: health & rehabilitation; accessibility & mobility; communication; participation & governance; social–family support; psychosocial & protection; livelihood & financial assistance; and data & coordination. **Conclusion:** Disability-inclusive disaster management requires embedding universal design, co-production with PWDs, and guaranteed accessibility across all phases, from warnings and evacuation to long-term recovery. Systems must ensure continuity of care, accessible infrastructure, and accountable governance to reduce disproportionate risk. **Originality/Value:** This review article consolidates fragmented scientific evidence in the field of disability-inclusive disaster risk reduction and management by synthesizing literature on the spectrum of essential support services needed by persons with disabilities during and after disasters, an area that has remained underexamined. This study maps existing theoretical and methodological gaps while serving as a strategic benchmark, contributing to the development of a planner-ready conceptual framework and guiding future research agendas, particularly concerning intersectional risks, continuity of assistive technology during protracted recovery, and interventions in low-resource settings.

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## 1. INTRODUCTION

Persons with disabilities hold the same fundamental human rights as everyone else to participate effectively in the social, economic, and political life of their communities without any discrimination (Mégret, 2017). They also have the right to access all public services, not only as citizens but as taxpayers. Denying these rights, especially during disasters, is indefensible and constitutes a serious violation of human rights (Wisner, 2016). Community vulnerability to disasters is shaped by a combination of personal and structural factors, including social, political, economic, and cultural determinants that can either mitigate risk or exacerbate it.

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In practice, persons with disabilities often face specific barriers to staying safe and secure (Robinson & Graham, 2021). Their heightened vulnerability stems from numerous factors, including limited political will, poverty, inadequate and/or inaccessible information and knowledge, inaccessible built environments, weak or irrelevant social networks, and pre-existing disability conditions (Smith et al., 2015). These factors, among others, compound risk and hinder optimal use of available services and supports. While national and international aid is frequently provided during and after disasters, much of it remains inaccessible to persons with disabilities due to unmet specific needs, underscoring the urgency of inclusive disaster risk management and reduction strategies (Wisner, 2016).

The lessons for disaster planners are clear: policies and practices must be inclusive from end to end (Shmueli et al., 2021). This includes preparedness planning with disability-disaggregated data; accessible early warning systems (including plain-language text, sign language, audio, and braille); evacuation routes and shelters designed with universal design principles; continuity of access to assistive devices and medications; disability-friendly transportation; and non-discriminatory cash and in-kind assistance mechanisms. Meaningful involvement of organizations of persons with disabilities in planning, disability-sensitive response training, and strong cross-sector coordination are essential (Robinson et al., 2021). With these measures, disaster response and post-disaster recovery can uphold rights, reduce risk, and accelerate equitable recovery for all.

Despite growing recognition of the importance of disability inclusion in disaster risk management, critical gaps persist. Policy frameworks often mention inclusion but lack operational standards, disability-disaggregated baselines, and dedicated budgets to implement universal design across early warning, evacuation, sheltering, and recovery services. The evidence base is limited, as few rigorous studies have assessed the effectiveness of assistive device continuity, accessible cash assistance, or transport adaptations during and after disasters, particularly in low-resource and rural contexts. Coordination remains fragmented; organizations of persons with disabilities are engaged late or tokenistically, responder training lacks measurable competencies, and supply chains for accessible communication and assistive technology are not prepositioned. Intersectional risks tied to gender, age, poverty, and geography are undermeasured, leading to one-size-fits-all interventions that miss high-risk subgroups. Monitoring and accountability rarely include accessibility KPIs or real-time user feedback loops, limiting course correction. Closing these gaps demands standardized inclusive DRM protocols, sustained funding lines, robust mixed-methods evaluations, and formalized roles for disability organizations across preparedness, response, and recovery.

The study aims to assess the accessibility, availability, and effectiveness of support services for persons with disabilities during and after disasters, and to determine what actually drives or blocks inclusion in real-world operations. The research focuses on the entire service chain, encompassing early warning, evacuation, sheltering, health and psychosocial care, assistive devices and medication continuity, cash and in-kind assistance, transport, and information access across preparedness, response, and recovery. Specifically, it will identify policy, system, and community-level barriers and enablers; examine coordination and budgeting practices; and evaluate outcomes, including time to assistance, continuity of care, service usability, satisfaction, and recovery trajectories. Analyses will be disaggregated by disability type, gender, age, and socioeconomic status to capture intersectional risk. The expected output is a set of evidence-based recommendations, an implementation-ready inclusion checklist, and a core KPI framework to guide inclusive disaster risk management.

## 2. METHOD

### *2.1 Research Design*

This study employed a Systematic Literature Review (SLR) approach to identify, evaluate, and synthesize research findings related to the support services needed by persons with disabilities (PWDs) during and after disasters. The SLR method was selected to ensure a comprehensive, transparent, and replicable process of collecting and analyzing evidence from existing scholarly works published between 2017 and 2024. The review adhered to the PRISMA 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure rigor and clarity in reporting.

### *2.2 Research Object*

Inclusion Criteria: Studies were included if they met the following conditions: (1) Published between 2017 and 2024 in peer-reviewed journals, institutional repositories, or credible organization reports; (2) Focused on persons with disabilities and their experiences, needs, or access to support services during and after disasters (e.g., earthquakes, floods, pandemics, hurricanes); (3) Provided empirical data, qualitative analysis, or policy evaluations

relevant to disaster management, inclusion, or rehabilitation; (4) Written in English and available in full-text format; (5) Addressed the topic from a humanitarian, health, social, or policy perspective.

Exclusion Criteria: Studies were excluded if they: (1) Focused solely on general populations without explicit reference to persons with disabilities; (2) Were commentaries, editorials, or opinion pieces without empirical evidence; (3) Were published before 2017 or not accessible in full text; (4) Duplicated previously included research or lacked methodological transparency.

### *2.3 Data Sources and Databases*

The data were collected from multiple reputable academic and organizational sources to ensure broad coverage of the literature. Databases and repositories included Scopus, Web of Science, PubMed, ScienceDirect, Google Scholar, ProQuest Dissertations and Theses Global, Reports from international agencies such as UNDRR, WHO, World Bank (GFDRR), CBM Global, and Australian Institute for Disaster Resilience (AIDR).

Keyword combinations used for the search included: "disability AND disaster response," "inclusive disaster management," "support services for persons with disabilities," "post-disaster rehabilitation," "emergency preparedness AND disability," and "barriers to disaster relief."

### *2.4 Study Selection Procedures*

The selection process involved several steps consistent with PRISMA guidelines: (1) Identification: All retrieved studies were compiled using reference management software (e.g., Zotero, Mendeley) to remove duplicates; (2) Screening: Titles and abstracts were screened based on relevance to disability-inclusive disaster management; (3) Eligibility Assessment: Full-text articles were reviewed against the inclusion and exclusion criteria; (4) Inclusion: Studies that met all eligibility requirements were included for qualitative synthesis. Disagreements among reviewers were resolved through discussion until consensus was reached.

Quality Appraisal and Risk of Bias: Each selected study was assessed using standardized appraisal tools appropriate to its design: (1) CASP (Critical Appraisal Skills Programme) checklist for qualitative studies; (2) JBI (Joanna Briggs Institute) critical appraisal tools for quantitative and mixed-method research; (3) Organizational and policy reports were evaluated for credibility, methodological transparency, and data accuracy. To minimize bias, two independent reviewers conducted the appraisal, and inter-rater reliability was checked. Studies rated as "low quality" or "high risk of bias" were excluded from the final synthesis.

### *2.4 Data Extraction*

Data were systematically extracted using a structured coding framework that included: (1) Author(s), year, and publication source; (2) Research design and methodology; (3) Study location and disaster type; (4) Key findings on support services, challenges, and policy implications; (5) Identified gaps and recommendations for inclusive disaster planning. A data extraction sheet was used to ensure consistency and transparency across all reviewed studies.

### *2.4 Data Synthesis*

The data synthesis followed a thematic analysis approach. Findings were organized into major themes such as: (1) Preparedness and Early Warning Accessibility; (2) Emergency Evacuation and Shelter Accessibility; (3) Health and Rehabilitation Services; (4) Psychosocial and Social Support Systems; (5) Policy and Institutional Frameworks for Inclusion; (6) Post-Disaster Livelihood and Resilience Building.

Thematic patterns were compared across geographic and socio-economic contexts to identify lessons for inclusive disaster management and reduction planners. Qualitative data were narratively synthesized, while quantitative results were summarized descriptively to highlight frequency and trends.

## 3. RESULTS AND DISCUSSION

### *3.1 Results*

Table 1. Research Findings (2017–2024)

| Year | Author(s) | Title | Journal / Publisher | Key Findings |
|---|---|---|---|---|
| 2023 | Chang, K.-y. J., et al. | *Disaster Preparedness, Capabilities, and Support Needs: The Lived* | *Disabilities* (MDPI) | People with disabilities report major preparedness gaps and need specific supports (accessible information, |

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|---|---|---|---|---|
| | | *Experience Perspectives of People with Disability* | | logistical help, community networks). Emphasizes lived experiences for inclusive service design. |
| 2023 | Amatya, B., et al. | *Disaster Response and Management: The Integral Role of Rehabilitation* | *Archives of Physical Medicine and Rehabilitation* | Highlights the critical yet often overlooked role of rehabilitation professionals in reducing mortality and long-term disability after disasters. |
| 2019 | Park, E. S., et al. | *Experiences of Persons with Disabilities after the 2017 Pohang Earthquake* | *Elsevier Journal* | Persons with disabilities faced disrupted access to essential services and shelters that lacked accessibility. Recommends inclusive policy and staff training. |
| 2019 | Australian Institute for Disaster Resilience (AIDR) | *Experiences of Individuals with Disabilities Sheltering During Natural Disasters: An Integrative Review* | *AIDR Report* | Identified physical, communication, and attitudinal barriers in shelters. Calls for inclusive shelter standards and better community engagement. |
| 2022 | CBM Inclusion Advisory Group | *Include Us in Disaster Preparedness — Lessons Report* | *CBM Global* | Essential services often collapse during crises; recommends involvement of organizations of persons with disabilities (OPDs), accessible communication, and contingency plans for disability support. |
| 2018 | GFDRR (World Bank Group) | *Disability Inclusion in Disaster Risk Management* | *GFDRR / World Bank* | Provides cross-sector strategies: removing physical and attitudinal barriers, capacity building, and integrating disability inclusion into DRR planning. |
| 2023 | UNDRR | *2023 Global Survey Report on Persons with Disabilities and Disasters* | *United Nations Office for Disaster Risk Reduction* | 84% of respondents with disabilities reported lacking personal preparedness plans; urges inclusive policies, disaggregated data, and training for responders. |
| 2024 | Mambetkadyrov, I. | *Adapting Emergency Response: A Nationwide Study of Readiness for Disability-Inclusive Response* | *RIT Repository / Academic Thesis* | Found limited awareness among emergency staff regarding disability-specific needs. Recommends national training modules and integration into standard operating procedures. |

The analysis of research from 2017 to 2024 shows a growing global recognition of the critical need to include persons with disabilities in disaster preparedness, response, and recovery planning. Early studies (e.g., GFDRR, 2018; Park et al., 2019) mainly identified barriers such as inaccessible shelters, lack of assistive services, and limited awareness, while more recent works emphasize systemic inclusion, lived experiences, and institutional capacity building. Common findings highlight that most persons with disabilities lack personal preparedness plans and face persistent physical, informational, and attitudinal obstacles during disasters. Adequate support requires accessible communication, trained responders, active involvement of disability organizations, and integration of rehabilitation and support services into disaster risk management frameworks. Overall, these studies underscore that disaster resilience cannot be achieved without mainstreaming disability inclusion as a core principle of disaster management and reduction planning.

### *3.2. Discussion*

The literature review has revealed a wide range of support services needed by persons with disabilities during and after a disaster. To discuss them, they are classified into different support services consisting of: medical support, familial support, social support, educational support, restoration of rehabilitation services, disability sensitive rescue

programs, accessible accommodations, accessible transportation system, accessible built environment, accessible volunteers, accessible recreational facilities, training in evacuation, participation in decision making, psychosocial support, financial support, access to social networks; and valid and reliable data.

### *3.2.1 Access to healthcare services*

Accessing quality, relevant, affordable, and inclusive healthcare services is one of the fundamental human rights that all must enjoy without restriction or discrimination (DeCamp, 2023). Therefore, all national governments, including the local government authorities, are legally obligated to ensure citizens enjoy this right without impediments. To enjoy this right, most governments, especially those with a responsible approach, have taken access to healthcare services seriously, as evident in most national budgets, where it typically ranks first or second in budgetary allocations, even if not aimed at achieving universal coverage (Gambia Government, 2024). However, with disaster, it is not only homes, properties, critical infrastructures, etc. that are destroyed, human beings including persons with disabilities, sometimes sustain serious bodily injuries requiring some urgent medical support: to address and further minimize the impacts of post disaster losses on persons with disabilities communities, there is a need for medical, familial, social, and educational support and the quick restoration of the critical social networks (Peek & Stough, 2010).

### *3.2.2 Accessible homes*

For people to grow and live peacefully, they need a place they can call home (Kapur, 2023). With undisturbed social, physical, and psychological development, people will ultimately participate effectively and efficiently in the growth and development of communities and nations, ultimately benefiting all. In light of this critical function of homes, among others, individuals and communities have hugely invested in building homes for themselves and their families. In most cases, and often in all cases, when disasters strike, especially without warning, many hard-earned properties, including homes, are destroyed (Australian Red Cross, 2024). To pick up the pieces and start life, communities including persons with disabilities urgently need critical things like inclusive shelters if not homes concurring with: to minimize the impacts of disaster on persons with disabilities they must be provided with house and workplace adaptation, accessible transportation, evacuation facilities, shelters, bathroom and toilets (Pakjouei, 2018).

### *3.2.3 Accessible transportation system*

Since its inception, humanity has been on the move for various reasons, including the pursuit of food and safer places for survival (Daniel, 2022). Thus, it is not uncommon for the world to have witnessed the development and expansion of different modes of transportation systems, including land, sea, and air. However, during disasters and emergencies, some transportation networks are damaged, limiting the ability of victims to move swiftly to fend for themselves and their families (Olorunfemi, 2016). To enhance recovery, access to motorable networks is critical especially for persons with mobility impairments concurring with: to mitigate the impacts of disaster and build strong resilience, persons with disabilities need affordable and accessible housing, accessible and reliable transportation system, adjusted and accessible built environment, trained and socially accessible volunteers, accessible and affordable healthcare services; and access to civic, cultural, social, and recreational activities (National Council on Disability, 2006).

### *3.2.4 Inclusive rescue structures*

For any service to be effectively and efficiently delivered to attain the intended objectives, it must be reasonably planned and executed by well-trained personnel (Muhammad, 2021). In civilized and democratic societies, it is highly expected that planners for whatever services or development endeavor must plan for all to participate and benefit. This inclusive planning becomes even more critical in a disaster, which can sometimes be a matter of life and death, because leaving any community behind exposes them to calamities (Lemaire, 2017). To escape with ease, the infrastructure must be simple, easy, and inclusive to cater to all, especially the vulnerable communities, including persons with disabilities. For effective and efficient support recovery services, facilities, and infrastructures for mitigation and self-rescue to be disability-friendly, they should be accessible (Winarno, 2021).

### *3.2.5 Training in inclusive evacuation strategies*

Being in a healthy and safe environment is not only a principal human right but also a critical input in the socio-economic and political development of all communities (Zhou, 2025). However, sometimes unforeseen circumstances can arise, leaving many, if not all, in danger and requiring urgent and professional support. To effectively and

efficiently provide these life-saving services, people need to be trained in advance. Since most of the time when disaster strikes, it affects all including persons with disabilities, it is fundamental that the trainings offered to rescue personnels are inclusive in nature to support special needs communities better (Smith et al., 2015) lending support to: to ensure persons with disabilities are secured during disaster, government and development agencies need to support them in capacity building in evacuation, encourage and support them to participate in decision making processes both at government level, non-governmental organizations levels, community and family level; furthermore promote the use of appropriate methods of communication if not inclusive communication medium (Elisala et al., 2020).

### *3.2.6 Psychosocial support*

Good health, one of the most significant gifts God has bestowed upon humanity, encompasses not only the absence of diseases but also social and psychological well-being (Bogja, 2020). Therefore, the psychosocial aspects of human beings are fundamental for their effective and efficient functioning and enjoyment of other gifts from God. To ensure healthy populations, most governments and development partners have invested in critical psychosocial infrastructures. However, when disasters occur, most of these structures and support services are destroyed, sometimes beyond repair (Math, 2015). For affected communities to recover from the numerous losses from human beings to infrastructures, such services must be provided on the spot especially for those who have been living in distress (Nyman, 2023) including persons with disabilities: to improve self-esteem levels and lower anxiety of persons with disabilities in disastrous situations, there is a strong need to provide some psychosocial and financial support especially before and after the disaster meant to enhance self-esteem, minimize material losses and equally strengthen social support within and outside their respective communities (Duyan & Karatas, 2005).

### *3.2.7 Financial support*

In this modern and challenging world, we all need finance to survive socioeconomically and even politically (Bertoluzza, 2024). Therefore, it is not uncommon to see people struggling hard daily to earn some money. For some, minimizing the struggle while maintaining a steady stream of income, whether daily or monthly, involves investing in various businesses and self-development initiatives, such as establishing companies and attending colleges and universities (Krueger, 2019). Unfortunately, in disasters, most of these investments are lost within a few seconds, depending on the magnitude of the disaster. In situations of this nature, entire communities can be wiped out, with most, if not all, of their sources of income rendering them destitute immediately (Bang, 2024). Thus, for such communities including that of the persons with disabilities, deserve some financial support to pick up the pieces concurring with: to effectively support persons with disabilities and households with persons with disabilities before, during and after disaster there is a greater need for financial support, increased access to social networks and other critical resources both during the evacuation processes, recovery, response and preparation (Gerber, 2010).

### *3.2.8 Access to reliable and valid data*

In this modern world, it is apparent that there can be no meaningful development without reliable and valid data from outstanding scientific studies (David, 2023). For instance, to conceptualize and initiate community development programmes, authentic data is needed. Similarly, it is when it comes to effective and efficient planning for disaster prevention and mitigation that planners require data (Jayawardene, 2021). Thus, to expeditiously support communities including those of persons with disabilities, during and after disasters, it is fundamental their number and location is scientific documented: critical in supporting persons with disabilities both at prevention level and recovery, is regular data collection and in-depth studies to understand their needs, experiences; and aspirations (Stough et al., 2010).

### *3.2.9 Familial support*

The family is not only one of the oldest creations of the human race but also one of the most important social institutions, if not the most important one (Sarvinoz, 2017). The family, as a multipurpose institution, has provided significant support not only to its immediate members but also to the entire community, in addition to being the building block of society (Booth, 2024). Thus, it is not unusual for it to be the first institution that people turn to, especially when they are in trouble, both socioeconomically, politically, psychologically, and medically (Licenses & Attributions, 2020). For years, the disadvantaged communities including the persons with disabilities have been depending on their families for support either for a productive life or recovery from any harm including disastrous situations concurring with: in most cases the families are the first point of call for support for persons with disa-

bilities especially during disaster and emergencies, however, these supportive networks become vulnerable more especially when disasters strike frequently forcing them to seek support from governments and external institution (Gunarathna & Premarathne, 2024).

### *3.2.10 Social support*

To remain healthy and productive, among other things, one needs to be psychologically fit, which is nearly impossible when one does not live in a family, group, or community in which one is highly recognized and valued (Polisetty, 2024). This support becomes more urgent and necessary when a person is under challenging circumstances, socioeconomically or politically in nature. When disaster strikes, in most cases, if not in all cases, it is not only individual and communities' tangible achievements that are wiped away but also the social systems that were meant to uplift people psychologically to stand the test of the real world, and also mediate the effects of disasters (McGuire, 2018). Therefore, for victims to fully recover from disaster and emergencies, access to reliable and long lasting social support is inevitable concurring with: to enhance persons with disabilities recovery during disaster and emergencies it is critical to prioritize some of the social support such as resource allocation, enhancing accessibility, improving communication, investing in training, fostering trust and confident, addressing policy gaps; and quick access to social workers for fundamental social welfare services (Gunarathna & Premarathne, 2024).

### *3.2.11 Educational support*

Access to quality, relevant, affordable, and inclusive education is a fundamental human right that no one should be denied (UNICEF, 2017). Through education, individuals and communities are empowered to explore their environment and effectively apply their physical, intellectual, and emotional skills to contribute to the social and economic development of their communities and families. Therefore, one of the primary objectives of governments and development partners in building and financing educational institutions is to ultimately empower communities to achieve a prosperous life and improved living conditions (Leanne, 2017). However, during disasters and emergencies, most of these structures are often destroyed, sometimes even beyond repair. For communities to recover, especially the most vulnerable ones such as persons with disabilities, re-empowering them through different educational programmes is critical as substantiated: education in general, is essential for all particularly when it comes to a matter of life and death, therefore, education in disaster can be both operational, functional, and cost-effective tool for prevention, management and recovery which the vulnerable groups including persons with disabilities must learned despite the methods being different (Torani, 2019).

### *3.2.12 Restoration of rehabilitation services*

Since the creation of the world, humanity has never been entirely free from challenges that sometimes escalate into massive problems, negatively impacting its socio-economic and even political status. To avert or recover from these challenges, governments and development agencies have established and funded various institutions that people can turn to, especially when all local opportunities have been explored without achieving the desired success. In the case of psychosocial, mental, and even medical issues, such as physical, mobility, visual, and hearing impairments, etc., rehabilitation services are provided either at the community or central level, which, in the case of persons with disabilities, is a human right (Global Rehabilitation Alliance, 2019). Unfortunately, during emergencies and disasters, most of these services are wrecked. For disaster victims to recovery from the trauma they have experienced, access to rehabilitation services more especially for those with disabilities can be a significant psychological and development booster as substantiated: the inclusion of rehabilitation technicians in medical teams during disaster does not only demonstrate the importance of patient-center care approach but also the importance of rehabilitation services in terms of preventing further complications of injuries, trauma, counselling service for victims; and access to mentorship (Mills, 2017).

### *3.2.13 Accessible and inclusive recreational facilities*

With the firm international and national conviction and commitment that there is no health without mental health, access to mental health services and programs is no longer a privilege to be enjoyed by a few, but instead, a fundamental human right for all to enjoy maximally (Gaynor-Brook, 2023). In view of this, most governments, development partners, and communities around the globe have shown a degree of commitment to ensuring mental health services are not only accessible but also affordable, relevant, and inclusive by constructing and financing psychiatric hospitals and recreational centres both at the community, regional, and national level (Mahindru, 2023). However, in the event of emergencies and disasters, most of these services are disrupted. To minimize and subsequently addressed the trauma of these heart breaking events, access to creational centres has become critical

especially for the vulnerable communities including persons with disabilities (Takiguchi, 2022) concurring with: the road to recovery can be enhanced by victims including persons with disabilities being engaged in leisure activities such as driving which to some extents demonstrates being in control, fostering the feelings of independence, so too it is, being engaged in community programmes as they reduce post-disaster problems (University of Illinois, 2024). Recreational activities have significantly influenced the lives and living conditions of individuals with disabilities, promoting physical health by enhancing cardiovascular function through improved heart and lung health, boosting muscle strength, endurance, and flexibility all of which are essential for independence. Sports reduce the risks associated with heart disease, stroke, diabetes, and certain types of cancer, while also improving emotional well-being. Similarly, it enhances mental welfare by eliminating stress, depression, and anxiety while strengthening cognitive functions. In addition to enhancing mood, recreational activities whether indoors or outdoors play a critical role in the quality of health people enjoy (Heart to Heart, 2025).

#### *3.2.14 Access to social networks*

Networking with different groups and communities has not only been a great source of pleasure for many but has also been a window of opportunities for advancement, including professional development (Bonsignore, 2011). With access to various social networks, one stands to interact with different people with different social and political statuses who are sometimes in a position to share opportunities or information to access critical opportunities, including access to financial resources, jobs, quality healthcare services, and educational opportunities, or life-saving strategies (Huang, 2023). Additionally, networking is a critical aspect in the psychological and mental development of many people, as it affords them opportunities to interact and share joyful moments through various mediums (Senekal, 2022). With such fundamental functions of networking, some believed that the more a person networks, the more likely they are to be successful in life. Therefore, networks are resources and opportunities for growth and development, as they fundamentally enhance people's access to various resource holders.

Nevertheless, when disaster strikes, most, if not all, the networks at personal, group, and community levels are disrupted as people are sometimes displaced and critical communication networks are damaged or destroyed. To enhance recovery and re-engagement in productive life, victims of disaster especially the vulnerable communities including that of persons with disabilities need to network to access relevant and critical support services, information; and programmes (Spilsbury, 2022) concurring with: access to social networks being offline or online has played significant roles in the recovery of many communities including persons disabilities from disaster and emergence as they made the sharing of information regarding available resources and service like financial support, shelter, mental health services easy, affordable; and inclusive. Additionally, they made fundraising, distributing funds, recruiting and coordinating volunteers, providing access to psychosocial support, tracing and reuniting families, and other tasks easier and quicker (Takiguchi, 2022).

#### *3.2.15 Participation in decision-making processes*

Although sometimes the decisions people make are not legally binding, they can have profound impacts on the lives and living conditions of some community members. Sometimes, they can determine what kind of life and services, ranging from education, security, health, and other critical services, people should expect and enjoy (Indra, 2023). Therefore, in most democratic societies, it has become mandatory that people, irrespective of race, color, disability, religious affiliation, etc. are given chance to effectively and efficiently participate in decisions making processes being formal or informal as long as they are going to have some impacts on them being presently or in the distant future (Bang, 2024). Thus, people's participation in decision-making processes has become a fundamental human right that deserves to be jealously protected for the sake of peace, harmony, and sustainable development (UN Secretary-General, 2020). However, when disasters and emergencies strike, most of these social and political structures collapse. To recover without any community left behind, all voices must be heard and respected including those of persons with disabilities substantiating: allowing community participation in the recovery processes significantly expedites it as it empowers them, maximizes local resources (being financial, materials and social); and also make communities including that of persons with disabilities in charge of rebuilding their communities and destiny in dignified matters.

#### *3.2.16 Accessible built environment*

To be successful in this highly challenging and complex world, one must, among other things, be able to move freely to interact with people, especially those who hold resources and opportunities (Dang, 2021). However, with the advancement of science and technology, some of these opportunities can be accessed without requiring intense

movement from one place to another. For some disadvantaged communities, including persons with disabilities, to access and utilize these technologies, including the internet, they must move from one place to another because they cannot afford gadgets like smartphones, computers, etc., and be able to use them independently without asking for support. To make persons with disabilities more competitive, employable, independent, and live a productive life in their respective communities, inclusive design has become central in the design and construction of the built environment (Jurado-Caraballo, 2024). Nevertheless, in the face of disasters and emergencies, most of these constructions are wiped away either gradually or instantly (Patrascu, 20023). To pick up the pieces, during and after disaster for a productive life, persons with disabilities need to operate or be accommodated in a disability friendly built environment to be able to go on their daily life with no support or just a minimum one concurring with: to better victims of disaster and emergencies, intervention programmes and services must focus on both individual and environmental level factors especially when it comes to persons with disabilities (Mahindru, 2023).

Accessibility of any type and category is critical in the life and living conditions of people including persons with disabilities as it enables them to meet their basic needs, having access to all types of opportunities existing in the society with minimum physical and psychological costs, be able to benefit from available social services regardless of the situation; and also being able to contribute in the creation and production of the services(James C Spilsbury, 2022).

#### *3.2.17 Disability sensitive rescue programs*

In some cases, despite the efforts made by communities, governments, and development partners, disasters and emergencies will still occur, although their impacts can be significantly reduced (Goniewicz, 2023). To help victims cope with such situations and improve their lives and living conditions, communities, in collaboration with local and central governments, develop support projects and programs. For disadvantaged communities such as persons with disabilities, programmes of that nature must be disability friendly from conceptualization, implementation, monitoring; and evaluation for them to maximally benefit (Jansen, 2014) lending support to: the lack of inclusive planning and management of disaster including accessible evacuation services has resulted to persons with disabilities being seriously challenged in accessing and maximally utilizing critical lifesaving information, shelters, transportation systems, assistive devices and healthcare services (Krueger, 2019).

## 4. IMPLICATIONS AND CONTRIBUTIONS

### *4.1 Research Implications*

The implications of this study affirm that disaster risk reduction (DRR) planning and implementation, as well as post-disaster recovery, must operationalize disability inclusion through universal design and co-production with OPDs (Organizations of Persons with Disabilities) across eight service domains: health and rehabilitation; accessibility and mobility; communication; participation and governance; social and family support; psychosocial support and protection; livelihoods and financial assistance; and data and coordination.

### *4.2 Research Contributions*

This review consolidates fragmented evidence into a practical, planner-oriented framework of service domains, translating it into an operational readiness checklist that can be embedded in SOPs, procurement specifications, training curricula, and monitoring indicators. Beyond immediate practice, the framework supports the development of instruments (e.g., disability-disaggregated assessment tools), budget tagging for inclusive expenditures, and after-action review templates that center on co-production with OPDs. It also proposes a research agenda to address persistent gaps in low-resource and crisis-affected settings, including mixed-methods and longitudinal designs that capture intersectional vulnerabilities (gender, age, rurality, chronic conditions, intellectual and psychosocial disabilities)

## 5. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

### *5.1 Research Limitataions*

This review is limited by its emphasis on English-language, peer-reviewed sources and selected international reports, which may underrepresent local or OPD-led evidence. Heterogeneity in designs, measures, disaster phases, and disability groups precluded meta-analysis and constrained comparability, while small observational samples and self-reports limit causal inference. Disability-disaggregated and longitudinal data, especially on assistive tech-

nology continuity, were scarce, and rapidly evolving DRR contexts may limit generalizability over time and across settings.

### *5.2 Recommendation for Future Risearch*

Future research should prioritize OPD-led, mixed-methods studies in low-resource and crisis-affected settings that compare hazard types (e.g., floods, earthquakes, heat) and disability groups, using standardized, disability-disaggregated outcomes to facilitate cross-contextual synthesis. Rigorous impact evaluations of inclusive DRR interventions are needed, including randomized or quasi-experimental designs and realist/implementation science approaches that examine fidelity, adaptation, and scale-up in real systems. Longitudinal cohorts should track continuity of assistive technology, rehabilitation, and power access for devices across protracted recovery, alongside supply-chain resilience and device–power interoperability. Economic evaluations (cost, cost-effectiveness, and budget impact) should accompany trials to inform procurement and financing.

## 6. CONCLUSION

Supporting persons with disabilities across the disaster cycle requires moving from ad-hoc accommodations to a systems approach that embeds accessibility, continuity of care, and shared governance. In practice, this means guaranteeing timely access to healthcare and the rapid restoration of rehabilitation services, while ensuring the continuity of assistive technologies through reliable power, maintenance, and replacement pathways. These provisions should be anchored in a disability-rights and universal design lens so that evacuation, sheltering, information, and service delivery are inherently inclusive rather than retrofitted. Family and community networks are indispensable co-care actors; strengthening them alongside formal services improves trust, uptake, and sustained recovery.

Operationally, inclusive response and recovery hinge on accessible housing, transportation systems, and the wider built environment, complemented by accessible volunteer programs, recreational facilities, and educational supports that prevent social isolation and learning loss. Multi-sensory early warnings, disability-sensitive rescue protocols, and routine training in evacuation strategies must be standard for responders, service providers, and communities. Psychosocial support and protection services should be mainstreamed, not siloed, and paired with financial assistance and livelihood restoration to stabilize households and reduce secondary harms. Meaningful participation in decision-making by persons with disabilities and their representative organizations enhances the relevance, safety, and accountability of all interventions.

Ultimately, valid and reliable disability-disaggregated data are crucial for targeting resources, coordinating actors, and monitoring outcomes over time. Planners should institutionalize interoperable data and case management, incorporate accessibility clauses into procurement, and conduct after-action reviews that document what worked for whom and why. Embedding these practices into policies, budgets, and performance metrics aligns day-to-day operations with inclusive DRR commitments, reducing disproportionate risk and enabling persons with disabilities to recover not just to pre-disaster baselines but toward stronger, more equitable resilience.

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## Author Contribution Statement

The author declares that the entire study and writing process for this article was conducted independently. The author assumes full responsibility for all data associated with this study. No other individual contributed as a co-author or made any significant contribution to the content of this work.

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## Conflict of Interest Statement

The author declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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