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Omaraki: Dementia therapy facilities in Malang with a therapeutic architecture approach

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A B S T R A K

Demensia merupakan tantangan kesehatan global, dengan lebih dari 50 juta kasus di seluruh dunia pada tahun 2020, dan diperkirakan meningkat menjadi 152 juta pada tahun 2050. Di Indonesia, kasus demensia mengalami peningkatan tajam, diperkirakan akan tiga kali lipat pada tahun 2050. Kota Malang, dengan populasi lanjut usia yang signifikan, mendesak untuk memiliki fasilitas terapi demensia. Penelitian ini mengusulkan OMARAKI, pendekatan arsitektur terapeutik untuk merancang fasilitas terapi demensia di Kota Malang. OMARAKI mengintegrasikan elemen pasif seperti pengaturan yang akrab dan terapi aktif seperti latihan kognitif dan aktivitas seni. Dengan mengoptimalkan pencahayaan, kualitas udara, dan ruang hijau, OMARAKI bertujuan untuk meningkatkan kesejahteraan pasien, mengurangi gejala kecemasan dan depresi, serta mendorong keterlibatan sosial. Inisiatif ini tidak hanya mengatasi kebutuhan perawatan kesehatan yang mendesak tetapi juga mendukung solusi berkelanjutan untuk perawatan demensia di Indonesia, dengan menekankan dukungan holistik untuk pasien dan keluarga.

A B S T R A C T

Dementia poses a global health challenge, with over 50 million cases worldwide in 2020, projected to reach 152 million by 2050. In Indonesia, dementia cases are rising sharply, expected to triple by 2050. Malang City, with a significant elderly population, urgently needs dementia therapy facilities. This study proposes OMARAKI, a therapeutic architecture approach to designing dementia therapy facilities in Malang City. OMARAKI integrates passive elements like familiar settings and active therapies such as cognitive exercises and artistic activities. By optimizing lighting, air quality, and green spaces, OMARAKI aims to enhance patient well-being, reduce symptoms of anxiety and depression, and promote social engagement. This initiative not only addresses immediate healthcare needs but also supports sustainable dementia care solutions in Indonesia, emphasizing holistic support for patients and families.

Introduction

Dementia poses a significant global health challenge, especially with the increasing elderly population. According to data from the World Health Organization (WHO), in 2020, there were estimated to be over 50 million people worldwide living with dementia, projected to increase to 152 million by 2050. In Indonesia, dementia prevalence is also rising sharply. According to Alzheimer's Disease International (ADI), the number of

dementia patients in Indonesia reached around 1.2 million in 2020 and is expected to triple by 2050.

Malang City, as one of Indonesia's major cities, has a significant elderly population. Data from the Central Statistics Agency (BPS) of Malang City shows that in 2020, the population aged 60 and above accounted for more than 10% of the total population. With such a high number of elderly residents, the need for facilities capable of accommodating dementia therapy becomes urgent.

In this context, the therapeutic architecture approach offers a relevant solution to create environments that support the physical and mental well-being of dementia patients. Therapeutic architecture in the design of dementia therapy facilities can significantly contribute to the physical and mental well-being of patients. Therapeutic architecture is a design concept that emphasizes creating environments conducive to healing and health. Key aspects include optimal natural lighting, good air circulation, the use of calming colors, and the presence of green open spaces that facilitate social interaction and have a calming effect (Day et al, 2000).

Research has shown that environments designed with therapeutic architecture principles can provide various benefits for dementia patients. For example, studies by Marquardt, Bueter, and Motzek (2014) found that appropriate environmental design can improve the quality of life for dementia patients, reduce symptoms of anxiety and depression, and improve their cognitive function. Additionally, research by Zeisel et al. (2003) indicated that supportive environmental design can reduce aggressive behavior and enhance social participation among dementia patients.

In Indonesia, the implementation of therapeutic architecture is still relatively new and not widely applied in the design of healthcare facilities, including dementia therapy facilities. Therefore, it is crucial to adopt this approach in the design of dementia therapy facilities in Malang City. With this approach, it is hoped that facilities can be created that not only meet the physical needs of patients but also support their mental and emotional well-being. The importance of applying therapeutic architecture becomes even more relevant given the additional challenges faced by dementia patients and their families. For instance, access to adequate healthcare services often poses a barrier, especially for families with economic limitations. In this context, dementia therapy facilities designed with therapeutic architecture can be an effective and sustainable solution. Thus, this study aims to design dementia therapy facilities in Malang City using a therapeutic architecture approach, expected to positively contribute to improving the quality of life for dementia patients and supporting efforts in dementia prevention and management in Indonesia.

The method used in this design is qualitative. The research process involves direct observation of the existing site to deeply understand its physical conditions and environmental characteristics. Additionally, climate data analysis is conducted to consider weather factors that may influence the design. This approach also includes user analysis aimed at understanding their needs and activities, which serves as the basis for designing dementia therapy facilities in line with therapeutic architecture principles. In the final stage, concept formulation and design are undertaken as the main foundation

for developing a holistic and comprehensive design, ensuring that all essential aspects are considered to create an environment that supports user recovery and well-being. This concept formulation stage also functions to address existing issues based on a therapeutic approach, thereby providing effective and relevant solutions.

Site Data

Figure 1.1 Site Location

Figure 1. Satellite Site Location

Sources : Google Earth

Location	: Jl. Karang Ampel, Karangwidoro, Dau District, Malang Regency, East Java 6515.
Land area	: 11,220.47 m2
GSB (Building Area Ratio)	: 2
GSS (Site Coverage Ratio)	: 10
KDB (Floor Area Ratio)	: 40-60% of total land area
KDH (Open Space Ratio)	: 20-30% of total land area

Disscussion

Spatial Programming

This dementia therapy facility includes various essential elements such as a Communal Building, serving as a center for social activities and interaction, and a Lodge for the Elderly, providing comfortable and secure accommodation for the elderly. Health Facilities are integrated to provide comprehensive healthcare, while the Therapy Art and Creative Building offer spaces for residents to express themselves through art and creative activities. The Lodge for Visitors is designed to accommodate family members and guests visiting residents, reinforcing crucial social support for them. Additionally, the Farm and Communal Garden provide opportunities for residents to engage in soothing and beneficial gardening activities, and the Sensory Garden is specially designed to stimulate senses, helping to reduce stress and enhance residents' quality of life.

Function and Users Analysis

Figure 2.1 Function Diagram

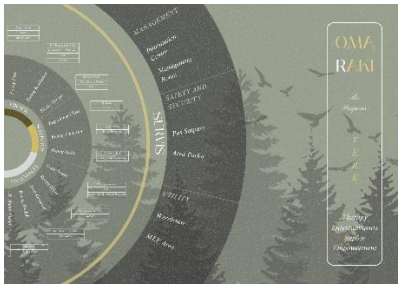

Figure 1. Function Diagram, Primary, Secondary, Support, and Service

Sources : Personal Archive

The diagram above explains and categorizes the functions of each object based on primary, secondary, support, and service function categories. This division of functions ensures that each building element effectively fulfills its role within the overall design. Primary functions encompass the main spaces that are the primary focus of activities, such as the Communal Building, Lodge For Elderly, and Therapy Rooms. Secondary functions include additional facilities that support the primary functions, such as Exhibition Rooms and Inspiration Classrooms. Support functions include elements that aid in smooth operational flow, such as the Farm and Communal Garden, and the Sensory Garden. Service functions encompass areas that support technical needs and services, such as storage areas and utility facilities. This functional division is then reviewed and applied to the spatial massing layout based on space function requirements, ensuring a holistic and efficient design that supports user activities and well-being.

Figure 2.2 User Diagram

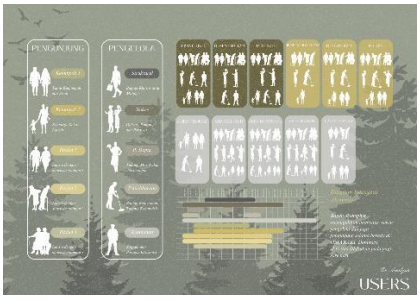

Figure 2. Analysis Of User Activites

Sources : Personal Archive

These facilities are then reanalyzed based on user needs to ensure that building planning pays closer attention to functional, comfort, and safety aspects. Facilities frequently used by the elderly receive special treatment, such as minimizing the number of stairs or elevations to reduce tripping risks. Materials used tend to have rough textures to avoid slippery surfaces, and considerations are made for ramps and comfortable flooring within the building. This approach aims to create an elderly-friendly

environment, providing ease of accessibility, and enhancing safety and comfort for its residents.

Site Analysis and Zoning Area

Figure 2.3 Site Analysis Diagram

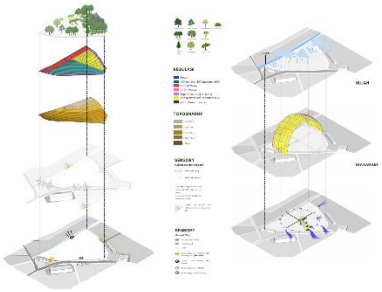

Figure 3. Site Eksisting and Climate Diagram

Sources : Personal Archive

Based on the existing climate conditions, the building is oriented towards the east and south to avoid direct sunlight. This orientation aims to minimize direct exposure to the sun. Additionally, to respond to the wind, the building massing is designed with a complex form that includes dynamic curves to channel and capture airflow effectively. Moreover, to accommodate the tropical climate in Malang, the roof is designed with a gable roof shape, which is better suited for distributing heat and managing rainwater runoff.

Figure 2.4 Zoning Area

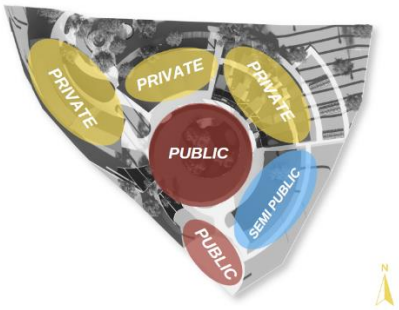

Figure 4. Bubble Zoning Area

Sources : Personal Archive

In the front area, there are public spaces such as parking areas and communal areas. Placing these public areas in the front aims to create an open impression for everyone and avoid a closed-off appearance. Meanwhile, private areas such as accommodations for the elderly and visitors are situated in the rear area surrounded by abundant tall vegetation. This placement aims to create a comfortable and holistic environment for the users.

Design Concept

Dementia patients, including those with Alzheimer's disease, often experience cognitive decline and physical impairment that affect their quality of life. This condition necessitates an environment that is not only safe and comfortable but also designed to stimulate and maintain their cognitive abilities. In the design of this dementia therapy facility, the concept aims to create a holistic environment that supports the mental and physical well-being of its residents. Through in-depth analysis of user needs and observation of existing conditions, the name OMARAKI was born, derived from "Omah Meraki," which means "home to feel love and compassion." OMARAKI integrates therapeutic architecture principles with a holistic approach to create an environment that supports the well-being of its residents both mentally and physically. OMARAKI's tagline is T & E, which stands for Therapy and Empowerment, Repose, and Enlightenment. The therapy concept is supported by passive design elements such as familiarity, uniqueness, and a connection with nature. The Empowerment concept is realized through active therapy involving meaningful activities such as cognitive exercises, light exercise, and artistic activities.

Design Results

Massing

Figure 2.5 Siteplan and Layout

Figure 5. Siteplan and Layout

Sources : Personal Archive

The site layout is designed prioritizing accessibility and comfort parameters. Therefore, the chosen arrangement is centralized and linear with minimal branching paths. Parking areas are located outside near the road, as access inside the site is primarily by foot. In the center of the site stands the communal building, strategically placed for ease of access and readability for users, as it accommodates various activities. Its central placement also facilitates monitoring of the surroundings and ensures the safety of the elderly.

On the far right, health facilities are positioned, directly connected to the parking area and road for emergency access, especially for ambulances. At an elevated contour area, accommodation for visitors is situated. This consideration optimizes land use and acknowledges that non-elderly users can engage in moderately strenuous activities. Adjacent to the accommodation, there's an art and therapy area designed to train

cognitive abilities of the elderly and provide recreational facilities for visiting family members. This placement ensures easy access for both the elderly and their families.

Accommodations for the elderly are positioned at the top of the site to provide tranquility, comfort, and scenic views of the surrounding nature. At the back, where the contour interval is steep, a sensory garden area is created to train cognitive abilities of the elderly. The sensory garden area is connected via bridges to vegetable and fruit gardens. This sequence of activities is designed to stimulate cognitive responses in dementia patients and make them more active. Moreover, using bridges for access conserves land, avoiding extensive land engineering in that area.

Theraphy

Figure 2.6 Façade Front Area

Figure 6. Familiarity in Exterior

Sources : Personal Archive

Figure 2.7 Interior

Figure 7. Familiarity in Interior

Sources : Personal Archive

The therapy concept in this design focuses on passive therapy applied through elements of familiarity in the design. Familiarity is achieved through the selection of colors and materials that provide comfort and a sense of familiarity to dementia patients. In this design, the main materials used are wood, combined with concrete. This combination is chosen because these materials are commonly encountered in daily life, creating a familiar environment for dementia patients.

The use of wood and concrete not only enhances the aesthetic design but also serves as therapeutic elements. Wood, with its natural texture and color, provides warmth and comfort, while concrete offers a sense of solidity and stability. The combination of both creates harmony that can help elderly individuals feel calmer and more secure. In addition to materials, the selection of color palettes also plays a crucial role in this design. Natural colors such as leaf green, wood brown, and sky blue are

chosen for their calming effects. These colors blend with the surrounding environment and have positive psychological impacts that can alleviate stress and anxiety. Dementia patients often experience anxiety and confusion, so a calm and familiar environment can help reduce these symptoms.

This design is entirely focused on providing therapy for dementia patients. By integrating familiar and soothing elements, it aims to create an environment that supports their emotional and psychological well-being. Passive therapy through this design is expected to improve the quality of life for the elderly, providing them with a sense of security, comfort, and tranquility in their daily lives.

Empowerment

The concept of empowerment is integrated into various therapy facilities aimed at supporting the empowerment of the elderly to train their memory and cognitive nerves. In OMARAKI, one of the cognitive therapy facilities is the Sensory Garden. The Sensory Garden is specifically designed to stimulate visitors' senses through various sensory elements.

Figure 2.8 Sensory Garden

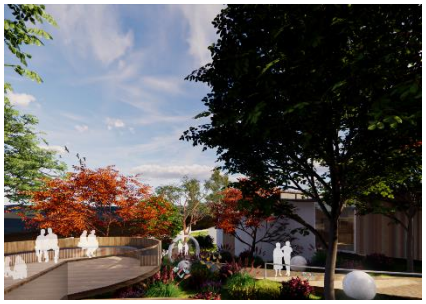

Figure 8. Perspective View Of Sensory Garden

Sources : Personal Archive

Figure 2.9 Sensory Garden

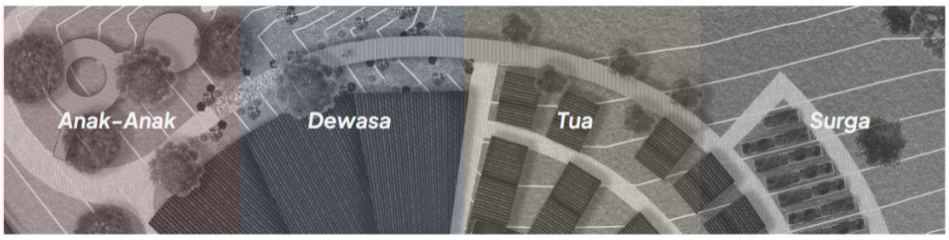

Figure 9. Zoning Area Sensory Garden

Sources : Personal Archive

In the sensory garden, there are 4 distinct areas designed for children, adults, the elderly, and paradise. The children's area aims to train auditory senses, reflecting the significance of childhood where hearing is the first sense to develop. Softscape features include bird-attracting trees, complemented by interactive wind chimes. The adult zone serves to enhance visual, tactile, and olfactory senses, resembling the diverse stimuli experienced in youth. The ground surface uses sand and rough-textured stones to

stimulate tactile senses in the elderly. This area symbolizes the relaxed life in old age, serving as a reward after life's challenges. Edible vegetation like citrus plants, basil, and leafy greens are used in this zone. The paradise zone symbolizes the paradise of the elderly's dreams, where they yearn to feel empowered once more. This area features a vegetable farm garden aimed at helping the elderly channel their stress.

Figure 2.10 Sensory Garden

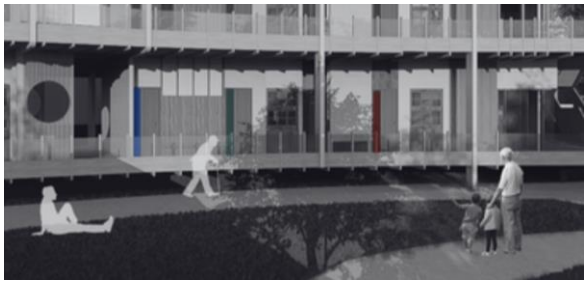

Figure 10. Perspective View Of Sensory Garden

Sources : Personal Archive

In addition, another form of empowerment is memory empowerment for the elderly. One crucial aspect is the implementation of wayfinding concepts, which extends beyond exterior elements like signs and clear paths, but is also specifically applied within the lodge building for the elderly. For instance, using different colored doors for each room not only enhances aesthetics but also serves as vital markers to aid the elderly in memory training. Inside, using different types of flooring for each space not only creates visual diversity but also helps the elderly understand and remember their locations more easily. By considering readability and wayfinding factors, this design can assist elderly dementia patients in memory training.

Conclusion

OMARAKI's design: a dementia therapy facility in Malang City adopts a therapeutic architecture approach aimed at creating a holistic environment that is not only safe and comfortable but also stimulates and maintains cognitive abilities, as well as the mental and physical well-being of its residents. This approach emphasizes two key concepts: Therapy and Empowerment. The Therapy concept involves passive therapy applied through design considerations such as familiarity, uniqueness, and interaction with nature. On the other hand, the Empowerment concept focuses more on active therapy involving meaningful activities like cognitive exercises, light physical exercises, and art.

OMARAKI aims to provide a comprehensive solution to the challenges of dementia care by balancing the physical and psychological needs of its residents. Through this facility's design, the goal is to raise awareness about the importance of dementia care and address these issues through a solution-oriented and innovative architectural approach.

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