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Healthcare System Resilience in Crisis: The Role of District General Hospital Matale in Disaster Preparedness and Response – Experiences from Cyclone Ditwah

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Abstract:

- ***Introduction:***

Cyclone Ditwah in November 2025 exposed the vulnerabilities and resilience of Sri Lanka's healthcare system, severely disrupting essential services and displacing large populations. District General Hospital Matale emerged as a pivotal institution, simultaneously delivering urgent medical care, coordinating disaster response, and sustaining staff welfare under extreme conditions. This case study underscores the hospital's dual role as a healthcare provider and community anchor, offering critical insights into strengthening resilience and governance in resource-constrained settings.

- ***Objectives:***

To strengthen healthcare resilience by analyzing the preparedness, response, and strategic interventions of District General Hospital Matale during Cyclone Ditwah, with the aim of informing future disaster management frameworks in Sri Lanka.

- ***Method:***

The study employed a qualitative case study approach, analyzing District General Hospital Matale's disaster preparedness, activation of protocols, and strategic interventions during Cyclone Ditwah. Data were drawn from hospital records, staff experiences, and district disaster management reports to evaluate resilience and lessons learned.

- ***Result:***

DGH Matale managed disaster care despite flooding, power and water failures, and staff shortages. The hospital recorded 9 deaths and 19 injuries locally, while nationwide losses reached 410 deaths and 336 missing. Through 18 mobile medical camps, care was delivered to 711 displaced individuals, and the Sahana Sewa Program provided food, clothing, and essentials—sustaining operations and reinforcing community trust.

- ***Discussion:***

DGH Matale's experience shows that healthcare resilience depends on proactive preparedness, structured response, and community outreach, enabling hospitals to act as both clinical and humanitarian anchors during crises.

- ***Conclusion:***

Cyclone Ditwah revealed both vulnerabilities and resilience in Sri Lanka's healthcare system, with DGH Matale sustaining care through proactive leadership and teamwork. Its multidimensional response—spanning infrastructure, staff welfare, and community outreach—underscores hospitals as vital anchors of stability in crises.

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I. INTRODUCTION

Disasters are defining moments for healthcare systems, exposing both their vulnerabilities and their capacity for resilience. In Sri Lanka, Cyclone Ditwah in November 2025 was one such moment, unleashing torrential rains and floods that displaced hundreds of thousands, destroyed infrastructure, and disrupted essential services across the island. The Matale district, located in the central province, was among the hardest hit, with communities experiencing profound losses of life, property, and livelihoods. Within this context, District General Hospital (DGH) Matale emerged as a critical institution, not only providing urgent medical care but also coordinating relief, sustaining staff welfare, and extending humanitarian outreach to displaced populations.

The significance of studying DGH Matale's response lies in its dual role as both a healthcare provider and a community anchor. Hospitals are often perceived as treatment centers, yet during disasters they become hubs of coordination, communication, and trust. The ability of DGH Matale to adapt under pressure mobilizing staff, safeguarding infrastructure, and integrating with district-level disaster management frameworks offers valuable insights into how healthcare institutions can strengthen resilience in resource-constrained settings.

This paper explores the hospital's journey through three interconnected dimensions: pre-disaster preparedness, immediate activation of protocols, and strategic interventions to overcome challenges. It situates these experiences within broader discussions of healthcare resilience, emphasizing lessons learned for future crises. By examining the hospital's proactive measures, rapid response, and community outreach, the study contributes to understanding how healthcare systems can remain functional and responsive even in the face of overwhelming adversity.

Ultimately, the experience of DGH Matale during Cyclone Ditwah underscores the importance of integrating disaster preparedness into everyday healthcare governance. It demonstrates that resilience is not merely about surviving a crisis but about sustaining continuity of care, protecting staff welfare, and reinforcing community trust. These insights are critical for shaping future disaster management strategies in Sri Lanka and beyond, ensuring that healthcare institutions remain pillars of stability during times of uncertainty.

➢ *Impact of Cyclone Ditwah on Matale District*

Cyclone Ditwah's arrival in late November 2025 marked one of the most destructive natural disasters in Sri Lanka's recent history, and its impact on the Matale district was particularly severe. Torrential rains battered the region for three consecutive days, overwhelming rivers and drainage systems, submerging homes, and sweeping away agricultural lands that formed the backbone of local livelihoods. Families were forced to abandon their residences, many of which were either destroyed or rendered uninhabitable, and more than 233,000 individuals sought refuge in government-run safety centers. Others were absorbed into host families, creating a secondary layer of strain on communities already grappling with loss.

The human toll was staggering. Nationwide, official statistics recorded 410 deaths, with 336 individuals missing and thousands injured. Within Matale itself, District General Hospital (DGH) documented nine fatalities and nineteen injuries directly linked to the disaster. These figures, though modest compared to the national scale, underscore the hospital's frontline role in managing immediate casualties while simultaneously preparing for the influx of displaced populations requiring medical attention.

Equally devastating was the collapse of essential services. Water supply systems failed across the district, leaving communities vulnerable to waterborne diseases. Hospitals, including DGH Matale, faced inundation, threatening continuity of care and damaging critical infrastructure. Schools were destroyed or rendered unusable, disrupting education and compounding the psychological trauma of children already displaced. Transportation networks were obstructed, isolating villages and hampering relief efforts.

The cyclone's devastation revealed the fragility of community resilience in the face of extreme weather events. It highlighted how interconnected systems healthcare, education, transport, and utilities can collapse simultaneously, amplifying the suffering of affected populations. For Matale, the disaster was not only a humanitarian crisis but also a stark reminder of the urgent need for robust disaster preparedness mechanisms. The experience underscored that healthcare institutions must be equipped not only to treat injuries but also to serve as anchors of stability, coordination, and trust during times of crisis.

In this context, DGH Matale's role became pivotal. The hospital's ability to respond under immense pressure, despite resource constraints and infrastructural damage, illustrates the importance of proactive planning and resilience-building. The lessons drawn from this experience extend beyond Matale, offering insights into how healthcare systems across Sri Lanka and similar regions globally can strengthen their preparedness for future disasters.

➢ *Objectives*

- *General Objective*

✓ To strengthen healthcare resilience by analyzing the preparedness, response, and strategic interventions of District General Hospital Matale during Cyclone Ditwah, with the aim of informing future disaster management frameworks in Sri Lanka.

- *Specific Objectives*

✓ To evaluate pre-disaster preparedness measures at DGH Matale, including staff training, infrastructure safeguards, and simulation drills, to understand how foresight contributed to resilience.

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- ✓ To examine activation of disaster protocols during Cyclone Ditwah, focusing on triage systems, ward reorganization, supply chain management, and communication with authorities.
- ✓ To assess strategic interventions and community outreach such as staff welfare initiatives, utility management, mobile medical camps, and humanitarian relief programs, to highlight lessons for integrated healthcare and social resilience.

II. METHODOLOGY

➢ *Pre-Disaster Preparedness at DGH Matale*

The resilience demonstrated by District General Hospital (DGH) Matale during Cyclone Ditwah was not accidental but the result of deliberate foresight and structured planning. Under the leadership of the hospital Director, a comprehensive disaster preparedness program was established well before the cyclone struck. This initiative recognized that hospitals are not only treatment centers but also critical anchors of stability during emergencies, and therefore must be equipped to withstand both direct and indirect impacts of disasters.

Central to this preparedness was the training of staff through workshops that covered a wide spectrum of disaster management competencies. These sessions emphasized triage protocols, crowd control, communication strategies, and clinical readiness for mass casualty incidents. By engaging staff in both theoretical learning and practical group activities, the hospital ensured that its workforce could respond cohesively under pressure. The inclusion of modules on public relations and documentation further highlighted the importance of managing information flow during crises, preventing misinformation, and maintaining public trust.

Infrastructure safeguards were another cornerstone of preparedness. Recognizing the vulnerability of lower level wards to flooding, the hospital invested in constructing a robust rainwater drainage system, thereby reducing the risk of inundation. Similarly, the removal of hazardous trees near hospital structures reflected a proactive approach to minimizing wind-related damage. These measures demonstrated a balance between environmental responsibility and patient safety, ensuring that the hospital grounds remained secure without compromising aesthetics.

Human resource mobilization was prioritized to guarantee uninterrupted service delivery. Staff leave was canceled, ensuring that consultants, doctors, nurses, and minor staff were available to manage the anticipated surge in patient inflow. Utility resilience was also addressed: fuel was secured for generators to safeguard against power failures, and coordination with the regional water board ensured continuous water supply. These arrangements reflected an understanding that healthcare delivery depends not only on medical expertise but also on reliable infrastructure and utilities.

Simulation drills provided the final layer of preparedness, translating theoretical knowledge into practice. By simulating disaster scenarios within hospital premises, staff were able to test their readiness, identify gaps, and refine response strategies. These drills reinforced confidence, ensuring that when Cyclone Ditwah struck, the hospital was not caught unprepared but was instead positioned as a proactive institution capable of swift and effective emergency response.

In essence, DGH Matale's pre-disaster preparedness illustrates how foresight, structured training, and infrastructural safeguards can transform a healthcare institution into a resilient hub. The hospital's measures went beyond routine planning, embedding resilience into its operational culture and setting a benchmark for disaster readiness in Sri Lanka's healthcare system.

➢ *Activation of Hospital Disaster Protocols*

When Cyclone Ditwah struck and its devastating impact on Matale became clear, District General Hospital (DGH) Matale transitioned from preparedness into full activation of its disaster protocols. This moment was critical, as the hospital had to shift from routine operations to emergency mode, ensuring that every resource, staff member, and facility was aligned under a unified response framework. The declaration of a disaster situation within the institution was not merely symbolic it triggered a cascade of coordinated actions that transformed the hospital into a command center for crisis management.

The Emergency Treatment Unit (ETU) was immediately prioritized as the frontline of care. Casualty bays were equipped with stretchers, essential supplies, and lifesaving equipment, while a triage officer was appointed to oversee patient flow. This ensured that victims arriving in large numbers could be assessed rapidly, categorized according to injury severity, and directed to appropriate wards. The triage system became the backbone of efficiency, preventing confusion and enabling the hospital to manage mass casualties with precision.

Simultaneously, bed and ward management became a pressing concern. An immediate survey of vacant beds across surgical, medical, and intensive care wards was conducted. Non-critical patients were transferred or discharged to create space for disaster victims. This reorganization reflected the hospital's adaptability, as it expanded capacity in high-demand areas without compromising ongoing care.

The pharmacy and supply units played a pivotal role in sustaining operations. Essential drugs, surgical consumables, and equipment were verified against projected needs, and contingency plans were established to replenish stocks. This foresight ensured that treatment could continue uninterrupted despite the surge in demand.

Equally important was communication with higher authorities. Direct channels were established with the Ministry of Health, the RDHS Office, and the District Disaster Management Centre. These connections facilitated rapid mobilization of external resources, including medical

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teams and logistical support, integrating the hospital's response into the broader district-level disaster framework.

The hospital also recognized the importance of public information and relations. The Public Relations Office issued timely updates to the community and media outlets, countering misinformation and reassuring the public of the hospital's readiness. Transparency became a tool for maintaining trust, guiding victims to appropriate care, and preventing panic.

Finally, human resource mobilization ensured sustained operations. Replacement staff were arranged for critical wards, and on-call specialists were required to remain physically present due to disrupted telecommunications. This measure guaranteed immediate availability of expertise, minimizing delays in treatment and reinforcing the hospital's capacity to deliver specialized care under pressure.

In essence, the activation of disaster protocols at DGH Matale demonstrated how preparedness translates into decisive action. By prioritizing triage, reorganizing wards, safeguarding supplies, strengthening communication, and mobilizing staff, the hospital transformed itself into a resilient hub capable of managing overwhelming challenges. This activation was not only about treating injuries but about orchestrating a coordinated response that safeguarded both patient care and community confidence during one of the district's darkest hours.

III. RESULTS

- *Challenges Encountered*

Despite the extensive preparedness measures, District General Hospital (DGH) Matale faced immense challenges once Cyclone Ditwah struck. Floodwaters inundated critical areas, including obstetric wards and staff quarters, creating unsafe conditions and damaging infrastructure essential for patient care. The interruption of water and electricity supplies further strained hospital operations, threatening sanitation and the functioning of lifesaving equipment. Transport difficulties compounded the crisis, as obstructed roads and collapsed services prevented many staff members from reaching the hospital. Food shortages emerged as another pressing issue, undermining morale and energy levels among staff working extended shifts. Fuel scarcity posed a grave risk to generator operations, jeopardizing the continuity of power for critical medical services. These challenges were magnified by staff shortages, as many healthcare workers were themselves victims of the disaster, coinciding with a surge in patient inflow that placed immense pressure on the available personnel.

- *Strategic Interventions*

To overcome these obstacles, DGH Matale adopted a series of coordinated interventions that reflected both foresight and adaptability. A Disaster Management Committee was established, bringing together a multidisciplinary team of doctors, nurses, pharmacists, laboratory technologists, and support staff to ensure unified decision making. Recognizing the critical importance of utilities, fuel storage was arranged to guarantee uninterrupted generator function, while a submersible pump was purchased to strengthen water management capacity. Staff welfare was prioritized through the provision of regular meals, temporary on-call rooms for displaced doctors, and organized transport facilities along four major routes, enabling staff attendance despite obstructed roads. These interventions not only sustained hospital operations but also reinforced staff resilience, ensuring that healthcare delivery continued under extreme pressure.

- *Community Outreach and Humanitarian Relief*

Beyond its walls, DGH Matale extended its role into the community, recognizing that displaced populations required urgent medical and humanitarian support. In collaboration with the RDHS Matale, internally displaced persons (IDP) camps were identified, and medical teams deployed to provide care. Over the course of a week, mobile medical camps covered eighteen sites, including schools and temples, delivering healthcare to 711 individuals. Patients were assessed, medications dispensed, and referrals made, ensuring continuity of treatment despite displacement. The hospital also launched the Sahana Sewa Program, a relief initiative that distributed clothing, meals, and essential items to families severely affected by the disaster. These efforts reflected the hospital's dual role as both a clinical institution and a humanitarian anchor, reinforcing community trust and demonstrating solidarity during a time of crisis.

IV. DISCUSSIONS

The experience of District General Hospital (DGH) Matale during Cyclone Ditwah provides a compelling case study of how healthcare institutions can function as both clinical centers and community anchors in times of crisis. The hospital's journey from preparedness to activation, through challenges and interventions, highlights the dynamic interplay between foresight, adaptability, and resilience.

One of the most significant insights is the value of pre disaster preparedness. The investments made in infrastructure safeguards, staff training, and simulation drills ensured that the hospital was not caught unprepared when the cyclone struck. This proactive stance allowed DGH Matale to transition quickly into emergency mode, demonstrating that resilience is built long before a disaster occurs. Preparedness measures such as drainage systems, fuel storage, and communication protocols proved indispensable in sustaining operations under extreme conditions.

At the same time, the activation of disaster protocols illustrated the importance of structured response mechanisms. The prioritization of the Emergency Treatment Unit, rapid triage, and reorganization of wards ensured that patient care remained efficient despite overwhelming demand. Communication with higher authorities integrated the hospital's response into district-level frameworks, reinforcing the idea that healthcare institutions cannot operate in isolation during disasters but must be part of a coordinated system.

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The challenges encountered from flooding and utility disruptions to staff shortages and food insecurity underscore the fragility of healthcare systems when multiple stressors converge. These difficulties reveal that resilience is not absolute; even well-prepared institutions face vulnerabilities. Yet, what distinguishes effective disaster response is the ability to adapt quickly and implement strategic interventions. The establishment of a Disaster Management Committee, prioritization of staff welfare, and logistical arrangements for transport and utilities exemplify how leadership and teamwork can mitigate systemic breakdowns.

Perhaps the most transformative aspect of DGH Matale's response was its community outreach and humanitarian relief. By extending medical care to internally displaced persons (IDP) camps and launching the Sahana Sewa Program, the hospital transcended its traditional role. It became a symbol of solidarity, providing not only clinical services but also essential humanitarian support. This dual role reinforced community trust and demonstrated that hospitals are integral to both health and social resilience.

Collectively, these experiences highlight several lessons. First, resilience requires a balance between preparedness and adaptability planning for foreseeable risks while remaining flexible in the face of unforeseen challenges. Second, staff welfare is central to sustaining healthcare delivery; without adequate support, morale and capacity quickly erode. Third, integration into wider disaster management frameworks ensures that hospitals can access external resources and contribute to coordinated relief. Finally, community engagement strengthens trust and ensures equitable access to care, positioning hospitals as anchors of stability during crises.

In conclusion, the case of DGH Matale demonstrates that healthcare resilience is multidimensional. It encompasses infrastructure, human resources, communication, and community outreach. The hospital's ability to sustain operations, adapt to challenges, and extend humanitarian support during Cyclone Ditwah offers valuable insights for disaster management in Sri Lanka and beyond. By embedding these lessons into future planning, healthcare institutions can enhance their capacity to respond effectively to emergencies, ensuring continuity of care and reinforcing their role as pillars of community resilience.

V. CONCLUSION

Cyclone Ditwah served as both a devastating event and a revealing test of Sri Lanka's healthcare system. It highlighted the vulnerabilities that exist when infrastructure, utilities, and human resources are simultaneously disrupted, but it also showcased the resilience and adaptability of institutions such as District General Hospital (DGH) Matale. The hospital's ability to safeguard patient care, maintain operational continuity, and extend humanitarian relief was the result of proactive leadership, coordinated teamwork, and innovative strategies that transformed challenges into opportunities for resilience.

The experience demonstrates that resilience in healthcare is multidimensional. It is not limited to clinical capacity but extends to infrastructure readiness, supply chain stability, staff welfare, and community outreach. DGH Matale's interventions—ranging from fuel storage and water management to mobile medical camps and the *Sahana Sewa Program*—illustrate how hospitals can evolve into community anchors during crises, providing both medical and humanitarian support.

Looking forward, future preparedness must prioritize infrastructure upgrades to withstand environmental shocks, robust supply chains to ensure uninterrupted access to essential medicines and equipment, and comprehensive staff training to build confidence and competence in emergency scenarios. Embedding these lessons into healthcare governance will enhance institutional capacity to respond effectively to emergencies, ensuring that hospitals remain functional, communities receive timely support, and trust in the healthcare system is reinforced.

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