CLIMATE CRISIS AND THE WELL-BEING OF VULNERABLE GROUPS: A SOCIAL WORK PERSPECTIVE ON THE ELDERLY AND PERSONS WITH DISABILITIES

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Abstract

The climate crisis has become an existential threat that disproportionately impacts vulnerable groups, particularly the elderly and people with disabilities. This study examines how climate change affects the well-being of these two groups through a systematic literature review approach with a social work perspective. The purpose of this study is to identify the impact of the climate crisis on the elderly and people with disabilities, analyze the specific vulnerabilities they face, and develop social work intervention strategies responsive to climate change issues. The research method used a systematic literature review by analyzing 45 articles from the Scopus, Web of Science, PubMed, and Google Scholar databases for the period 2015-2024. Inclusion criteria included peer-reviewed publications discussing the climate crisis, vulnerable groups, and social interventions with clear methodologies. The results show that the elderly face a high risk of extreme heat waves, natural disasters, and social isolation due to climate change, with mortality rates 2-3 times higher than those of the productive age group. Disability disclosures experience systematic barriers in accessing evacuations, inaccessible emergency information, and exclusion from disaster mitigation planning. Intersectional vulnerability arises when these two identities intersect with factors such as gender, race, social class, and geographic location. Social work practice needs to integrate a climate justice perspective by developing inclusive early warning systems, disability-friendly shelters, resilience-based community empowerment programs, and transformative policy advocacy. The study's conclusions emphasize the need for an ecological and transformative social work paradigm, integrating pro-climate policy advocacy with micro-practices that consider the vulnerability of intersectional marginalized groups in the face of the intensifying climate crisis.

Keywords: Climate crisis, vulnerable groups, elderly and people with disabilities, social work, climate justice.

1. INTRODUCTION

The climate crisis has become the most pressing challenge facing humanity in the 21st century, with impacts felt unequally across all levels of society (IPCC, 2023). Global temperature changes of 1.1°C above pre-industrial levels, the increasing frequency and intensity of extreme natural disasters, and progressive environmental degradation not only threaten the planet's ecosystems but also create profound and systematic social injustices, particularly for already vulnerable groups (Whitaker, 2025). Among the various groups facing disproportionate impacts of climate change, older adults and people with disabilities require special and urgent attention from social work practitioners and researchers, given the complexity of their vulnerabilities and the limited adaptive capacity available.

The global elderly population, which statistically numbered over 1 billion people in 2020 and is projected to reach 2.1 billion by 2050, with the majority residing in developing countries (WHO, 2022), experiences multiple physiological vulnerabilities that make them significantly more vulnerable to the impacts of climate change. The decline in thermoregulatory systems with age makes older adults more vulnerable to extreme heat waves and cold snaps, leading to mortality rates 2-3 times higher than those of working age during extreme weather events (Ebi et al., 2021). In addition to physiological vulnerabilities, limited mobility due to decreased musculoskeletal function, a high prevalence of chronic health conditions such as cardiovascular and respiratory diseases, and the social isolation often experienced by older adults, especially those living alone, significantly impair their ability to adapt and respond effectively to climate disasters.

People with disabilities, who comprise approximately 15% of the global population, or over 1 billion people, with a higher distribution in developing countries (United Nations, 2020), face multiple and systematic challenges in the context of the climate crisis that are often overlooked in mitigation and adaptation planning. Comparative studies show that people with disabilities have a mortality rate 2-4 times higher in disaster situations than non-disabled populations, with variations based on disability type and geographic context (Stough & Kang, 2015). Physical barriers to evacuation access, such as the lack of accessible transportation, early warning information not being available in formats accessible to people with sensory disabilities, and systematic exclusion from disaster mitigation and adaptation planning, create a literally life-threatening situation for this group. Furthermore, social stigma, discrimination, and the assumption that people with disabilities are passive recipients of assistance rather than active agents in community resilience perpetuate their marginalization in the context of climate change.

In the context of Indonesia as the world's largest archipelagic nation with over 17,000 islands and geographically located on the Ring of Fire, the vulnerability of these two groups is further exacerbated by their high exposure to various types of climate-related disasters. Data from the National Disaster Management Agency (BNPB) shows an increase in the frequency of hydrometeorological disasters, from an average of 1,200 events per year in the 2010-2015 period to more than 3,000 events per year in the 2020-2024 period, with a consistent upward trend (BNPB, 2024). These disasters include floods, landslides, droughts, and intensifying tropical storms. With the proportion of elderly reaching 10.7% of the total population of Indonesia or around 29 million people in 2023 and projected to reach 20% or more than 60 million people in 2045, as well as the number of people with disabilities around 22.5 million people or 8.5% of the population with a higher prevalence in rural areas and poor communities (BPS, 2023), Indonesia is facing a major challenge and in helping to assist groups from the impact of the increasingly intensifying crisis.

Social work, as a profession committed to social justice, human rights, and advocacy for marginalized groups, has a crucial role and ethical responsibility in responding to the climate crisis affecting vulnerable groups. The International Federation of Social Workers (IFSW) has explicitly recognized climate change as a pressing social work issue in its Statement of Ethical Principles, stressing that social work practitioners must integrate ecological perspectives into their practice, advocate for policies that support climate justice, and facilitate the participation of vulnerable groups in decision-making that affects their lives (IFSW, 2018). However, the integration of climate change issues into social work education curricula, research agendas, and field practice in Indonesia remains very limited, with a significant gap between the urgency of the issue and existing professional responses.

Several studies have explored the impacts of climate change on vulnerable groups separately with specific focuses. Research on older adults tends to focus on the physical health impacts of heatwaves and air pollution, using epidemiological and public health approaches (Kendrovski & Schmoll, 2019), while research on people with disabilities focuses more on access barriers in disaster emergencies and advocacy for disability-inclusive disaster risk reduction (Kett & Cole, 2020). However, comprehensive studies that integrate social work perspectives to understand the intersectional vulnerabilities of both groups in the face of the climate crisis, analyze the structural mechanisms that create and maintain vulnerability, and develop holistic, multi-level intervention strategies are still rare, particularly in the context of Indonesia and other developing countries in Southeast Asia.

This knowledge gap needs to be bridged through systematic reviews that integrate literature from various disciplines to identify patterns of vulnerability, impact mechanisms, protective factors, and effective and culturally appropriate intervention strategies. Systematic literature reviews are an appropriate method for mapping the existing knowledge landscape, identifying research gaps, synthesizing findings from diverse geographic and methodological contexts, and formulating evidence-based recommendations for social work practice responsive to climate change issues, taking into account social, cultural, and political-economic complexities. This method also allows for the identification of best practices from various contexts that can be adapted to local settings with appropriate cultural adaptations.

The research questions guiding this systematic literature review are: (1) How does the climate crisis affect the physical, mental, social, and economic well-being of older adults and people with disabilities based on existing empirical evidence? (2) What specific vulnerability factors do these two groups face in the context of climate change, and how do these vulnerabilities interact with dimensions of intersectionality such as gender, race, class, and geographic location? (3) What social work intervention strategies have been implemented or recommended to respond to the impacts of climate change on vulnerable groups, and how effective are these

strategies? (4) What are the implications of the findings for the development of social work practice, education, research, and policy in Indonesia and similar contexts?

This study aims to: (1) Identify and analyze the specific impacts of the climate crisis on the physical, mental, social, and economic well-being of the elderly and people with disabilities based on empirical evidence from various contexts; (2) explore and analyze the specific vulnerabilities faced by both groups in the context of climate change by considering the dimensions of intersectionality; (3) showcase and engage with social work intervention strategies at the micro, mezzo, and macro levels that have been implemented in responding to the impacts of climate change on vulnerable groups; (4) identify best practices and innovative models that can be adapted to the Indonesian context; and (5) develop comprehensive recommendations for the development of social work practice, education, research, and policy that integrates a climate justice perspective and a rights-based approach in protecting and empowering vulnerable groups.

This research is expected to provide theoretical contributions in enriching discussions on ecological social work (green social work), climate justice, and environmental justice, as well as broaden understanding of how changing ecological systems affect human well-being and require transformative professional responses. Practically, this research is expected to provide evidence-based guidance for social work practitioners, policymakers, educators, and civil society organizations in developing programs, policies, and interventions that protect vulnerable groups from the impacts of the climate crisis while empowering them to become active agents in resilient communities. By adopting a systematic literature review approach, this research also seeks to synthesize knowledge explored in various disciplines to build a holistic, interdisciplinary, and nuanced understanding of the complexity of climate change and social vulnerability issues in the context of social work.

2. METHODOLOGY

2.1 Research Design

This study employed a systematic literature review (SLR) approach to identify, research, and synthesize scientific literature relevant to the climate crisis and the well-being of vulnerable groups from a social work perspective. The SLR method was chosen for its ability to provide analysis and systematization of the existing body of knowledge, reduce selection bias, increase process transparency, and produce reliable findings to inform practice and policy (Kitchenham & Charters, 2007). This approach adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines to ensure transparency, replicability, and methodological quality of the research process (Page et al., 2021). SLRs allow for the aggregation and synthesis of findings from multiple studies with diverse methodological designs, providing a holistic picture of the state of knowledge in the field.

2.2 Literature Search Strategy

The literature search was conducted in four major electronic databases with broad coverage in the fields of social sciences, public health, and environmental studies: Scopus, Web of Science (Core Collection), PubMed/MEDLINE, and Google Scholar. These databases were selected based on their coverage of peer-reviewed scientific publications in relevant fields, their academic reputation, and their accessibility. Scopus and Web of Science were chosen because of their multidisciplinary reach and citation tracking features that allow for the identification of influential articles. PubMed was chosen to ensure the inclusion of relevant public health and medical literature. Google Scholar was added to collect gray literature and publications that might be missed from commercial databases, albeit with more stringent selection criteria.

The research was conducted in the period October-November 2024, covering publications from 2015 to 2024 to ensure relevance to recent developments in climate change discussions and social welfare policies, while also encompassing the post-Paris Agreement (2015) period that marked global momentum in climate action. The search string was developed through an iterative process in consultation with academic librarians and a preliminary literature review, using a combination of keywords with Boolean operators as follows: ("climate change" OR "climate crisis" OR "global warming" OR "climate emergency" OR "environmental change") AND ("older adults" OR "population aging" OR "senior" OR "age") AND ("persons with disabilities" OR "persons with disabilities" OR "disabled") AND ("social work" OR "social welfare" OR "social services" OR "vulnerability" OR "climate justice" OR "resilience"). Searches were performed within the title, abstract, and keywords of articles to maximize the relevance of results while maintaining search sensitivity.

2.3 Selection Criteria

The inclusion criteria for this study were designed to ensure the relevance and quality of the literature reviewed. Inclusion criteria included: (1) peer-reviewed articles published in reputable scientific journals or academic conference proceedings; (2) publications in English or Indonesian to ensure accurate understanding; (3) primary or substantial focus on the impacts of climate change on older adults and/or people with disabilities, rather than just tangentially mentioning these groups; (4) discussing at least one aspect of well-being (physical, mental, social, or economic), vulnerability, or social intervention; (5) using clear and accountable methodology, whether qualitative, quantitative, or mixed methods; (6) available in full text to allow for in-depth analysis.

Exclusion criteria included: (1) non-peer-reviewed publications such as gray papers from non-academic organizations, popular books, opinion articles in the mass media, or blogs; (2) articles that only mention vulnerable groups in the context of a list without in-depth analysis of specific vulnerabilities or impacts; (3) publications for which full text cannot be accessed after attempts to gain access through the institutional library or contact with the authors; (4) duplicate publications from the same

source or articles that publish identical datasets; (5) articles with unclear methodology or containing serious methodological biases that cannot be addressed through critical analysis.

2.4 Data Selection and Extraction Process

The selection process was conducted in four systematic and documented stages. The first stage was an initial search across all databases, yielding 327 potential articles. The second stage was duplication removal using reference management software (Mendeley) combined with manual checking, yielding 268 unique articles. The third stage was an independent screening of titles and abstracts by two reviewers to assess compliance with the inclusion criteria, with disagreements resolved through discussion and context. This process yielded 89 articles meeting the initial criteria. The fourth stage was an in-depth full-text reading for a final assessment of eligibility, during which 44 articles were excluded for various reasons (not focusing on the target population, inadequate methodology, or not substantially addressing climate change impacts), resulting in 45 articles being selected for the final analysis.

Data were extracted using a structured crystallization form developed specifically for this study and tested through a pilot extraction on 5 articles. The form included: (1) complete bibliographic information (author, year, title, journal, volume, pages); (2) geographic context and setting of the study; (3) research design and methodology (qualitative, quantitative, mixed methods, review) with details on sampling, data collection, and analysis; (4) population and characteristics of the study participants; (5) identified climate change impacts categorized by dimensions of well-being (physical, mental, social, economic); (6) vulnerability factors analyzed; (7) identified protective or resilience factors; (8) proposed interventions or recommendations with levels of intervention (micro, mezzo, macro); (9) key findings and implications for implementing social work; (10) study limitations acknowledged by the authors. The data extraction process was conducted systematically by the primary researcher with sample verification by a second reviewer to ensure consistency and appropriateness of the information collected.

2.5 Quality Assessment

Article quality was assessed using the Critical Appraisal Skills Program (CASP) checklist, tailored to different study types (qualitative, quantitative, or mixed methods). For qualitative research, the assessment criteria included: clarity of research objectives, appropriateness of the qualitative methodology to the research question, appropriateness of the research design, appropriateness of the recruitment strategy, appropriateness of the data collection method, researcher reflexivity, ethical considerations, rigor of the data analysis, clarity of the findings, and value/contribution of the research. For quantitative research, the criteria included: clarity of the research question, appropriateness of the research design, appropriateness of the sampling strategy, validity and reliability of the instruments, appropriateness of the statistical analysis, consideration of confounding variables, adequate interpretation of the

results, and generalizability of the findings. Each article was scored based on the criteria, with a maximum score of 100%. Articles scoring low quality (below 60% of the maximum score) were excluded from the final analysis to ensure the validity and credibility of the synthesis findings. Of the 45 articles assessed, all met the minimum quality threshold, demonstrating the methodological rigor of the reviewed literature.

2.6 Data Analysis and Synthesis

Data analysis was conducted using a thematic synthesis method that allows for the identification of themes, patterns, and relationships among concepts in the reviewed literature (Thomas & Harden, 2008). This method was chosen because of its ability to accommodate studies with diverse methodologies while maintaining analytical rigor. Process analysis involved three main stages: (1) line-by-line coding of the findings and discussion sections of each article to identify units of meaning relevant to the research questions; (2) development of descriptive themes that grouped conceptually related codes, organizing findings into coherent categories; (3) generating analytical themes that went beyond the individual article findings to generate new interpretations, identify gaps in the literature, and formulate implications for social work theory and practice.

NVivo 14 software was used to facilitate the coding and management of qualitative data, enabling the organization of codes, analytical memos, and systematic queries to explore relationships between themes. Triangulation was achieved by comparing findings from different types of studies (qualitative, quantitative, reviews) and geographic contexts to enhance the credibility of the synthesis and identify strong patterns across contexts. Peer debriefing was conducted through presentations of preliminary analyses to colleagues familiar with the topic to obtain feedback and refine interpretations. The analysis process was iterative, with constant comparisons between data, codes, themes, and the broader literature to ensure grounding in the data while maintaining conceptual depth.

3. FINDINGS AND DISCUSSION

3.1 Characteristics of the Literature Studied

Of the 45 articles described in depth, distribution by methodological design shows that the majority (62%) were empirical studies using a variety of approaches: quantitative studies with cohort, cross-sectional, or case-control designs (n=18, 40%), qualitative studies using interviews, focus groups, or ethnography (n=10, 22%), and mixed methods studies combining quantitative and qualitative approaches (n=7, 16%). The remainder consisted of systematic reviews or scoping reviews synthesizing previous literature (n=6, 13%), and conceptual or theoretical articles developing frameworks or models (n=4, 9%). The predominance of empirical studies indicates a robust evidence base, although the relatively small number of intervention studies (only 5 articles) highlights a gap in evaluation research.

The geographic distribution of the studies shows a significant bias towards developed country contexts: the United States dominates with 14 articles (31%), followed by the United Kingdom with 8 articles (18%), Australia with 6 articles (13%), and other European countries (Germany, the Netherlands, Sweden, Italy) with 9 articles (20%). Only 8 articles (18%) come from developing country contexts in Asia, Africa, and Latin America, including 2 articles from Indonesia that focus on assessing the vulnerability of older adults in the context of flooding in Jakarta and accessibility challenges for people with disabilities in disaster evacuations in Yogyakarta. This geographic disparity is problematic given that developing countries face more severe climate change impacts and have larger vulnerable populations, yet are underrepresented in the academic literature.

3.2 Impact of the Climate Crisis on the Elderly

3.2.1 Physical Health Impacts

The literature consistently demonstrates that older adults face significant and multidimensional physical health risks due to climate change, with extreme heat waves being the most lethal threat. Retrospective epidemiological studies indicate that during the 2003 European heat wave, which caused over 70,000 deaths, and the 2022 heat wave, which resulted in 61,000 deaths, over 70% of the victims were individuals aged 65 years and older (Robine et al., 2008; Ballester et al., 2023). The physiological mechanisms reflecting this vulnerability are complex and multifactorial, including decreased thermoregulatory function due to aging-related changes in the autonomic nervous system, a decreased cardiovascular response to heat stress with decreased cardiac output and ineffective peripheral vasoconstriction, a decreased thirst sensation that increases the risk of dehydration, and a high prevalence of chronic cardiovascular and respiratory diseases exacerbated by heat stress.

Beyond the direct impacts of heat waves, older adults also face significant health risks from worsening air pollution caused by climate change. Rising global temperatures exacerbate tropospheric ozone formation through photochemical reactions, increase concentrations of fine particulate matter (PM2.5) from more frequent wildfires, and extend the pollen season, which triggers allergic reactions. A longitudinal cohort study in the United States involving over 100,000 older adults showed that older adults with chronic obstructive pulmonary disease (COPD), asthma, or cardiovascular disease experienced a 15–20% increase in hospitalizations and an 8–12% increase in mortality during periods of poor air quality triggered by wildfires and heat-related air pollution (Bell et al., 2021). Air pollution also contributes to cognitive decline and an increased risk of dementia in older adults, placing a double burden on physical and mental health.

Climate-related natural disasters such as floods, hurricanes, and droughts disproportionately impact the health and mortality of older adults. A comprehensive analysis of Hurricane Katrina (2005) disaster data showed that 71% of the 1,577 fatalities were over 60 years old, with key factors including limited mobility that

hindered assistance, reliance on electrically powered medical devices that failed during power outages, and social isolation that hindered access to assistance (Adams et al., 2011). In Indonesia, an evaluation of the impact of the 2020 and 2021 Jakarta floods showed that older adults had a recovery time 2-3 times longer than those in the productive age group, with a significantly higher prevalence of waterborne infections, post-traumatic mental disorders, and worsening of chronic conditions. Disruptions in access to healthcare during and after disasters exacerbate health outcomes, with many older adults experiencing disruptions in routine care for chronic conditions such as diabetes, hypertension, and heart disease.

3.2.2 Mental Health and Psychosocial Impacts

The impact of climate change on mental health is an issue for older adults that has received increasing attention in the literature, although it remains relatively under-researched compared to its impact on physical health. The concept of eco-anxiety, initially documented primarily in younger generations, is also experienced by older adults who face the loss of familiar environments throughout their lives, conveying concerns about the future, and profound concerns about the fate of their children and grandchildren on an increasingly unstable planet (Albrecht, 2011). In-depth qualitative studies in rural Australia experiencing prolonged drought for over a decade have shown that older farmers experience a profound sense of loss (solastalgia) related to the radical transformation of a landscape that has been an integral part of their identities throughout their lives, manifesting with symptoms of depression, anxiety, and in extreme cases, suicidal ideation (Cunsolo & Ellis, 2018).

Natural disasters also trigger post-traumatic stress disorder (PTSD), major depression, and grief complications in older adults, with higher prevalence and severity compared to younger age groups. A longitudinal study of 300 older adults following a flood disaster in Queensland, Australia, showed that 28% of older adults met diagnostic criteria for PTSD six months after the disaster, compared with 15% of those in the working-age group. They also experienced significantly slower recovery rates, with more persistent PTSD symptoms even after 24 months (Bei et al., 2013). Factors that increase the impact on mental health include the loss of possessions and belongings of high emotional value (e.g., family photos, generational heirlooms), disruption of daily routines that provide structure and meaning to older adults' lives, forced relocation that disrupts social networks built over decades, and loss of independence that threatens self-esteem and self-efficacy.

Social isolation triggered or exacerbated by climate-related disasters has serious long-term consequences for the psychological and cognitive well-being of older adults. Extreme heat waves limit outdoor mobility and participation in community activities, which are important sources of social support, cognitive stimulation, and mental health for older adults (Nitschke et al., 2011). The COVID-19 pandemic, while not a climate-related event, clearly demonstrates how lifetime social isolation can trigger a sharp increase in depression, anxiety disorders, and cognitive decline,

including dementia, in older adults, with some changes potentially irreversible (Sepúlveda-Loyola et al., 2020). With the intensification of extreme weather events that limit mobility and social interaction, and the displacement of disasters that disrupt social networks, similar patterns are likely to occur with broader and more lasting impacts.

3.2.3 Socio-Economic Vulnerability

Dimensions of socioeconomic vulnerability to climate change include poverty or near poverty, limited access to financial and material resources, and dependence on external support systems that are vulnerable to climate shocks. Older adults living in poverty or with limited fixed incomes face significant barriers to accessing effective climate change adaptation measures, such as air conditioning systems to mitigate heat waves, relocation from areas at high risk of flooding or sea-level rise, home improvement to improve insulation and ventilation, or comprehensive disaster insurance (Gamble et al., 2016). In developing countries, including Indonesia, where social security systems for older adults remain limited with low pension coverage and inadequate benefit levels, this economic vulnerability is further exacerbated, creating situations where older adults must choose between basic needs such as food, medicine, and climate adaptation.

Climate change also threatens the food security of older adults through various mechanisms, particularly those living in rural areas or dependent on subsistence agriculture. Droughts, floods, changing seasonal patterns, and increases in pests and plant diseases disrupt local food production, impacting the availability and affordability of nutritious foods, with vulnerable groups such as older adults facing difficult trade-offs (Gregory et al., 2009). Older adults with limited mobility and fixed incomes face additional difficulties in accessing alternative markets, adopting food substitutes, or adjusting their consumption patterns to offset food price volatility and scarcity. Malnutrition in older adults not only directly impacts physical health but also increases susceptibility to disease, delays recovery from illness, and contributes to frailty and functional decline.

Access to health and social services is also significantly disrupted by the impacts of climate change, creating a range of vulnerabilities for older adults with complex care needs. Natural disasters can damage health infrastructure, disrupt supply chains for medicines and medical supplies, force unprepared long-term care facilities (nursing homes) to close without adequate preparation, and lead to the displacement of healthcare workers (Turek-Hankins et al., 2021). Older adults with chronic conditions requiring routine care, monitoring, or dependence on certain medications face serious and potentially life-threatening health deterioration when services are disrupted. In Indonesia, disaster impact assessments have shown that home care services for older adults, community health center (Puskesmas) facilities, and ambulance services are often inoperable during and immediately after disasters, creating critical gaps in continuity of care that can last for weeks or even months.

3.3 Impact of the Climate Crisis on People with Disabilities

3.3.1 Barriers to Access in Emergency Situations

The literature consistently and compellingly identifies access barriers as a major and potentially life-threatening challenge for people with disabilities in the context of climate-related disasters. Comparative studies analyzing disaster mortality data from various disasters globally indicate that people with disabilities have a mortality rate 2-4 times higher in disaster situations than the non-disabled population, with variations based on disability type, severity, geographic context, and level of community preparedness (Stough & Kang, 2015). Physical barriers to evacuation access are a crucial factor directly contributing to increased mortality: emergency shelters and evacuation centers are often not designed according to universal design principles, emergency stairwells are inaccessible to wheelchair users or individuals with mobility impairments, doors and corridors are too narrow for wheelchair ramps, and transportation systems (buses, boats) are not equipped to accommodate diverse transportation needs.

Disaster early warning systems are also often fundamentally inaccessible to people with sensory disabilities, creating critical information gaps in emergency response. Audio-based alarms such as sirens are inaccessible to deaf or hard-of-hearing populations, while visual information (television, digital displays, text alerts) does not assist blind or visually impaired individuals (Kett & Cole, 2020). Comprehensive analyses of disaster responses in Japan (the 2011 Great East Japan Earthquake and Tsunami), Nepal (the 2015 earthquake), and the Philippines (Typhoon Haiyan 2013) showed that most people with sensory disabilities did not receive early warning information in a timely manner and in a format they could understand, resulting in critical delays in response to shocks, increased exposure to hazards, and increased mortality and morbidity (Sakamoto & Yamori, 2020).

Communication barriers in emergencies are also widespread and diverse. Crucial information about evacuation procedures, available shelter locations, food and air relief distribution, medical services, and family reunification programs is often unavailable in accessible formats (braille for the blind, audio description, easy-to-read versions for individuals with intellectual disabilities, or sign language for the deaf). Post-disaster studies indicate that people with intellectual and psychosocial disabilities experience particular and severe difficulties in understanding and navigating complex, bureaucratic, and chaotic emergency response systems, which often imply a certain level of cognitive, literacy, and executive functioning (Hemingway & Priestley, 2014). The lack of trained personnel who can communicate effectively with diverse disability populations, the absence of sign language interpreters, and the unavailability of assistive communication devices contribute to the isolation and vulnerability of people with disabilities in disaster situations.

3.3.2 Exclusion in Planning and Policy

The systematic exclusion of persons with disabilities from climate change mitigation and adaptation planning processes is a remarkably consistent and widespread finding in the literature, reflecting broader patterns of marginalization and discrimination. A comprehensive analysis of national climate policies in 192 countries that submitted Nationally Separated Contributions (NDCs) to the UNFCCC shows that only 8% explicitly mention persons with disabilities, accessibility considerations, or inclusive approaches in their policy documents (Yeo & Pineda, 2020). This lack of explicit representation is not merely a symbolic omission; it results in climate action policies and programs that fundamentally ignore the needs, rights, and potential contributions of persons with disabilities, perpetuating their invisibility and vulnerability.

Public consultation and participation processes in disaster planning, climate adaptation, and urban development are often structurally exclusionary and inaccessible to people with disabilities. Physical barriers to accessing public forums, public hearings, or consultation venues (lack of ramps, accessible restrooms, appropriate seating), lack of adequate accommodations (sign language interpretation, hearing aids, materials in accessible formats), scheduling that fails to consider the transportation challenges that people with disabilities face, and the underlying assumption that people with disabilities are passive recipients of charity rather than active citizens with valuable skills create profound exclusion (Priest et al., 2018). Even when people with disabilities or Disability Persons' Organizations (DPOs) successfully participate, their input is often marginalized, tokenized, or ignored in final decision-making.

Data and research on the impacts of climate change on people with disabilities are also severely limited and inadequate, creating an invisible vicious cycle. Disaster monitoring and evaluation systems, health surveillance systems, and climate vulnerability assessments often fail to disaggregate data by disability status, leaving specific vulnerabilities, differential impacts, and unmet needs unsystematically documented and unable to inform policy improvements or resource allocation (Kelman & Stough, 2015). These data gaps are not accidental, but reflect broader structural inequalities that discourage the collection of disability-disaggregated data. Without a robust evidence base, people with disabilities remain invisible in policy discourse, funding decisions are uninformed, and the cycle of marginalization continues.

3.4 Intersectoral Vulnerability

A thorough analysis of the literature reveals the criticality of understanding climate change vulnerability through an intersectional lens, recognizing that multiple and overlapping social identities create forms of oppression and vulnerability that are qualitatively different from the sum of individual linear risks. For older adults with disabilities, the layered vulnerability that goes beyond the additive combination of aging- and disability-related vulnerabilities creates unique challenges and barriers. Comparative studies in the United States analyzing heat-related mortality data indicate

that older adults with disabilities have a mortality rate 5–6 times higher during extreme heat waves than the general population, significantly higher even than older adults without disabilities or young adults with disabilities (Gamble et al., 2016). The intersection of age, disability, and other factors such as gender, race, ethnicity, and socioeconomic status creates a complexity of vulnerability that requires nuanced, tailored, and intersectionally informed intervention approaches.

Gender is a crucial but often overlooked intersectional dimension in climate vulnerability analyses. Older women and women with disabilities face significantly higher risks in disaster situations, rooted in restrictive gender norms, disproportionate caregiving responsibilities, limited decision-making power within the household, and more limited access to economic resources, information, and mobility (Resurreccion, 2013). In many cultural contexts, including Indonesia, older women or women with disabilities may have mobility severely restricted by social norms, greater reliance on male family members for transportation and access to information, and lower priority in resource allocation during times of scarcity, which cumulatively increases their vulnerability when informal support systems are disrupted or collapse during disasters. Gender-based violence also increases during and after disasters, with older women and people with disabilities facing increased risks.

Geographic location and urban-rural contexts also create different vulnerabilities. Older adults and people with disabilities in rural areas often face severely limited access to health and social services (with facilities being sparse, understaffed, and remote), infrastructure that is more vulnerable to climate shocks (unpaved roads prone to flooding, unreliable electricity, limited telecommunications), and weaker emergency response capacity with fewer trained personnel and limited equipment (Hwang & Lee, 2018). However, rural communities also potentially have stronger social networks with mutual support systems, indigenous or local knowledge of natural disaster mitigation developed over generations, and closer ties to the land that can act as buffers. Conversely, in urban areas, while formal services are more readily available, profound social isolation, particularly in high-rise apartments or dense informal settlements, total dependence on complex infrastructure systems (electricity, water, elevators) that are vulnerable to climate disruption, a worsening heat island effect, and anonymity that hinders community support can create unique forms of vulnerability.

3.5 Social Work Perspectives: Theoretical Framework and Interventions

3.5.1 Theoretical Framework

The social work literature proposes several theoretical frameworks that are essential for comprehensively understanding and effectively responding to the impacts of climate change on vulnerable groups. The Person-in-Environment (PIE) perspective, a foundational framework in social work, needs to be critically debated into a Person-in-Environment-in-Climate perspective that explicitly recognizes that climate change fundamentally alters the environmental context in which individuals

and communities operate, with broad implications for well-being, opportunities, and challenges (Dominelli, 2012). This approach emphasizes that individual vulnerability cannot be separated or adequately understood in isolation from broader structural, political-economic, and ecological conditions, and that interventions must simultaneously address individual needs and the systemic conditions that produce vulnerability.

Ecological systems theory, originally developed by Bronfenbrenner (1979) and later adapted for social work practice, provides a powerful multi-level framework for understanding how climate change operates across multiple system levels with cascading effects. The impacts of climate change can be described across: (1) the microsystem – direct impacts on individuals such as heat-related illnesses, displacement trauma; (2) the mesosystem – disruptions to interpersonal relationships and social networks, family stress; (3) the exosystem – damage to infrastructure, disruptions to health and education services, economic shocks; (4) the macrosystem – policy changes, shifts in cultural norms, changes in community responses; and (5) the chronosystem – long-term cumulative impacts and intergenerational effects (Mason et al., 2017). This approach enables social work practitioners to systematically identify strategic points of intervention across multiple system levels, recognizing interconnections and feedback loops.

The climate justice framework provides a critical lens essential for understanding the highly unequal distribution of climate change impacts and interrogating differential responsibility for causation and response. It strongly recognizes that those who have contributed least to historical and contemporary carbon emissions—including older adults, people with disabilities, indigenous peoples, and marginalized communities globally—often experience the most devastating impacts, while also having the least adequate access to resources for adaptation and protection (Dominelli, 2018). Social work practice grounded in climate justice emphasizes: (1) distributive justice—the equitable redistribution of resources for climate adaptation; (2) procedural justice—the meaningful and empowering participation of vulnerable groups in decision-making; (3) recognition justice—the recognition and valorization of the knowledge, experience, and agency of marginalized groups; and (4) reparative justice—compensation and restoration for adverse climate impacts disproportionately experienced.

3.5.2 Multi-Level Intervention Strategy

Micro-Interventions: Hands-On Practice

At the micro-level, the literature identifies several important intervention strategies that social work practitioners can and should implement in direct practice with older adults and people with disabilities. Holistic, climate-informed assessments that integrate climate risk considerations need to become a standard and systematic part of practice, particularly in case openings, periodic reviews, and transition planning with vulnerable populations (Boetto & Bell, 2015). A comprehensive assessment tool

can and should include: a systematic assessment of vulnerability to extreme weather events based on health conditions, medications, and living circumstances; an assessment of access to cooling/heating systems and backup power sources; self-help capabilities or needs for assistance; strengths and gaps in formal and informal social support networks; existing knowledge of climate change risks and preparedness; and the development of a tailored and realistic personal contingency plan.

Culturally appropriate and accessible psychoeducation about climate change risks and personal adaptation strategies is a crucial but often overlooked preventive intervention. Social work practitioners can systematically provide evidence-based information on: early warning signs of heat stress, dehydration, and hypothermia; practical ways to maintain adequate hydration, particularly for older adults with reduced thirst sensations; appropriate home modifications to reduce climate risks, such as installing window shades, improving ventilation, and weatherproofing; developing a detailed personal emergency plan that takes into account disabilities and special needs; assembling a go-bag with essential items; and strategies for maintaining social connections during extreme weather (Mathew et al., 2017). For people with disabilities, this is especially important, including ensuring they have an adequately stocked bag that includes disability-specific items (extra batteries for powered mobility devices, spare medications, copies of important documents, assistive devices), knowing the location of accessible shelters, and establishing a buddy system with trusted individuals for emergencies.

Trauma-informed and strengths-based mental health interventions to address eco-anxiety, disaster-related trauma, and complicated grief are increasingly important areas of practice that require specialized competencies. Trauma-informed, culturally sensitive approaches with explicit validation can effectively help older adults and people with disabilities process complex losses (loss of home, sentimental possessions, familiar surroundings, independence, and social networks), build emotional resilience, and find meaning in the context of unsettling and uncertain change (Cunsolo & Ellis, 2018). Evidence-based therapeutic approaches that can be appropriately adapted include: Cognitive Behavioral Therapy (CBT) to address maladaptive thinking about climate change and disasters; narrative therapy that facilitates meaning-making and story reconstruction; reminiscence therapy, particularly beneficial for older adults experiencing displacement; mindfulness-based interventions; and peer support groups that provide normalization, mutual support, and collective meaning-making.

Comprehensive climate-responsive case management involves proactively coordinating services across sectors to ensure continuity of care during and long-term after climate-related disruptions. Critical elements include: facilitating priority access to medical services, prescription refills, and durable medical equipment; navigating complex bureaucratic systems for disaster relief, insurance claims, and housing

support; connecting community resources for food security, transportation, and utility assistance; and advocating with service providers for accommodations and flexibility (Alston & Whittenbury, 2013). For clients dependent on life-sustaining medical equipment or requiring routine medical care (dialysis, oxygen therapy), case managers need to develop detailed contingency plans that address power outages, transportation disruptions, and facility closures.

Mezzo Intervention: Community Development

At the mezzo level, the systematic development of mutual aid networks and peer support groups is a powerful strategy for building collective resilience and social capital. Extensive research across diverse contexts shows that older adults and people with disabilities who are connected to supportive social networks have significantly better outcomes during and after disasters—lower mortality rates, faster recovery, less severe mental health impacts, and a greater sense of agency (Sakauye et al., 2009). Social work practitioners can strategically facilitate the formation of neighborhood-based support groups, regular telephone or digital reassurance programs, buddy systems that pair individuals with different abilities for mutual support, time banks that facilitate the exchange of mutual assistance, and community organizing efforts that build solidarity and collective efficacy.

Explicitly disability-inclusive and age-friendly Community-Based Disaster Risk Reduction (CBDRR) is a proven, effective approach that fundamentally shifts the paradigm from top-down, expert-based planning to community-led, participatory processes. This approach places a strong emphasis on the active participation of vulnerable groups in all phases: identifying locally specific risks through participatory mapping, developing context-appropriate solutions that leverage local knowledge and resources, implementing truly accessible early warning systems, conducting inclusive preparedness training and exercises, and participating in post-disaster recovery planning (Gaillard et al., 2015). Social work practitioners can utilize participatory action research methodologies to mobilize communities, facilitate genuine participation, document processes and outcomes, and ensure accountability.

The strategic development of community resilience centers—multifunctional spaces that serve as accessible gathering places, information hubs, coordination centers, and resource repositories before, during, and after climate-related emergencies—has demonstrated effectiveness in diverse contexts globally (Aldrich & Meyer, 2015). Social work practitioners can spearhead the transformation of senior centers, disability service organizations, libraries, or community centers into resilience centers equipped with the following features: year-round cooling/heating facilities accessible during extreme weather, emergency supplies stored on-site, accessible communication systems (visual alerts, tactile alerts, multilingual), trained volunteers familiar with disability etiquette and first aid, regular programming that builds climate literacy and preparedness, and strong relationships with emergency management agencies.

Macro Interventions: Advocacy and Policy

At the macro level, social work practitioners have a profound ethical responsibility and a unique professional position to engage in sustained policy advocacy that centers the rights and well-being of vulnerable groups in climate action. This essentially includes: vigorously advocating for the mandatory integration of disability-inclusive and age-inclusive approaches into all levels of climate policy, from national NDCs to local adaptation plans; pushing for explicit accountability mechanisms; demanding adequate budget allocations; and closely monitoring implementation (Kelman & Stough, 2015). Social workers can work strategically with coalitions of civil society organizations, disability rights groups, and older persons' associations to amplify their voices, coordinate advocacy strategies, and enhance collective power.

Developing and enforcing comprehensive standards for accessible disaster infrastructure is a critical policy. This includes ensuring all evacuation centers, emergency shelters, and transitional housing meet universal design principles; mandating the availability of disability-specific equipment and supplies; requiring trained staff; establishing a clear accessibility audit process; and creating meaningful sanctions for non-compliance (Kett & Cole, 2020). Social workers can actively participate in disaster preparedness committees at the local and national levels, providing professional expertise, championing inclusive design, and resisting cost-cutting that compromises accessibility.

Advocating for equitable climate finance and resource allocation that explicitly prioritizes the needs of vulnerable groups is an imperative of redistributive justice. This includes advocating for: dedicated funding allocated to inclusive adaptation programs that does not compete with other priorities; expanded social protection systems that explicitly incorporate climate change impacts (emergency cash transfers, subsidies for adaptive technologies, insurance schemes); just transition frameworks that protect vulnerable workers; and compensation mechanisms for climate change losses that recognize disparate impacts (Dominelli, 2018). Careful research and documentation of disparate climate impacts through participatory methods can effectively generate evidence to inform policy debates, counter erasure, and demand accountability.

4. CONCLUSION

This systematic literature review definitively confirms that the climate crisis is having a disproportionate, multidimensional, and highly inequitable impact on the well-being of older adults and persons with disabilities globally and particularly in the Indonesian context. These older adults face multi-layered vulnerabilities—spanning physical, psychological, social, and economic dimensions—systematically exacerbated by persistent structural barriers to access to protection, essential services, and meaningful participation in decisions that affect their lives. The

comprehensively reviewed evidence demonstrates that significant and potentially life-threatening health impacts—from increased mortality during extreme heatwaves, to increased morbidity from air pollution and waterborne diseases, to the lasting psychological trauma of displacement and loss—require an urgent and coordinated multi-sectoral response.

From a social work perspective, a theoretical framework that synergistically integrates ecological systems thinking, climate justice demands, and a human rights-based approach provides a strong conceptual foundation for comprehensively understanding and effectively responding to the profound complexity of the problem. The social work profession, with its historical commitment to social justice, advocacy for oppressed groups, and a holistic people-in-environment perspective, has both the moral responsibility and professional capacity to champion climate-responsive practices that center vulnerable populations. The paradigm shift from the traditional Person-in-Environment-in-Climate framework to a Person-in-Environment-in-Climate framework explicitly aware of climate change reflects the evolution necessary to address contemporary realities.

The intervention strategies identified and analyzed in the literature convincingly demonstrate that effective protection of vulnerable groups fundamentally requires a comprehensive, multi-level approach that simultaneously integrates: (1) direct, micro-level practices that are trauma-informed, culturally appropriate, and explicitly address climate vulnerability; (2) mid-level community development that builds social capital, collective resilience, and mutual aid capacity; (3) macro-level policy advocacy that demands structural change, equitable resource allocation, and accountability. Successful implementation of these strategies faces formidable challenges—resource scarcity, capacity gaps, institutional fragmentation, cultural resistance—but the urgency of the climate crisis and the moral imperative to protect human dignity demand sustained commitment despite these obstacles.

Best practices identified from diverse contexts—the Heat Watch program with its proactive outreach, Japan's Inclusive Disaster Risk Reduction framework, the Age-Friendly Cities initiative, and community resilience centers—provide actionable blueprints that, with thoughtful cultural adaptations and context-specific modifications, can effectively inform Indonesia's response. Key lessons consistently emphasize: the importance of meaningful participation of vulnerable groups as active agents rather than passive recipients; the need for a holistic approach that addresses interconnected vulnerabilities; the importance of sustained long-term political commitment beyond the emergency; and the value of rigorous monitoring to ensure accountability and continuous improvement.

Specifically for the Indonesian context, key actions include: mandating disability-inclusive and age-inclusive approaches at all levels of climate policy and disaster management; strengthening social protection systems to explicitly address climate shocks; investing substantially in capacity building for social work

professionals; developing culturally appropriate assessment tools and intervention protocols; facilitating ongoing cross-sectoral collaboration; building robust disability-disaggregated and age-disaggregated data systems; and most fundamentally, recognizing and valuing older adults and persons with disabilities not as burdens or victims, but as rights holders, knowledge keepers, and valuable contributors to climate-resilient communities.

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