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HEALTHY LIVING CONDITIONS AMONG RURAL FIRE VICTIMS DURING POST-DISASTER RECOVERY

Siti Nuratirah Che Mohd Nasir^{1*}, Salmiah Aziz²

¹Sustainability, Urban Design and Well-being, Faculty of Architecture & Ekistics, Universiti Malaysia Kelantan, Malaysia

 Nuratirah.mn@umk.edu.my

 <https://orcid.org/0000-0001-5050-8142>

²Architectural Technology & Management, Faculty of Architecture & Ekistics, Universiti Malaysia Kelantan, Malaysia

 Salmiah.a@umk.edu.my

 <https://orcid.org/0009-0002-5482-8076>

*Corresponding Author

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Abstract:

This qualitative case study examines perceptions of healthy living conditions and recovery needs among rural fire victims following a village fire in Kampung Gok Kapur, Kota Bharu, Kelantan, Malaysia. The fire destroyed 27 houses and displaced affected households to temporary accommodation, including mosques, prayer halls, rented houses and relatives' homes. Data were collected through semi-structured interviews with 6 participants, supported by field observations and documentary records during the early post-disaster recovery phase. The findings indicate that adequate ventilation, access to clean water, sanitation, safety, privacy and emotional comfort were consistently perceived as essential characteristics of a Healthy Living Environment. Participants also reported disrupted sleep, emotional distress, uncertainty regarding permanent housing, and challenges associated with land ownership, financial constraints and reconstruction processes. Although community support, cash assistance, food aid, clothing and household necessities helped address immediate needs, long-term housing recovery remained the most pressing unmet need. Many participants were also unable to express detailed housing preferences because psychological shock and immediate survival concerns took precedence during the early recovery period. The study highlights the interrelationship between physical living conditions and psychosocial well-being in shaping post-disaster recovery experiences. Based on the findings, a Healthy Living Environment framework is proposed to illustrate key environmental and social considerations for temporary housing in rural post-disaster settings. The findings emphasise the importance of complementing emergency shelter provision with coordinated reconstruction planning, land tenure support

and community-based recovery strategies to promote healthier and more sustainable recovery outcomes.

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Keyword:

Healthy Living Environment; Land Tenure; Post-Disaster Recovery; Psychosocial Well-being; Rural Fire; Temporary Housing



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Introduction

In Malaysia, rural residential fires have received limited attention in post-disaster housing research. The literature has been more heavily oriented towards floods, landslides and earthquakes, with emphasis on emergency response, physical damage, reconstruction and financial assistance. As a result, less is known about how households affected by rural fires experience temporary living conditions and adjust to the disruption during the early recovery period. This is an important consideration because the quality of the post-disaster living environment can influence physical health, psychological well-being, family relationships, and the ability of households to regain a sense of stability.

On 8 June 2026, a residential fire in Kampung Gok Kapur, Kota Bharu, Kelantan, destroyed 27 houses and displaced several households. The losses extended beyond the houses themselves, with families also losing household belongings, electrical appliances, personal documents and school materials. Following the incident, emergency assistance was provided by the Fire and Rescue Department of Malaysia, the Social Welfare Department, local authorities and community-based organisations. In the days that followed, affected families stayed in different forms of temporary accommodation, including mosques, prayer halls, rented houses and relatives' homes, while arrangements for longer-term housing remained uncertain. Post-disaster housing recovery is generally understood as a gradual process involving emergency shelter, temporary accommodation, and permanent reconstruction. Emergency shelter provides immediate protection following a disaster and is commonly established in evacuation centres or other public facilities. Temporary accommodation represents the next stage, providing households with an interim place to live while they wait for their homes to be repaired, rebuilt, or replaced. Such accommodation may include rented houses, community facilities, or housing provided by relatives. The final stage involves permanent reconstruction

or repair, allowing affected households to return to more stable and independent living conditions.

Although housing recovery has been widely discussed in relation to floods, earthquakes, and other large-scale disasters, the temporary accommodation experiences of rural fire victims remain comparatively underexplored. In particular, limited research has considered how affected households understand and prioritise healthy living conditions during this transitional period. Temporary accommodation is not simply a matter of providing a roof over one's head. The living environment may also shape feelings of safety, privacy, comfort, social support, and emotional well-being, all of which can become particularly important when families are coping with the disruption and uncertainty that follow a fire.

Against this background, the present study examines the experiences of households affected by the Kampung Gok Kapur fire during the early post-disaster recovery period. Rather than concentrating only on physical housing loss and reconstruction, the study considers how fire victims perceive and prioritise healthy living conditions while living in temporary accommodation. By focusing on the experiences and perceptions of affected households, the study seeks to identify the environmental, social, and emotional factors that matter to them during this transitional stage. These insights may contribute to a more holistic understanding of post-disaster housing recovery and support the development of more responsive housing strategies for rural communities affected by residential fires.

Accordingly, the study has four objectives: to identify the living challenges experienced by victims following the fire, to examine perceptions of Healthy Living Environment elements during the recovery period, to identify priority recovery needs from the perspectives of affected households and community members, and to develop considerations for rural post-disaster recovery based on the empirical findings.

Literature Review

Post-disaster Temporary Housing and Recovery

Post-disaster housing recovery is widely recognised as a gradual process that extends beyond the provision of emergency shelter. Following a disaster, affected households generally progress through three stages of accommodation: emergency shelter, temporary accommodation, and permanent reconstruction. Emergency shelters provide immediate protection during the initial response period, while temporary accommodation offers an interim living environment for affected households until their permanent homes can be repaired or rebuilt. Permanent reconstruction marks the later stage of recovery, with the aim of restoring stable housing and enabling households to gradually resume their daily lives. Although these stages are conceptually distinct, the quality of temporary accommodation often determines the overall recovery experience because displaced households may remain in transitional housing for months or even years (UN-Habitat; Sphere Association).

Previous studies have shown that the habitability of temporary housing can have a significant influence on occupants' physical health, psychological well-being, and social functioning. Conditions such as inadequate ventilation, overcrowding, poor sanitation, insufficient lighting, limited privacy, and restricted access to clean water may increase the risk of communicable diseases and contribute to stress, anxiety, and poorer quality of life (WHO, 2018). Temporary

accommodation therefore needs to provide more than basic physical protection. It should also offer living conditions that support health, safety, dignity, and overall well-being during the recovery process (Hanafi et al., 2023).

In Malaysia, research on housing after disasters has mainly focused on floods. This is due to the country's high exposure to flooding and the regular occurrence of flood-related displacements. Past studies have looked into issues like temporary evacuation centres, housing reconstruction, financial aid, and institutional support for disaster recovery. In contrast, rural residential fires have received much less attention, even though they can severely impact housing security, household livelihoods, and community life. Specifically, there has been limited research on how households affected by fires view and prioritize healthy living conditions while in temporary accommodations during the early recovery phase. Greater attention to these lived experiences is therefore needed to better understand the conditions that matter to affected households and to support more responsive approaches to post-disaster housing recovery.

Healthy Living Environments and Housing Quality

A Healthy Living Environment (HLE) extends beyond the structural adequacy of a dwelling to encompass environmental conditions that support physical, mental, and social well-being. According to the World Health Organization's Housing and Health Guidelines (WHO, 2018), housing quality is an important determinant of health, as people spend a substantial proportion of their time indoors. A healthy home should provide adequate ventilation, thermal comfort, safe drinking water, effective sanitation, appropriate waste management, sufficient living space, protection from environmental hazards, and a safe indoor environment (Nasir & Aziz, 2026). These conditions become particularly important following a disaster, when households may have limited control over the quality and suitability of their temporary accommodation.

In post-disaster settings, however, such conditions are often compromised because emergency housing programmes tend to prioritise the rapid provision of shelter. Although temporary accommodation can meet immediate housing needs, inadequate environmental conditions may create additional challenges during recovery, including increased health risks, disrupted family routines, and psychological distress. Recent studies have consequently highlighted the importance of incorporating healthy housing principles into disaster recovery planning from the early stages, so that temporary accommodation can support not only physical protection but also the broader well-being of affected households.

Healthy housing extends beyond the physical characteristics of a dwelling and includes less tangible aspects of the living environment, such as privacy, security, emotional comfort, and opportunities for family interaction. These considerations are particularly relevant following a disaster, when households may be coping with uncertainty, displacement, loss, and disruption to established routines. A HLE can therefore be viewed as a multidimensional concept that brings together physical environmental conditions and psychosocial well-being (Neria et al., 2020).

Community Support, Social Resilience, and Recovery Capacity

Community support is an important part of post-disaster recovery, particularly during the period when affected households are adjusting to temporary living arrangements. Assistance

from neighbours, family members, religious institutions, volunteers, and humanitarian organisations can help meet immediate needs through the provision of temporary shelter, food, clothing, financial assistance, and emotional support. These social networks may also contribute to psychological recovery by maintaining a sense of belonging, reducing isolation, and helping families cope with uncertainty and disruption.

However, community support alone cannot ensure a sustainable recovery. The transition from temporary accommodation to permanent housing is also shaped by structural factors such as land ownership, access to financial resources, government assistance, institutional coordination, and the availability of skilled contractors. These challenges can be particularly pronounced in rural communities, where limited financial resources and difficulties related to land tenure may delay reconstruction even when strong community networks are present.

Post-disaster recovery should therefore be understood as a shared process involving affected households, local communities, government agencies, and other supporting organisations. While community networks can provide important immediate and emotional support, effective recovery also requires institutional and material assistance that enables households to regain stable, safe, and healthy living conditions.

Development of the Healthy Living Environment (HLE) Framework

Drawing on the WHO's healthy housing literature, environmental health research, and studies on post-disaster recovery, this research adopts a HLE framework to examine the experiences of rural fire victims during the temporary recovery period. The framework recognises that recovery involves more than the provision of basic shelter. The quality of the living environment can also influence occupants' physical health, safety, comfort, and psychosocial well-being, particularly when households are living away from their original homes.

As illustrated in Figure 1, the HLE framework consists of four interrelated dimensions: ventilation and thermal comfort, sanitation and water, safety and security, and privacy and well-being. Ventilation and thermal comfort relate to adequate air circulation, acceptable indoor temperatures, and overall environmental comfort, all of which are important for maintaining a healthy and comfortable indoor environment. Sanitation and water encompass access to safe drinking water, hygienic sanitation facilities, and appropriate waste management, which help to minimise environmental health risks. Safety and security focus on protection from physical hazards and the extent to which temporary accommodation provides a secure environment, particularly for children, older persons, and other vulnerable household members. Privacy and well-being extend the framework beyond physical conditions by considering family privacy, emotional security, and psychological comfort, which may become especially important when households experience displacement and disruption to their normal routines.

Taken together, these four dimensions provide a broader understanding of what constitutes a HLE during post-disaster recovery. The framework recognises that the quality of temporary accommodation is shaped not only by physical and environmental conditions but also by the extent to which the living environment supports occupants' sense of safety, privacy, comfort, and well-being (Nasir et al., 2023).

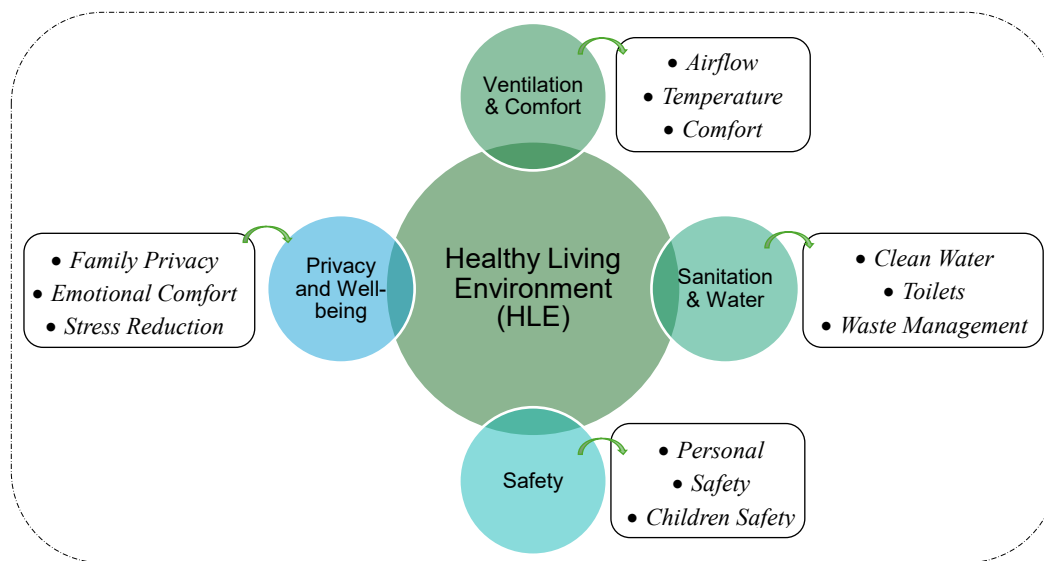


Figure 1. Conceptual Framework of Healthy Living Environment for Rural Post-Fire Recovery

Source: (Developed by the Authors Based on the Study Findings and Supporting Literature)

Methodology

A qualitative approach was used to deeply understand participants' perceptions, experiences, and recovery needs in their everyday lives. A case study design was appropriate because it allowed the study to look at the complex relationship between temporary housing conditions, community support, and recovery experiences after a rural residential fire. This approach also helped explore the experiences of affected households within the specific social and environmental context of their recovery.

Participants and Sampling

Six participants took part in the qualitative case study. The sample was considered appropriate for the exploratory and context-specific nature of the research, which focused on gaining detailed accounts of lived experiences during the early post-disaster recovery period. Data were collected approximately three weeks after the fire, when many affected households were dispersed across different locations and were still dealing with immediate housing, family, and personal needs. These circumstances also presented practical challenges in accessing potential participants.

Purposive sampling was used to identify participants who could provide direct and relevant accounts of the recovery experience. Participants were included if they (i) had experienced the loss of their home as a direct result of the fire, (ii) were living in temporary accommodation at the time of the study, and (iii) were willing to discuss their experiences of the post-disaster recovery process. Participants varied in terms of household roles, age, and gender, providing different perspectives on temporary living conditions, assistance received, and recovery needs. Given the sensitive circumstances surrounding the fieldwork, participation was entirely voluntary, with emphasis placed on the relevance and depth of participants' accounts rather than on achieving a large sample. The findings are consequently presented as context-specific

insights into the experiences of households affected by the Kampung Gok Kapur fire and are not intended to represent the experiences of all rural fire-affected households.

Data Collection and Analysis

Data collection was undertaken 11 days after the fire incident during the early post-disaster recovery phase, when affected households were still residing in temporary accommodation. A qualitative case study approach was adopted, with semi-structured interviews serving as the primary data collection method. Six participants aged approximately 35–80 years, took part in the study, comprising four women and two men. All participants were married and represented multi-generational households, including children, children-in-law, and grandchildren. Interviews were conducted at locations selected by the participants to ensure comfort, privacy, and contextual relevance.

Each interview lasted approximately 10 to 20 minutes and focused on participants lived experiences following the disaster, including changes in living conditions, perceived challenges in temporary accommodation, and recovery priorities. Open-ended questions were used to allow participants to freely articulate their experiences, particularly regarding housing conditions and perceived requirements for an HLE during displacement.

To complement the interview data, non-participant observations were conducted at selected temporary accommodation settings, including a mosque, prayer hall, and private residences of relatives. An observation checklist was used to document key HLE indicators, including ventilation, sanitation, access to clean water, safety, privacy, and general environmental conditions. The observations provided additional information on the physical characteristics of the temporary accommodation and allowed comparisons across different types of living arrangements.

Documentary sources were also reviewed to provide contextual information and support data triangulation. These sources included official records and situation reports from the Fire and Rescue Department of Malaysia, the Social Welfare Department (JKM), relevant local authority documents, and records of assistance provided by non-governmental organisations and community groups. Bringing together interviews, observations, and documentary evidence provided a broader understanding of the recovery context and strengthened the interpretation of the findings.

All interviews were audio-recorded with participants' consent and subsequently transcribed for analysis. The data were analysed thematically following the six-phase approach proposed by Braun and Clarke, involving familiarisation with the data, generation of initial codes, development of themes, review of themes, definition and naming of themes, and final interpretation. Coding was conducted manually and iteratively, allowing recurring patterns and meanings to emerge from participants' accounts. Where interpretation differed among the researchers, the themes were discussed and refined to reach consensus. This process helped ensure that the findings remained closely grounded in the participants' experiences while maintaining consistency throughout the analysis.

The trustworthiness of the study was considered using the criteria of credibility, transferability, dependability, and confirmability. Credibility was strengthened through triangulation across interviews, observations, and documentary sources. Transferability was supported by

providing a detailed description of the case context and participants' living circumstances. Dependability was addressed through maintaining a clear and consistent record of the data collection and analytical procedures. Confirmability was supported through reflective consideration of the researchers' interpretations and efforts to minimise the influence of personal assumptions on the findings.

Findings

The thematic analysis found seven connected themes that represent the experiences of rural fire-affected households in Kampung Gok Kapur during the early recovery period after the disaster. These themes align with the study's goals and show how physical displacement, environmental conditions, and psychosocial experiences influence perceptions of housing and living conditions in temporary accommodation.

Sudden Displacement and Total Housing Loss

Participants described the fire as a sudden event that destroyed both homes and personal belongings. Most households reported they were away from home during the incident due to work and school routines, which is common in rural B40 communities.

P1 stated:

"When we returned from work, the house was already destroyed. Everything was gone."

P3 added:

"At that time, no one was at home. When we came back, our house was already burning."

Observation confirmed that most dwellings were timber houses arranged in proximity, which contributed to rapid fire spread and destruction within a short time.

Rural Settlement Pattern and Rapid-Fire Spread

The physical layout of the kampung was recognized as a key factor affecting the severity of the disaster. Houses were made of timber and had minimal distance between them, reflecting the traditional rural settlement patterns in Kelantan.

P2 explained:

"The houses were built very close together, so the fire spread very quickly."

Field observations confirmed narrow access routes and dense housing clusters, which limited fire engine accessibility and delayed emergency response. This highlights the vulnerability of traditional rural housing morphology to fire hazards.

Disruption of Family Structure and Daily Rural Livelihoods

The disaster disrupted daily life, especially for families with school-aged children and working adults. Participants reported losing educational materials, everyday necessities, and household structure.

P4 stated:

"All the children were at school, and all their books, laptops, and clothing were burned. We are grateful that no lives were lost and all family members were safe."

This disruption reflects the dependence of rural households on material stability to maintain daily family and livelihood routines.

Temporary Accommodation and Living Environment Conditions

Following displacement, families were moved to mosques, prayer halls, and relatives' homes. Living conditions differed based on space availability, privacy, and ventilation.

P5 described:

"We stayed in the mosque with many other people. It was difficult to have our own space, especially for sleeping and bathing."

Observations indicated overcrowding, limited sleeping arrangements, and reduced privacy in communal shelters. These conditions directly influenced participants' perception of comfort, dignity, and environmental adequacy. Participants associated a "Healthy Living Environment" with adequate ventilation, sufficient space, and privacy, indicating early formation of HLE perceptions during displacement.

Water, Sanitation, and Hygiene

Participants generally reported that access to clean water was adequate in their temporary accommodation. However, using shared sanitation and bathing facilities, especially in mosque-based shelters, posed challenges regarding privacy and personal comfort.

P6 stated:

"The water supply was not a problem, but there was very little privacy, especially for my daughters when using the shared bathroom facilities."

Field observations similarly showed that displaced households relied on shared toilets and bathing areas, with limited separation between families. Although these facilities met basic hygiene needs, the lack of privacy reduced occupants' sense of comfort and dignity, particularly among women and adolescent girls. These findings suggest that the provision of clean water alone is insufficient; temporary accommodation should also ensure adequate sanitation facilities that safeguard privacy and support the well-being of displaced families.

Emotional Distress, Uncertainty, and Recovery Stress

Participants faced emotional distress, uncertainty, and anxiety about future housing reconstruction. Shock and helplessness were widespread during the early recovery phase.

P2 explained:

“I feel empty and do not know where to start. The house was built on rented land, and the landowner no longer allows us to rebuild. We also must follow government conditions. The house has been there for more than 200 years, passed down from our ancestors.”

Emotional responses were also observed during interviews, including long pauses and visible distress. Despite strong community support, uncertainty regarding land ownership and reconstruction timelines contributed to prolonged psychological stress.

Community Support and Barriers to Recovery

Participants recognized significant support from neighbors, religious institutions, and government agencies like JKM. This help included food aid, clothing, temporary shelter, and financial assistance.

P1 stated:

“The government, the Sultan, and the public provided substantial assistance in the form of household items such as refrigerators, washing machines, food supplies, kitchen essentials, and clothing.”

However, documentary records and participant accounts indicated that long-term recovery was constrained by financial limitations, land tenure issues, and delays in housing reconstruction.

Healthy Living Environment (HLE) Recovery Model

Based on the synthesis of all themes, the study proposes a context-specific HLE Recovery Model for rural temporary housing in post-fire settings. The model is derived from empirical evidence gathered from participants lived experiences, supported by field observations and documentary analysis. It highlights four core dimensions essential to shaping healthy, safe, and dignified temporary living environments during post-disaster recovery in rural Malaysia (Li et al., 2023). The proposed model is presented in Table 1.

Table 1. Proposed Healthy Living Environment (HLE) Recovery Model for Rural Temporary Housing

Dimension	Spatial and Environmental Requirements
Ventilation & Spatial Comfort	• Cross-ventilation through operable openings • Use of fans or passive airflow strategies • Adequate thermal comfort in humid tropical climate • Defined sleeping zones for families • Avoidance of overcrowded shared sleeping arrangements • Basic spatial separation between households where possible

Water, Sanitation & Hygiene	• Accessible clean water supply (piped or tanked) • Functional toilets with visual privacy; designated bathing areas • Segregation of male, female, and family usage in shared facilities • Child-friendly access; proper waste disposal and hygiene management systems
Safety & Environmental Security	• Adequate night lighting • Secure sleeping areas with controlled access • Safe flooring and structural conditions; child-safe environment free from hazards (Exposed wiring, slippery surfaces) • Clear separation between private resting zones and public circulation areas • Reliance on both physical design and social surveillance in communal settings
Privacy & Psychosocial Well-being	• Visual and acoustic privacy between households • Designated quiet zones for rest and emotional recovery • Spatial boundaries for family dignity • Reduction of overcrowding stress • Provision of calm environments supporting psychological recovery, particularly for children and traumatised occupants

Source: (Developed by the Authors Based on the Study Findings and Supporting Literature)

Discussion

Displacement and Housing Uncertainty

The findings show that displacement after the fire led to physical relocation and extended uncertainty about permanent housing reconstruction. Many households moved to mosques, surau, and relatives' homes, highlighting the lack of formal temporary housing options in rural disaster responses. This aligns with disaster recovery literature, which emphasizes that informal displacement arrangements often dominate early recovery phases in low-resource rural settings, where institutional temporary housing is limited (Laurito, Frankenberg, & Thomas, 2022). However, the present study extends this understanding by showing that uncertainty is further intensified by unclear land ownership structures. In Kampung Gok Kapur, several participants reported living on inherited or rented land without formal documentation, creating barriers to reconstruction approval and long-term recovery. This suggests that housing recovery is not solely a physical process but is deeply embedded within legal and tenure systems, particularly in rural Malaysia.

Healthy Living Conditions In Temporary Accommodation

Participants consistently identified ventilation, sanitation, space, safety, and privacy as key elements of healthy living during displacement. These findings agree with the WHO (2018), which emphasises the importance of indoor environmental quality in affecting physical and mental health outcomes. However, this study adds contextual depth by demonstrating that in rural Malaysian settings, these elements are not only environmental requirements but also social and cultural necessities. Privacy, for instance, was not only about physical separation but also about dignity, particularly for women and children living in shared communal spaces

such as mosques and prayer halls. This supports the humanitarian shelter literature, which argues that habitability and dignity are as important as the provision of physical shelter in post-disaster contexts (Sphere Association, 2018).

Psychological and social impacts of Displacement

The emotional distress reported by participants shows the strong psychosocial effects of sudden housing loss. Feelings of shock, helplessness, and anxiety were common, especially during the early recovery period when future housing options were unclear.

This finding is consistent with disaster psychology research, which highlights that uncertainty and loss of control are key drivers of post-disaster stress (Yore et al., 2025; Gkoumas et al., 2025). Importantly, the present study demonstrates that psychosocial well-being is closely linked to environmental conditions in temporary accommodation. Overcrowding, lack of privacy, and unstable living arrangements exacerbated emotional distress, suggesting that housing quality directly influences psychological recovery.

Community support from neighbors, religious institutions, and government agencies provided immediate emotional relief, reinforcing the role of social capital in disaster resilience. However, such support did not resolve structural uncertainties related to permanent housing reconstruction.

Recovery Priorities and Structural Barriers

Although participants acknowledged the importance of immediate relief assistance such as food, clothing, and basic household items, the most critical unmet need was permanent housing reconstruction. This reflects a common pattern in the post-disaster recovery literature, in which short-term humanitarian aid is often more readily available than long-term housing solutions (Arslan & Cosgun, 2021). A key structural barrier identified in this study is land tenure insecurity. Participants living on rented or inherited land faced difficulties in rebuilding due to ownership disputes or regulatory restrictions. This finding is particularly significant in the Malaysian rural context, where customary land arrangements and informal inheritance practices remain prevalent.

This highlights that effective post-disaster recovery requires not only financial assistance but also clear land governance mechanisms to enable sustainable housing reconstruction.

Rural Spatial Planning and Fire Vulnerability

The study further reveals that the severity of the fire was strongly influenced by the morphology of rural settlements. The predominance of closely spaced timber houses, combined with narrow access routes, significantly contributed to the rapid spread of fire and limited emergency response capacity.

This finding aligns with disaster risk reduction literature, which emphasizes that settlement density and building materials are critical determinants of fire vulnerability (Roosli & O’Keefe, 2013). However, the present study extends this argument by demonstrating how traditional rural housing patterns in Kelantan, while culturally and socially significant, may inadvertently increase disaster risk. The inability of fire engines to access the settlement further highlights

the importance of integrating disaster risk considerations into rural spatial planning, particularly in informal or semi-formal village developments.

Early Post-Disaster Perception Formation

An important methodological finding of this study is that participants struggled to articulate detailed housing preferences during the early recovery phase. Instead, responses were primarily focused on immediate survival needs rather than long-term spatial or design considerations. This suggests that post-disaster research conducted in the first few weeks may capture only transitional perceptions, shaped by shock, uncertainty, and survival priorities. As such, housing preference studies conducted too early in the recovery process may underestimate longer-term expectations and aspirations. This insight contributes to disaster research methodology by highlighting the temporal dimension of perception formation in post-disaster environments.

Towards a Contextual Understanding of HLE

Overall, the findings demonstrate that HLE in rural post-disaster contexts is a multidimensional construct shaped by environmental, social, legal, and psychological factors. While global frameworks such as WHO guidelines provide essential benchmarks, this study shows that their application must be contextualized within the realities of rural Malaysia, including timber housing typologies, land tenure complexities, and community-based living arrangements.

Accordingly, HLE should be understood not only as a physical housing standard but as a dynamic recovery condition shaped by spatial planning, governance structures, and psychosocial well-being.

Conclusion

The findings show that recovery goes beyond just rebuilding homes. It includes environmental quality, space adequacy, and mental well-being. Participants consistently pointed out that ventilation, sanitation, safety, privacy, and emotional comfort are essential parts of a HLE during the recovery period. From a theoretical standpoint, this study adds to the post-disaster housing literature by placing the HLE concept within rural Malaysian areas affected by fires.

It broadens existing approaches to environmental health and disaster recovery by showing that HLE depend on shelter quality, land ownership, community layout, and social support systems. Methodologically, the study uses a qualitative case study design that combines semi-structured interviews, field observations, and document analysis in an early post-disaster setting.

This approach offers valuable insights into how affected families view their living conditions during the initial recovery phase. It also points out the challenges of understanding long-term housing preferences at such an early stage of displacement. Practically, the findings stress the need for disaster recovery plans to evolve from emergency relief to more cohesive housing and spatial planning strategies. In rural areas, temporary housing should focus on clear land ownership and efficient rebuilding processes.

Limitations and Future Research

This study is limited by its small sample size and its focus on a single rural fire event in Kelantan, which may constrain the transferability of findings to other contexts. Future research should expand comparative analyses across multiple rural fire-affected communities, as well as other disaster types such as floods. Further studies are also recommended to evaluate the application of HLE-based frameworks in temporary shelter design and to examine how recovery needs evolve over time through longitudinal and mixed-method approaches. Overall, the study underscores the importance of integrating environmental, spatial, and psychosocial dimensions into rural post-disaster recovery planning to support more holistic and sustainable housing outcomes.

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