

A Conceptual Framework of Safety Features for Elderly Cohousing Development Based on Maqasid Shari'ah Principles

Fitriyah Razali^{1*}, Wan Ibrisam Fikry Wan Ismail², Dzurlkanian Daud³, Noorsidi Aizuddin Mat Noor⁴, Nurul Syakima Mohd Yusoff⁵, Fatin Afiqah Md Azmi⁶, Muhamad Safwan Ishak⁷

¹ Center for Real Estate Studies, Institute for Smart Infrastructure and Innovative Construction (ISIIC), Universiti Teknologi Malaysia, fitriyahrazali@utm.my

² Mass Appraisal, Housing and Planning Research Group, Real Estate Department, Faculty of Built Environment and Surveying, Universiti Teknologi Malaysia, waniibrisam@utm.my

³ Mass Appraisal, Housing and Planning Research Group, Real Estate Department, Faculty of Built Environment and Surveying, Universiti Teknologi Malaysia, dzurll@utm.my

⁴ Center for Real Estate Studies, Institute for Smart Infrastructure and Innovative Construction (ISIIC), Universiti Teknologi Malaysia, noorsidi@utm.my

⁵ Mass Appraisal, Housing and Planning Research Group, Real Estate Department, Faculty of Built Environment and Surveying, Universiti Teknologi Malaysia, nurulsyakima@utm.my

⁶ Center for Real Estate Studies, Institute for Smart Infrastructure and Innovative Construction (ISIIC), Universiti Teknologi Malaysia, fatinafiqah.mdazmi@utm.my

⁷ Faculty of Built Environment and Regenerative Design, Raffles University, Malaysia, muhamadsafwan@raffles-university.edu.my

Corresponding author email: fitriyahrazali@utm.my

Abstract

The rapid growth of the ageing population has increased the demand for housing environments that support the safety, well-being, and independence of older adults. Elderly individuals are more vulnerable to physical impairments, mobility limitations, accidents, and social isolation, highlighting the need for housing developments that address their unique physical, psychological, social, and spiritual needs. This paper proposes a conceptual framework of safety features for elderly cohousing development based on Maqasid Shari'ah principles. Through a comprehensive review and synthesis of literature on elderly cohousing, housing safety features, and Maqasid Shari'ah, the study identifies key safety features essential for elderly-friendly living environments, including fire safety systems, home accessibility modifications, toilet safety features, stair design, adequate lighting, non-slip flooring, gerontology-based design, emergency communication systems, smart home technologies, and green spaces. The findings suggest that these safety features contribute significantly to enhancing elderly well-being by promoting safety, independence, active

ageing, and community engagement. Furthermore, the study demonstrates that the identified safety features align with the five objectives of Maqasid Shari'ah, namely the preservation of life (Hifz al-Nafs), intellect (Hifz al-Aql), wealth (Hifz al-Mal), lineage (Hifz al-Nasl), and religion (Hifz al-Din). Based on the synthesis of the literature, a conceptual framework is developed to illustrate the relationship between elderly cohousing development, safety features, elderly well-being, and Maqasid Shari'ah objectives. The proposed framework contributes to the theoretical advancement of elderly housing studies by integrating environmental gerontology, cohousing principles, and Islamic perspectives on human welfare. Practically, it provides guidance for policymakers, housing developers, architects, and facility managers in designing age-friendly and Shari'ah-compliant housing environments that support sustainable and inclusive communities for the ageing population.

Keywords Elderly, Public Policy, Well-being, Cohousing, Sustainable Development, Built Environment

Introduction

The global population is facing the common situation of an ageing society; this demographic shift highlights the need for innovative housing design and safety features. The unique needs of the elderly include a safe living space, safety features and communal living styles (Geboy et al., 2013). The physical condition of the elderly should be taken into consideration when designing living spaces. They are more prone to sight impairment and a high risk of falling, which might result in a fatal accident (Weil, 2017).

The design of housing should promote the health, safety, and well-being of residents. The design and features of housing are imperative for the longevity of an elderly society. This study aligns with United Nations Sustainable Development Goals (SDGs), particularly Goal 3 (Good Health and Well-being) and Goal 11 (Sustainable Cities and Communities). The UN aims for the well-being of the elderly, which promotes longevity and an active aging society (Kalache & Gatti, 2002).

Many countries, including Malaysia, are facing the demographic shift towards an ageing society. By 2030, Malaysia will become an ageing society, where the proportion of individuals aged 65 and above is steadily increasing. The elderly population requires community support. It is imperative that a community center be established where senior citizens can interact and stay active (Radhi and Arumugam, 2019). Given the need for the elderly to stay active and healthy, the concept of cohousing for the elderly is beneficial and suitable for their housing development.

The physical condition of the elderly significantly impacts their daily lives; they are more prone to sight impairment and vulnerable to accidents and injuries. Falling is a leading cause

of mortality among the elderly (Erkal, 2010). Incorporating safety features in the housing design is compulsory to ensure their safety. The safety features should include non-slip flooring, grab bars, adequate lighting, and a robust emergency response system to facilitate the day-to-day lives of the elderly (Geboy et al., 2013).

In addition to the physical safety features of the house, it is crucial to mention the intrinsic value of the elderly who live in the communal house. The cohousing development must take into account the principles of Maqasid Shari'ah for the governance and operation of the housing area. The principles of Maqasid Shari'ah include the preservation of life, intellect, wealth, lineage, and religion. Integrating the principles of Maqasid Shari'ah into the design and operation of elderly cohousing ensures that the development provides a safe environment together with the spiritual support and social well-being of the residents.

This study aims to integrate the key safety features in elderly cohousing developments guided by the principles of Maqasid Shari'ah. This study identifies the significant safety features for the design of the elderly cohousing. In addition, the principles of Maqasid Shari'ah are embedded within the development process from the planning, construction, and usage of the house. The development of the Maqasid Shari'ah-compliant cohousing for the elderly aims to provide a holistic environment which includes the physical and spiritual needs of its residents.

Safety Features for Elderly

The elderly often face challenges in proceeding with their day-to-day activities when facing physical impairments. It is essential to incorporate safety precautions like smoke alarms, emergency numbers, and sturdy locks for the housing for the elderly (Kirby, 1992). Following disaster safety planning, the location, fire resistance, and evacuation characteristics are important when planning the design of the housing (Qu et al., 2019). A study by Zhang (2006) found that the availability of fire safety features was lacking, especially for the elderly who live alone. Meanwhile, Shields (2013) further emphasised the vital elements of preventive safety measures such as working smoke alarms and carbon monoxide detectors. A study in Malaysia by Rosnah et al. (2008) outlines the safety features that need to be considered when designing and developing housing for the elderly.

Table 1 presents the literature review for the imperative safety features for elderly housing development. The nine identified features include the fire safety design, accessible features, toilet safety, stairs, lighting, floor surface, gerontology design, emergency telephone, smart home features and green spaces.

Table 1. Safety features for elderly

No.	Safety Features for Elderly	Citation
1.	Fire safety design (smoke detectors, emergency exits)	Qu et al. (2019) Shields (2013) Zhang (2006) Kirby (1992) Lerner (1991)
2.	Home safety and accessible features	Azmi et al. (2021) Eriksen et al. (2015) Van Hoof et al. (2011) Rosenberg et al. (2013)
3.	Toilet safety (handrails, emergency buttons, seated toilet)	Azmi et al. (2021) Pilissy et al. (2017) Rosnah et al. (2008)
4.	Design of stairs	Rosnah et al. (2008) Startzell et al. (2000)
5.	Adequate lighting	Aziz et al. (2024) Rosenberg et al. (2013) Erkal (2010) Rosnah et al. (2008)
6.	Floor surfaces (non-slip)	Erkal (2010) Rosnah et al. (2008)
7.	Gerontological design	Rosenberg et al. (2013) Rosnah et al. (2008)
8.	Emergency telephone	Kirby (1992) Hussain et al. (2015)
9.	Smart home features	Perez et al. (2023) Zhang et al. (2023) Hussain et al. (2015) Demiris and Hensel (2008)
10.	Green spaces	Aziz et al. (2024) Ali et al. (2022) Artmann et al. (2017)

Table 1 provided various safety features for elderly housing and relevant citations that supported the significance of the safety features. A well-designed environment that addresses

the safety needs of the elderly is important to enhance their safety and well-being. This section further discusses the safety features of elderly housing.

Fire Design Safety

Fire safety features are important in any type of housing as part of essential housing safety features. However, to take into account the capabilities of the elderly, the design of fire safety should rigorously consider the physical capabilities of the elderly. The fire safety features for elderly housing include the installation of smoke detectors, accessible emergency exits, and a safe staircase design that aims to prevent any fire-related accidents and fatalities (Qu et al., 2019).

Home safety and accessible features

Home safety and accessible features include the general design of the housing, which should take into consideration the accessibility and safety of the elderly. In order to enhance the quality of life and independence of the elderly, the housing design should be safe and accessible with home modifications like ramps and handrails. The elderly might encounter some difficulties with mobility issues, sensory impairments, and cognitive abilities. The housing design that takes into consideration safety and accessible features necessitates the difficulties of the elderly performing their daily activities (Abd Rahman et al., 2022).

Toilet safety

Toilets are the most high-risk area for elderly people (Eriksen et al., 2015). Toilet safety should address the need to prevent falls and ensure elderly safety. The key safety features include the installation of handrails and grab bars in the toilet and shower areas. The safety features in the toilet provide essential stability and support to help the elderly maintain their balance. Next, the installation of emergency buttons is critical, as they serve the function as a quick emergency call for the elderly in case of falling or other types of medical emergencies. The types of toilet design should be seated toilets that consider elderly mobility issues and ensure the elderly can use the toilet independently. Pilissy et al. (2017) and Rosnah et al. (2008) highlight the importance of toilet design to reduce the risk of gallstones and injuries among the elderly. These toilet safety adaptations contribute to the significant attributes of independence and quality of life for the elderly.

Design of stairs

To ensure the safety and accessibility of elderly the design of stairs is a critical element. Stairs could lead to falls and accidents, therefore the design should prevent the possibility for accidents to happen (Startzell et al., 2000). To prevent tripping, the stair design should have uniform riser heights and tread depths. The design should include sturdy handrails on both sides of the staircase. To take into account the mobility issue of elderly, the stairs design should provide support for elderly to maintain balance while ascending and descending (Rosnah et al., 2008, Startzell et al., 2000).

Adequate lighting

The high-risk area such as staircase, hallway and toilet should be installed with adequate lighting. Adequate lighting is a critical safety feature to reduce the risks of falling among elderly. As people age their might have a problem with their sight and visual acuity (Weil, 2017). Under the Indoor Environmental Quality (IEQ) is the lighting factor, which encompasses natural lighting and adequate artificial light that should improve the occupant's performance and well-being (Aziz et al., 2024). Adequate lighting is important, especially at the high-risk area such as staircases to reduce the shadows and improve visibility.

Floor surface

A housing design with non-slip surfaces aims to reduce the risk of slipping for elderly. Toilet floor surface was commonly found to be hazardous as it will increase the risk of falling (Clemson et al., 1997). The surfaces of the floor should be easy to maintain and clean to prevent any dust or debris that could lead to falling. The selection of flooring materials should consider the elderly comfort with the application of non-slip flooring material. Erkal (2010) discuss the effect of floor design to reduce the risk of falling among elderly. Moreover, for the floor design of the stair adding tactile warning strips at the top and bottom of the stairs would avoid any risk of misstep.

Gerontology design

The understanding of autonomy and security of elderly is linked closely with the gerontology design of housing for elderly (Geboy et al., 2013). Gerontology concept is divided into several theories which are general, biomedical, biopsychosocial, psychological, cognitive, life-course perspective and social construction theory (Weil, 2017). Gerontology design covers all the aspect of elderly living and specific needs. The consideration for the design covers the safety, accessibility, comfort and promotes independence among elderly. While correlation with cohousing principles the elderly psychological and emotional well-being is being taken care of with the sense of belonging within the community (Geboy et al., 2013). By integrating the cohousing concept with gerontology design, it will address the critical needs of the elderly for safety and contributes to their overall well-being and independence living.

Emergency telephone

The placing of emergency telephone or emergency button in high-risk area such as toilet and bedroom would enhance the safety features of the elderly housing. This is a crucial element of the elderly housing for a quick response of medical assistance (Hussain et al., 2015). The characteristics of emergency telephone are large buttons, clear displays and simple operating mechanism. Moreover, some emergency contact should be pre-programmed with the emergency telephone to ease the elderly usage. The related emergency contacts are the family members, caregivers and emergency services.

Smart Home features

The integration of smart home features with elderly housing would enhance safety, convenience and independence among elderly (Zhou et al., 2024). Smart home is the home automation which added to the comfort, ease and the quality of living for the residents (Huda et al., 2024). Such advanced technologies linked with smart home features are voice assistants, sensors and automatic control systems. The smart home features provided the smart care services for elderly by monitoring and observing elderly physical well-being (Gassert and Dietz, 2018, Juarez et al., 2015). The assistance of smart home features with the elderly housing is significance to ensure their safety and independence living.

Green spaces

Green spaces have increasingly been recognised as an essential component of elderly-friendly housing developments due to their significant contribution to physical health, psychological well-being, and social engagement. Aziz et al. (2024) highlighted that the integration of green spaces within elderly housing developments promotes sustainability, safety, and inclusivity while encouraging greater interaction with the surrounding environment. Accessible gardens, landscaped walkways, parks, and communal outdoor areas provide opportunities for elderly residents to engage in recreational activities, light exercise, and social interaction, all of which contribute to active ageing. The presence of green spaces has also been associated with increased physical activity levels, reduced sedentary behaviour, and improved mobility among older adults, thereby supporting their overall health and independence (Ali et al., 2022). Furthermore, outdoor communal environments encourage social participation and strengthen neighbourhood cohesion, which are important factors in reducing loneliness and social isolation among the elderly (Artmann et al., 2017).

Beyond their physical benefits, green spaces play a crucial role in supporting the psychological and emotional well-being of elderly residents. Exposure to natural environments has been shown to reduce stress, anxiety, and depression while enhancing mood, cognitive functioning, and overall life satisfaction (Ali et al., 2022). Artmann et al. (2017) found that green areas within elderly care facilities contribute to a sense of relaxation, comfort, and connection with nature, which are particularly important for maintaining mental well-being in later life.

Cohousing Development

The suitable housing design for elderly should get in tune with the needs of the elderly such as physical, social and psychological well-being and the medical needs of the elderly. A small single-story house is the most suitable design for elderly as it provides easy accommodation for elderly (Polatoglu and Ergenoglu, 2012). Single-story construction does away with the necessity for stairs, which poses a serious risk of falls for the elderly (Thompson, 1994). The

primary goal of elderly housing is to provide independence living and promotes active aging among elderly. The cohousing elements is found to be suitable to enhance the community and sense of belonging among elderly (Razali et al., 2023).

About fifty years ago, cohousing was initially developed in Denmark. Since then, cohousing developments have begun to spread throughout Northern Europe, America, and other nations (Williams, 2008). The group of people who decided to live as a community and construct the residential area collectively is recognized as the essence of cohousing (Belk, 2006). The small- to medium-sized communities, with 20–40 houses each, are designed to reconcile inhabitants' right to privacy and independence with the needs of a strong community (Williams, 2008).

According to McCamant and Durrett (2011), cohousing preserves the typical neighborhood features that primarily promote community activity. Cohousing concepts represent the old way of living for current challenges, as seen by the parallels between cohousing and classic village concepts. Residents of cohousing are more interested in gardening and sharing expertise since they have access to the park and gardening space. In addition to exchanging knowledge, residents can borrow from one another and share resources. According to McCamant and Durrett (2011), one of the cohousing tenants described how the cohousing concept encourages the inhabitants to be kind to others, listen to others, and respect other people's opinions. The activities of the greater community are very beneficial to the elderly. It's simpler for them to interact and seek assistance.

It was found that there are four aspects of safety at home: social, emotional and mental, physical, and cognitive. There were both positive and negative aspects to safety dimensions. The greatest desire of the elderly was to be allowed to remain in their own homes for as long as possible (Thompson, 1994). Their views of home safety were divided into four categories: controlled living, active living, coping at home, and awareness of illness (Kivimäki et al., 2020). The integration of Maqasid Shari'ah with elderly cohousing allows the Islamic elements to guide the governance factor of the cohousing.

Maqasid Syariah Compliance

The preservation of faith, life, intellect, progeny, and wealth are among the overall objectives and goals of Islamic law that are encompassed under the idea of Maqasid Shari'ah. Islamic teachings place a strong emphasis on treating the elderly with respect and care, but in the context of housing and community development, these ideals must be translated into workable solutions that meet their unique requirements of elderly. The integration of Maqasid Shari'ah principles into the planning and design of senior cohousing complexes will help to create inclusive and sustainable communities that are tailored to the specific demands of Muslim elderly.

The incorporation of Maqasid Shari'ah principles into the creation of senior cohousing is consistent with the idea of Islamic gerontology, which stresses the dignity and well-being of persons in an Islamic context. This strategy goes beyond simply providing accommodation for the elderly; instead, it provides an environment that encourages active engagement, social integration, and a sense of purpose by taking into account the physical, social, psychological, and spiritual aspects of their residents.

The application of Maqasid Shari'ah should be taken into consideration in the cohousing development to promote the compatibility of cohousing. The Islamic concept known as Islamic Shari'ah seeks to improve human welfare and harmony. The demands of *daruriyyah* (human necessities), *hajiyyah* (needs to ease human life), and *tahsiniyyah* (complementary objectives that contribute to a better life) are the three fundamental components of Maqasid Shari'ah. The Maqasid Shari'ah further explain the three basic human necessities to five vital elements: property (*al-mal*), intelligence (*al-aql*), descendants (*an-nasl*), religion (*ad-din*), and life (*an-nafs*) (JAKIM, 2015). Referring to a study by Razali et al., 2023, the relationship between the five components of Maqasid Shari'ah and the three human needs is illustrated in Figure 1.

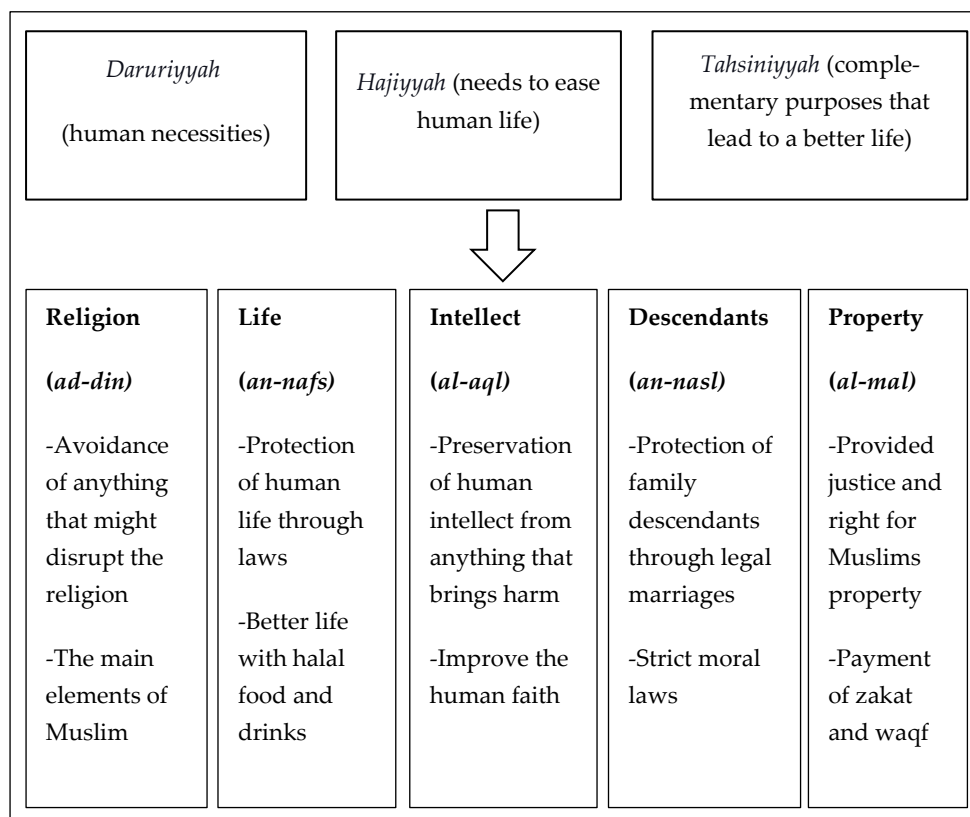


Figure 1 Maqasid Shari'ah Elements (Razali et al., 2023)

The five fundamental components of Maqasid Shari'ah are vital to the construction and administration of cohousing to create a better environment for senior Muslims. Because it is crucial to the better future of Muslims, the protection of their religion, life, intellect, offspring, and property is seen as their human rights (JAKIM, 2015). The creation of cohousing addressed a large portion of the social and physical demands of the community by promoting active ageing among the elderly. Moreover, Maqasid Shari'ah application improves the elderly's spiritual and religious needs.

This study shows the incorporation and the significance of the safety elements into senior cohousing with the guidance of Maqasid Shari'ah. The important safety elements for the senior cohousing design were stated in this study. Furthermore, Maqasid Shari'ah is correlated in the planning, building, and use of the dwelling, all of which are the development phases. This study suggests a Maqasid Shari'ah-compliant senior cohousing development with the goal of offering a comprehensive environment that takes into account the physical, spiritual and psychological well-being of elderly.

Linking Safety Features with Maqasid Shari'ah Principles

The growing emphasis on elderly-friendly housing reflects a broader recognition that ageing populations require environments that support not only physical safety but also psychological, social, and spiritual well-being. While previous studies have extensively examined elderly cohousing and housing safety features, most have approached these concepts from a predominantly physical and functional perspective (Azmi et al., 2021; Abd Rahman et al., 2022; Aziz et al., 2024). Similarly, studies on Maqasid Shari'ah have largely focused on Islamic governance, finance, healthcare, and social welfare, with limited application to elderly housing development (Razali et al., 2023). Consequently, there remains a significant gap in integrating safety-oriented housing design with the holistic objectives of Maqasid Shari'ah. This paper highlighted that the principles of Maqasid Shari'ah provide a comprehensive framework for understanding how safety features in elderly cohousing developments contribute to human well-being beyond the prevention of physical harm.

The primary objective of Maqasid Shari'ah is the promotion of human welfare (maslahah) and the prevention of harm (mafsadah) through the preservation of religion (Hifz al-Din), life (Hifz al-Nafs), intellect (Hifz al-Aql), lineage (Hifz al-Nasl), and wealth (Hifz al-Mal) (Razali et al., 2023). These principles provide a multidimensional perspective that aligns closely with contemporary concepts of sustainable and age-friendly housing. Unlike conventional housing frameworks that often focus solely on accessibility and safety, Maqasid Shari'ah extends the discussion to include spiritual fulfilment, social cohesion, dignity, and quality of life. Therefore, integrating Maqasid Shari'ah into elderly cohousing developments offers a more holistic approach to addressing the needs of ageing populations.

Among the five objectives, Hifz al-Nafs (Preservation of Life) demonstrates the strongest relationship with housing safety features. Numerous studies have identified falls, fire incidents, mobility limitations, and delayed emergency response as the most significant risks faced by elderly individuals (Erkal, 2010; Clemson et al., 1997; Kivimäki et al., 2020). Safety features such as smoke detectors, emergency exits, grab bars, ramps, handrails, non-slip flooring, adequate lighting, and emergency communication systems are therefore essential in reducing the likelihood of accidents and injuries (Qu et al., 2019; Zhang et al., 2006; Shields et al., 2013; Rosnah et al., 2008). Home accessibility modifications have been found to improve safety and support independent living among older adults, particularly those experiencing mobility limitations (Azmi et al., 2021; Abd Rahman et al., 2022). From the perspective of Maqasid Shari'ah, these features directly contribute to the protection of life by creating a safer living environment and minimizing exposure to preventable hazards. In elderly cohousing developments, the preservation of life is further enhanced through communal support systems, where neighbours can provide assistance during emergencies and monitor the well-being of vulnerable residents (McCamant & Durrett, 2011; Williams, 2008).

Beyond physical protection, several safety features also contribute to Hifz al-Aql (Preservation of Intellect). Contemporary gerontology research has increasingly highlighted the relationship between housing environments and cognitive health among older adults (Geboy et al., 2013; Weil, 2017). Gerontology-based design principles emphasise environments that support autonomy, dignity, and psychological well-being while reducing stress and confusion among elderly residents (Wang, 2016; Polatoglu & Ergenoglu, 2012). Smart home technologies, age-friendly design, and green spaces have also been shown to enhance independence and mental well-being (Van Hoof et al., 2011; Perez et al., 2023; Zhou et al., 2024).

Green spaces, in particular, encourage physical activity, social interaction, and mental restoration, all of which contribute positively to cognitive functioning and emotional well-being among older adults (Artmann et al., 2017; Ali et al., 2022; Aziz et al., 2024). Furthermore, smart home technologies that monitor health conditions, detect falls, and provide medication reminders support elderly individuals in maintaining cognitive autonomy and independent living (Demiris & Hensel, 2008; Hussain et al., 2015; Juarez et al., 2015; Huda et al., 2024). Such findings demonstrate that safety features contribute not only to physical protection but also to the preservation of intellect through the enhancement of mental and emotional well-being.

The relationship between safety features and Hifz al-Mal (Preservation of Wealth) is often overlooked in the housing literature. Existing studies tend to focus primarily on safety outcomes while neglecting the economic benefits of preventive design measures. However, accessible housing modifications, fall prevention strategies, and emergency response systems can significantly reduce healthcare expenditures associated with injuries, hospitalisation, and long-term care (Kivimäki et al., 2020; Azmi et al., 2021). Fire safety systems and smart home

technologies also protect housing assets and reduce the potential economic losses arising from accidents or property damage (Qu et al., 2019; Huda et al., 2024). From the perspective of Maqasid Shari'ah, preserving wealth extends beyond financial protection to include the efficient utilisation of resources and the avoidance of unnecessary economic burdens. Consequently, investments in elderly safety features should be viewed as long-term strategies that contribute to economic sustainability and quality of life.

The contribution of elderly cohousing developments to Hifz al-Nasl (Preservation of Lineage) emerges primarily through social support and community engagement. One of the most significant challenges faced by ageing populations is social isolation, which is associated with poorer health outcomes, reduced quality of life, and increased mortality risks (WHO, 2002). Cohousing developments address this challenge by creating environments that facilitate social interaction, mutual support, and collective activities among residents (McCamant & Durrett, 2011; Williams, 2008). Research has demonstrated that community-based living arrangements enhance the sense of belonging, encourage active ageing, and strengthen social networks among elderly residents (Geboy et al., 2013; Razali et al., 2023). Shared facilities such as community halls, gardens, and recreational spaces further promote social cohesion and intergenerational engagement, thereby supporting the broader objectives of preserving family and community relationships.

The application of Hifz al-Din (Preservation of Religion) represents one of the most distinctive contributions of Maqasid Shari'ah to elderly housing development. While conventional age-friendly housing frameworks emphasise physical and social dimensions, they rarely address spiritual well-being. For elderly Muslims, spiritual fulfilment forms an integral component of quality of life and successful ageing (Razali et al., 2023). The design and management of cohousing communities can therefore support religious practices through the provision of prayer facilities, communal worship activities, religious education, and environments that encourage ethical behaviour and social responsibility. Furthermore, safe and accessible housing environments enable elderly individuals to perform religious obligations independently and with dignity. In this context, housing development becomes more than a physical infrastructure project; it serves as a platform for preserving religious identity and spiritual well-being throughout the ageing process.

Overall, the findings of this paper suggests that safety features in elderly cohousing developments contribute not only to accident prevention but also to broader dimensions of human welfare embodied within Maqasid Shari'ah. By integrating physical safety measures with social support systems, cognitive well-being strategies, economic sustainability considerations, and spiritual fulfilment opportunities, elderly cohousing developments can provide a holistic model of ageing-in-place. Such an approach supports the achievement of SDG 3 (Good Health and Well-being) through enhanced health and quality of life, while simultaneously contributing to SDG 11 (Sustainable Cities and Communities) by promoting

inclusive, safe, resilient, and age-friendly living environments (WHO, 2002; Aziz et al., 2024). The findings therefore provide a strong theoretical foundation for the development of a Maqasid Shari’ah-based conceptual framework for elderly cohousing developments.

Conceptual Framework Development

Based on the findings of literature on elderly cohousing, housing safety features, and Maqasid Shari’ah principles, a conceptual framework is proposed to illustrate the relationship between the physical environment of elderly cohousing developments and the holistic well-being of elderly residents. The framework was developed in response to the fragmented nature of existing studies, where safety features are often discussed independently from cohousing principles and Islamic perspectives on human welfare. Although previous studies have highlighted the importance of age-friendly housing, active ageing, and community-based living, limited attention has been given to integrating these elements within a Maqasid Shari’ah framework. Therefore, the proposed conceptual framework seeks to bridge this gap by providing a comprehensive model that links elderly housing safety features with the broader objectives of Islamic well-being.

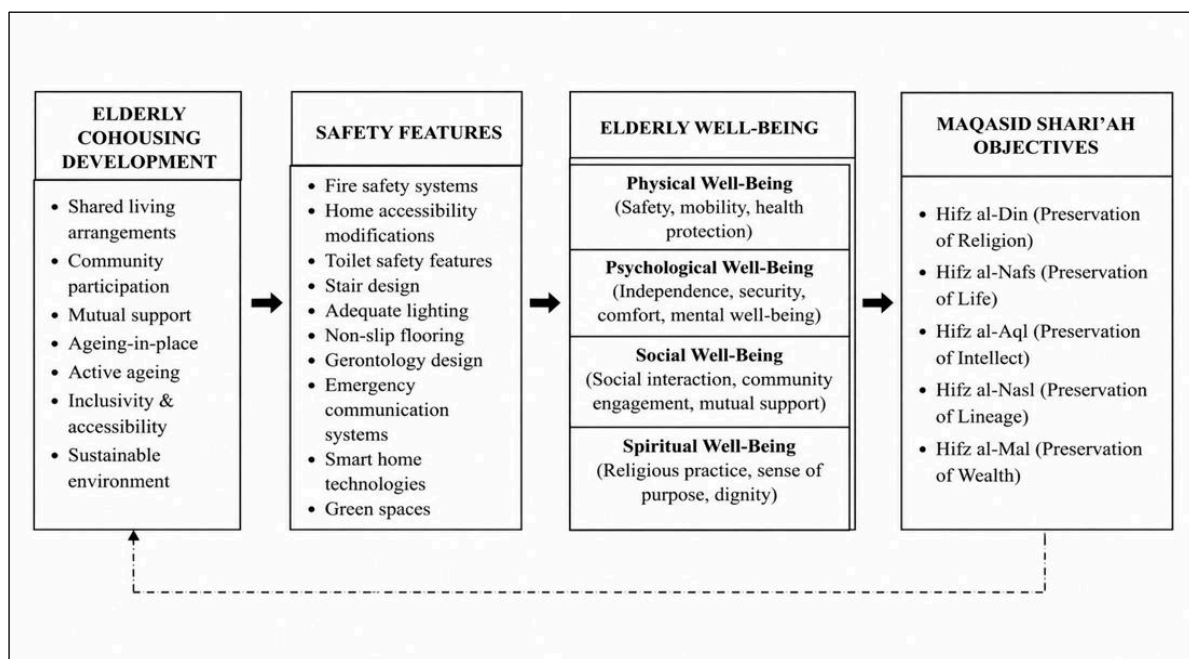


Figure 3 Conceptual Framework of Safety Features for Elderly Cohousing Development Based on Maqasid Shari'ah Principles

Figure 2 indicates that elderly cohousing developments provide a supportive living environment that promotes active ageing, social participation, independence, and community engagement (McCamant & Durrett, 2011; Williams, 2008; Razali et al., 2023). Unlike conventional housing developments, cohousing emphasises communal living, mutual support, and shared facilities, which are particularly beneficial for older adults who may face

social isolation and declining physical abilities. Within this context, safety features become a critical component in ensuring that elderly residents can continue living independently while maintaining a high quality of life. This paper identified ten key safety features commonly discussed in the literature: fire safety systems, home accessibility modifications, toilet safety features, stair design, adequate lighting, non-slip flooring, gerontology-based design, emergency communication systems, smart home technologies, and green spaces.

These safety features collectively contribute to elderly well-being through four interconnected dimensions: physical well-being, psychological well-being, social well-being, and spiritual well-being. Physical well-being is enhanced through accident prevention, mobility support, and health protection measures. Features such as smoke detectors, emergency exits, handrails, ramps, non-slip flooring, and emergency communication systems reduce the risk of injuries and improve the safety of elderly residents (Qu et al., 2019; Abd Rahman et al., 2022; Kivimäki et al., 2020). Psychological well-being is supported through gerontology-based design, smart home technologies, and green spaces that promote independence, reduce anxiety, and improve cognitive functioning (Geboy et al., 2013; Wang, 2016; Ali et al., 2022). Social well-being is strengthened through communal spaces, accessible outdoor environments, and cohousing activities that encourage social interaction, mutual support, and community participation. Finally, spiritual well-being is enhanced by providing an environment that supports religious practices, ethical living, and social responsibility, which are central to the Islamic perspective of successful ageing.

The proposed framework further suggests that these dimensions of well-being collectively contribute to the achievement of the five objectives of Maqasid Shari'ah. The preservation of life (Hifz al-Nafs) is achieved through safety measures that minimise risks and protect elderly residents from harm. The preservation of intellect (Hifz al-Aql) is supported through environments that encourage mental stimulation, emotional stability, and cognitive health. The preservation of wealth (Hifz al-Mal) is promoted through preventive safety measures that reduce healthcare costs, property damage, and long-term care expenses. The preservation of lineage (Hifz al-Nasl) is reflected in the social support networks and community relationships fostered within cohousing developments. Finally, the preservation of religion (Hifz al-Din) is facilitated through the provision of environments that support religious obligations and spiritual well-being.

The framework also demonstrates the alignment between elderly cohousing developments and the Sustainable Development Goals (SDGs), particularly SDG 3 (Good Health and Well-being) and SDG 11 (Sustainable Cities and Communities). By integrating safety features and Maqasid Shari'ah principles, elderly cohousing developments can contribute to healthier ageing populations, improved quality of life, and more inclusive urban communities. This holistic approach extends beyond conventional housing design by recognising that elderly well-being encompasses physical, psychological, social, and spiritual dimensions.

From a theoretical perspective, the proposed framework contributes to the growing body of knowledge on elderly housing by integrating environmental gerontology, cohousing theory, and Maqasid Shari'ah principles into a single conceptual model. It expands the application of Maqasid Shari'ah beyond its traditional domains and demonstrates its relevance in the context of housing and ageing studies. From a practical perspective, the framework provides guidance for policymakers, housing developers, architects, facility managers, and elderly care providers in designing age-friendly and Shari'ah-compliant housing environments. The framework may also serve as a foundation for future empirical research aimed at validating the relationships between safety features, elderly well-being, and Maqasid Shari'ah objectives through qualitative or quantitative approaches.

Accordingly, the conceptual framework proposes that elderly cohousing developments provide the contextual foundation for the implementation of safety features, which subsequently enhance physical, psychological, social, and spiritual well-being among elderly residents. These dimensions of well-being ultimately contribute to the fulfilment of the five objectives of Maqasid Shari'ah, thereby creating a holistic and sustainable model of elderly housing development.

Conclusion

This study highlights the critical role of safety features in enhancing the well-being, independence, and quality of life of elderly residents within cohousing developments. As Malaysia progresses towards an ageing society, the provision of age-friendly housing environments has become increasingly important to address the physical, cognitive, and social challenges faced by older adults. The findings indicate that key safety features, including fire safety systems, accessible home modifications, toilet safety provisions, adequate lighting, non-slip flooring, gerontology-based design, emergency communication systems, and smart home technologies, are essential in reducing risks, promoting mobility, and supporting independent living. From the perspective of Maqasid Shari'ah, these safety features contribute not only to the preservation of life (Hifz al-Nafs) but also to the preservation of intellect, wealth, lineage, and religion by fostering a safe, supportive, and dignified living environment. Therefore, integrating safety features with Maqasid Shari'ah principles provides a holistic framework for elderly cohousing development that addresses the physical, psychological, social, and spiritual needs of ageing populations. Such an approach supports sustainable and inclusive communities in line with SDG 3 (Good Health and Well-being) and SDG 11 (Sustainable Cities and Communities), while offering practical guidance for policymakers, housing developers, and facility managers in creating age-friendly and Shari'ah-compliant housing environments for future generations.

Acknowledgement

The authors would like to express their sincere appreciation to the Ministry of Education Malaysia (MOE) for the financial support provided through the Fundamental Research Grant Scheme (FRGS) (No: FRGS/1/2024/SS06/UTM/02/7), which has significantly contributed to the completion of this study. The authors also acknowledge the support of the Centre for Real Estate Studies (UTM CRES), Faculty of Built Environment and Surveying, and Universiti Teknologi Malaysia (UTM) for providing the research environment, facilities, and academic resources necessary for conducting this research. The authors would further like to extend their gratitude to the editors and anonymous reviewers for their valuable comments, constructive suggestions, and insightful feedback, which have greatly enhanced the quality, clarity, and scholarly contribution of this paper.

References

- Abd Rahman, S. H. B., Ab Hamid, N. A., Nor, M. F. M., Salam, N. Z. M. A., & Khan, M. B. N. (2022). Designing an Elderly Friendly Housing: The Relationship Between Architectural Design and The Safety of Elderly Residents. *RES MILITARIS*, 12(4), 1310-1317.
- Ali, M. J., Rahaman, M., & Hossain, S. I. (2022). Urban green spaces for elderly human health: A planning model for healthy city living. *Land Use Policy*, 114, 105970.
- Artmann, M., Chen, X., Iojă, C., Hof, A., Onose, D., Ponizy, L., ... & Breuste, J. (2017). The role of urban green spaces in care facilities for elderly people across European cities. *Urban forestry & urban greening*, 27, 203-213.
- Aziz, N. A., Ahmad, Y., Mustapha, S. Z., Othman, N. A. F., Mazlan, A. B. M., & Ayob, N. A. (2024). Identifying issues in green sustainable housing for older people: A systematic literature review (SLR). *International Journal for Studies on Children, Women, Elderly and Disabled*, 20, 112-123.
- Azmi, A., Aning, P., Abd Aziz, W. N. A. W., Juhari, N. H., Khair, N., Khan, P. A. M., & Sivanathan, S. (2021). Assessing the Strata Housing Attributes for Elderly to Age in Place in Klang Valley. *PLANNING MALAYSIA*, 19.
- Clemson, L., Roland, M., & Cumming, R. G. (1997). Types of hazards in the homes of elderly people. *The Occupational Therapy Journal of Research*, 17(3), 200-213.
- Demiris, G., & Hensel, B. K. (2008). Technologies for an aging society: a systematic review of "smart home" applications. *Yearbook of medical informatics*, 17(01), 33-40.

Erkal, S. (2010). Home safety, safe behaviors of elderly people, and fall accidents at home. *Educational Gerontology*, 36(12), 1051-1064.

Gassert, R., & Dietz, V. (2018). Rehabilitation robots for the treatment of sensorimotor deficits: a neurophysiological perspective. *Journal of neuroengineering and rehabilitation*, 15, 1-15.

Geboy, L., Moore, K. D., & Smith, E. K. (2013). Environmental gerontology for the future: Community-based living for the third age. In *Environmental Gerontology* (pp. 47-64). Routledge.

Huda, N. U., Ahmed, I., Adnan, M., Ali, M., & Naeem, F. (2024). Experts and intelligent systems for smart homes' Transformation to Sustainable Smart Cities: A comprehensive review. *Expert Systems with Applications*, 238, 122380.

Hussain, A., Wenbi, R., Da Silva, A. L., Nadher, M., & Mudhish, M. (2015). Health and emergency-care platform for the elderly and disabled people in the Smart City. *Journal of Systems and Software*, 110, 253-263.

Juarez, J. M., Ochotorena, J. M., Campos, M., & Combi, C. (2015). Spatiotemporal data visualisation for homecare monitoring of elderly people. *Artificial intelligence in medicine*, 65(2), 97-111.

Kirby, S. D. (1991). *Safe, comfortable housing for the elderly*. Oklahoma Cooperative Extension Service.

Kivimäki, T., Stolt, M., Charalambous, A., & Suhonen, R. (2020). Safety of older people at home: An integrative literature review. *International Journal of Older People Nursing*, 15(1), e12285.

McCamant, K., & Durrett, C. (2011). *Creating cohousing: Building sustainable communities*. New Society Publishers.

Perez, A. J., Siddiqui, F., Zeadally, S., & Lane, D. (2023). A review of IoT systems to enable independence for the elderly and disabled individuals. *internet of Things*, 21, 100653.

Pilissy, T., Tóth, A., Fazekas, G., Sobjak, A., Rosenthal, R., Lüftenegger, T., ... & Mayer, P. (2017, July). Towards a situation-and-user-aware multi-modal motorized toilet system to assist older adults with disabilities: A user requirements study. In *2017 International Conference on Rehabilitation Robotics (ICORR)* (pp. 959-964). IEEE.

Polatoglu, C., & Ergenoglu, A. S. (2012). Design for the Elderly: Housing and Re-arrangements—Case Studies in Istanbul. *David Publishing Company www.davidpublishing.org*, 1589.

Qu, L., Wang, Y., & Cao, Y. (2019, February). Fire safety in high-rise buildings under elderly housing. In *IOP Conference Series: Earth and Environmental Science* (Vol. 238, No. 1, p. 012055). IOP Publishing.

Razali, F., Ismail, W. I. F. W., Daud, D., Mohd, N. F. A., Razif, N. A. M. N., Maimun, N. H. A., & Azmi, F. A. M. (2023). Maqasid Shari'ah for Elderly Cohousing Development in Malaysia. *International Journal of Law, Government and Communication*. 8 (33), 33-46.

Razali, F., Ismail, W. I. F. W., Daud, D., Razif, N. F. A. M., Noor, N. A. M., Maimun, N. H. A., & Azmi, F. A. M. (2023, January) The Elements of Active Aging for Elderly Cohousing Development in Malaysia. Paper presented at the 29th Annual PRRES Conference in Sydney Australia.

Rosenberg, D. E., Huang, D. L., Simonovich, S. D., & Belza, B. (2013). Outdoor built environment barriers and facilitators to activity among midlife and older adults with mobility disabilities. *The Gerontologist*, 53(2), 268-279.

Rosnah, M., Norazizan, S. S., Aizan, H. T., & Rizal, H. M. (2008). Home living environment design and perceptions of safety of older Malaysians. *Gerontechnology*, 168(218), 43-45.

Shields, W. C., Perry, E. C., Szanton, S. L., Andrews, M. R., Stepnitz, R. L., McDonald, E. M., & Gielen, A. C. (2013). Knowledge and injury prevention practices in homes of older adults. *Geriatric Nursing*, 34(1), 19-24.

Startzell, J. K., Owens, D. A., Mulfinger, L. M., & Cavanagh, P. R. (2000). Stair negotiation in older people: a review. *Journal of the American Geriatrics Society*, 48(5), 567-580.

Startzell, J. K., Owens, D. A., Mulfinger, L. M., & Cavanagh, P. R. (2000). Stair negotiation in older people: a review. *Journal of the American Geriatrics Society*, 48(5), 567-580.

Thompson, I. (1994). Woldenberg Village: an illustration of supportive design for older adults. *Experimental aging research*, 20(3), 239-244.

Van Hoof, J., Kort, H. S., Rutten, P. G., & Duijnste, M. S. H. (2011). Ageing-in-place with the use of ambient intelligence technology: Perspectives of older users. *International journal of medical informatics*, 80(5), 310-331.

Wang, Q. (2016). Emotional Architecture for Everyday Life. Architectural Design for Senior Living Oriented by the Psychological Pattern of Elderly People.

Weil, J. (2017). *Research design in aging and social gerontology: Quantitative, qualitative, and mixed methods*. Routledge.

Williams, J. (2008). Predicting an American future for cohousing. *Futures*, 40(3), 268-286.

World Health Organization. Active ageing: A policy framework. World Health Organization; 2002.

Zhang, G., Lee, A. H., Lee, H. C., & Clinton, M. (2006). Fire safety among the elderly in Western Australia. *Fire Safety Journal*, 41(1), 57-61.

Zhou, C., Qian, Y., & Kaner, J. (2024). A study on smart home use intention of elderly consumers based on technology acceptance models. *Plos one*, 19(3), e0300574.