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Identifying and Enhancing the Manageability Component of Salutogenic Architecture in the Psychiatric Ward of Bali Provincial Mental Hospital to Improve Patient Recovery

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ABSTRACT

This study explores the application of Salutogenic Architecture in the Bisma Ward of Bali Provincial Mental Hospital, focusing on its impact on patient recovery. Using a mixed-methods approach, the research evaluates the ward based on the Sense of Coherence (SOC) framework, which consists of Manageability, Comprehensibility, and Meaningfulness. The study aims to identify architectural features that either support or hinder a Salutogenic approach in psychiatric hospital design. Findings reveal that Manageability scored the lowest, with seven out of eleven criteria failing to meet the 70% threshold. Key deficiencies include centralized nurse stations (60%), limited patient monitoring spaces (55%), inadequate functional room design (60%), restrictive safety measures (65%), poor accessibility (60%), lack of positive affordances (65%), and crowded spaces (55%). In contrast, Comprehensibility and Meaningfulness scored higher, averaging 76% and 72%, respectively. To enhance the Salutogenic quality of psychiatric hospital design, this study recommends decentralizing nurse stations, improving accessibility, incorporating patient-centered safety measures, and fostering positive affordances. These interventions aim to create a therapeutic environment that empowers patients, reduces stress, and improves recovery outcomes. By addressing gaps in Salutogenic research in psychiatric hospitals, particularly in Indonesia, this study contributes to the development of evidence-based design recommendations that support mental health recovery through architectural interventions.

Keywords: mental health, salutogenic architecture, well-being

1. Introduction

The COVID-19 pandemic has highlighted the importance of addressing mental health globally, including in Indonesia, where the prevalence of mental health issues has significantly increased [1]. In response, the architectural design of psychiatric hospitals must be reassessed to meet the evolving needs of patients, ensuring the physical environment supports their well-being [2]. Salutogenesis, a framework that promotes resilience and well-being, emphasizes three key components—Manageability, Comprehensibility, and Meaningfulness—which are crucial in designing therapeutic spaces that aid in patients' mental health recovery [3]. However, despite growing research on Salutogenic principles in healthcare settings, their application in psychiatric hospitals, particularly in Indonesia, remains limited. Most studies on psychiatric hospital design have focused on Evidence-Based Design (EBD) and Biophilic Design, both of which offer significant health benefits but do not fully integrate the concept of resilience and psychological empowerment emphasized in Salutogenic Architecture. While EBD relies on empirical data to shape healthcare environments, it primarily addresses

stress reduction rather than proactively fostering a sense of coherence [4][5]. Similarly, Biophilic Design incorporates natural elements to enhance healing but does not systematically consider the psychological dimensions of patient control and engagement [6]. In that context, there is a need to explore how Salutogenic Architecture can be specifically tailored to psychiatric hospitals to support long-term mental health recovery.

This study aims to evaluate the architectural design of the Bisma ward using the Salutogenic framework, identifying key elements that align with or can be improved upon to better support patients' recovery experiences. By assessing how the Manageability, Comprehensibility, and Meaningfulness components are reflected in its design, this research seeks to identify key elements that align with or deviate from Salutogenic principles. A key objective is to determine how well these principles are integrated into the ward's design and whether they contribute to patient recovery. Previous applications of this framework in psychiatric hospitals have demonstrated improvements in patient autonomy, reduced aggression, and enhanced therapeutic outcomes. Ultimately, the findings will lead to design recommendations tailored to enhancing the Salutogenic qualities of psychiatric hospital wards, particularly within the Indonesian healthcare context, to create more supportive, patient-centered environments.

Despite the increasing recognition of Salutogenic Architecture in healthcare design, limited research has been conducted on its specific role in psychiatric hospital environments, particularly in Indonesia. Most studies have focused on general hospital architecture, with psychiatric facilities remaining underexplored in terms of Salutogenic application. Additionally, while Evidence-Based Design and Biophilic Design have gained traction, their impact on patient empowerment and recovery within psychiatric settings has not been systematically compared with Salutogenic principles. This study seeks to bridge this gap by conducting an in-depth assessment of how Salutogenic design can enhance patient recovery experiences in a psychiatric hospital context.

Salutogenic Architecture

Salutogenesis, a term denoting the origins of health, was first introduced by American-Israeli medical sociologist Aaron Antonovsky in 1979. His groundbreaking work, *Health, Stress, and Coping*, emphasized how individuals manage stress and maintain well-being [7]. This concept was later expanded into architecture by researchers such as Jan Golembiewski, leading to the development of Salutogenic architecture, which focuses on creating environments that actively support health and well-being rather than merely preventing disease [8][9]. In healthcare settings, this approach ensures that architectural design fosters physical, mental, and social well-being, ultimately aiding the recovery process [10].

The core principles of Salutogenic design revolve around Sense of Coherence (SOC) and its three key aspects. The concept of SOC is central to Antonovsky's salutogenic model. SOC is defined as a dispositional orientation in which the internal and external environments are seen as comprehensible, manageable, and meaningful [11][12]. In the context of Salutogenic Architecture, SOC plays a pivotal role in supporting individuals' recovery and well-being. Golembiewski has extended this concept into the architectural domain, emphasizing its significance in the healing processes within healthcare environments.

Sense of Coherence (SOC) is a psychological construct that reflects an individual's ability to perceive life as comprehensible, manageable, and meaningful, therefore defining the three main components: manageability, comprehensibility, and meaningfulness [11]. Manageability enhances an individual's ability to maintain homeostasis and physical function, ensuring stability and control within the environment. Comprehensibility improves spatial clarity, reducing uncertainty and promoting a sense of security. Meaningfulness fosters a sense of purpose and motivation, encouraging individuals to engage with their surroundings in ways that support well-being [10][13]. It involves creating spaces that provide purpose and engagement, which can be achieved by designing environments that foster connection, creativity, and personal fulfillment [14]. These principles collectively create environments that actively contribute to health and resilience.

In healthcare architecture, Salutogenic design is particularly significant in shaping environments that reduce patient stress, enhance comfort, and promote autonomy. By incorporating design strategies that encourage physical and psychological well-being, healthcare facilities can create spaces that improve recovery outcomes. Key Salutogenic design features include ample natural light, which helps regulate circadian rhythms and improve mood; access to nature, such as healing gardens or views of greenery, which have been shown to reduce stress and accelerate recovery; and socially supportive spaces, such as communal lounges or quiet areas, which offer opportunities for interaction or solitude as needed [15].

By integrating these evidence-based design elements, Salutogenic architecture moves beyond traditional healthcare models, transforming hospitals and psychiatric facilities into environments that actively promote well-being. This approach underscores the critical role of architectural design in shaping therapeutic spaces that not only treat illness but also support long-term mental and physical health.

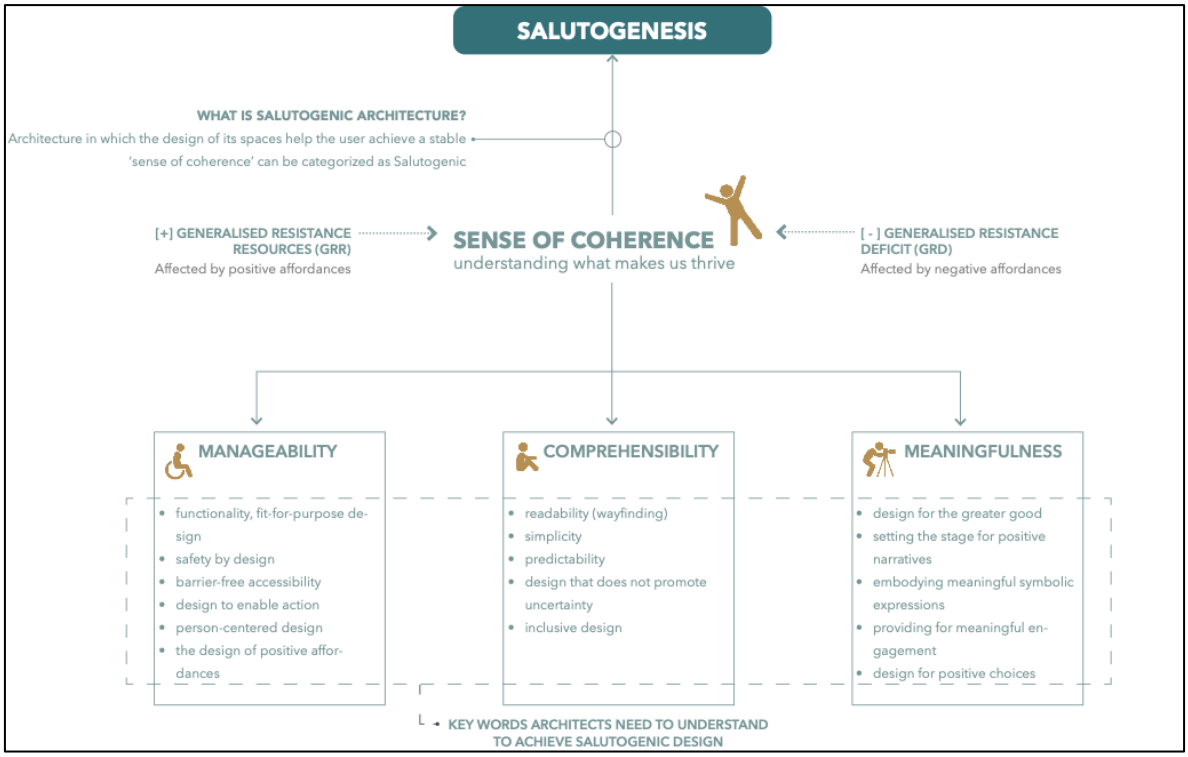

Figure 1. Conceptual framework of the Salutogenesis Theory
Source: author, 2024

By incorporating the three components of SOC—Comprehensibility, Manageability, and Meaningfulness—Salutogenic Architecture creates healthcare environments that do more than mitigate illness; they actively promote well-being and enhance the healing process by addressing both the physical and psychological needs of patients. A framework of understanding Salutogenesis along with key words to easily understand the three components of SOC is shown in Figure 1.

2. Method

This study adopts a mixed-methods approach, consisting of three integral components. The mixed-methods research design integrates specific philosophical assumptions and inquiry methods, guiding the collection and analysis of both quantitative and qualitative data [16]. This comprehensive methodology offers a deeper understanding of complex architectural phenomena, such as the intersection of Salutogenic design and healthcare environments. The mixed-method approach is recognized as a prevalent research design in architectural research, contributing to the development of design-based research within the field [17]. To evaluate the spatial qualities of the inpatient ward at Bali Mental Hospital through the lens of Salutogenic Architecture, an assessment methodology was employed to provide timely, quality feedback for improvement.

By applying this methodology, the study aims to offer valuable insights for improving the architecture and spatial design of the ward in alignment with Salutogenic principles. The assessment is structured into three primary components: a literature study to gather and analyze qualitative data, the formulation of assessment criteria, and the subsequent architectural assessment.

The first phase of the research involves a comprehensive literature review that delves into diverse perspectives on Salutogenic Architecture and its application in healthcare environments. Five key studies within the realm of Salutogenic design were systematically reviewed, focusing on identifying keywords and attributes associated with the three fundamental components of SOC [3]. This keyword collection process was instrumental in understanding how these principles can be practically integrated into architectural design. Notably, this research focuses exclusively on the architectural dimensions, emphasizing tangible elements that can be directly implemented in the built environment. Non-architectural factors, while important, fall outside the scope of this study.

In the second phase, the assessment criteria were developed based on insights from the literature review. The keywords identified in the previous stage were systematically categorized according to the three primary SOC components, as shown in Table 1. This process was grounded in extensive research on Salutogenic design, ensuring that the assessment criteria align with existing theoretical frameworks. These keywords were then translated into specific design indicators, which serve as the main tools for evaluating the architecture of the inpatient ward. A Likert scale scoring system was developed for each indicator, ranging from one (1) to five (5), with one representing the lowest alignment with Salutogenic principles and five indicating the highest. The Likert scale is a widely used psychometric tool for measuring attitudes, opinions, and perceptions in survey research [18]. This phase helps to quantify the qualitative data and provides a measurable framework for the architectural assessment.

Table 1. Compilation of design criteria and guidelines for assessment

SOC Component	Design Criteria	Design Guidelines
Manageability	(1-A-A) Decentralized nurse station	Nurse stations must not be centralized and positioned in clusters in areas where nurses can observe and monitor patients without moving away too much from their stations
	(1-A-B) Discrete and democratic patient monitoring	There are informal spaces that can be used by nurses to observe or monitor patients discreetly.
	(1-A-C) Functionality, fit-for-purpose design	Rooms have a functional design; the room's functions can be achieved/fulfilled effectively and efficiently.
	(1-A-D) Safety by design	Considering security factors in the design.
	(1-A-E) Barrier-free accessibility or universal design	Disability-friendly design, allowing individuals with disabilities to use the room as intended without assistance.
	(1-A-F) Design to enable action	Creating an environment that empowers and grants freedom to patients to perform specific activities or achieve their goals effectively and efficiently. This approach focuses on how users can interact with their environment easily and intuitively.
	(1-A-G) The design of positive affordances	Designing an environment or space that can create or encourage positive affordances.
	(1-A-H) Crowding space	Designing spaces where users can control the level of privacy and limitations on social interaction.
	(1-A-I) Direct and indirect attention	In ward design, there are no elements that draw direct attention from patients (patients' attention is not focused on one thing and won't make them tired). There are no external stimuli that excessively attract patients' attention.
	(1-A-J) The impact of noise level on health and well-being	The ward is positioned far from sources of noise.
	(1-A-K) Staff access to stress relievers	There are facilities within the ward that can help reduce or eliminate stress for the staff.

SOC Component	Design Criteria	Design Guidelines
Comprehensibility	(2-A-A) Intuitive wayfinding	The spaces traversed by patients upon their arrival at the Mental Hospital until reaching the inpatient room location are designed and arranged with uplifting views, creating numerous positive affordances.
	(2-A-B) Enhance or reinforcement of patient's efficacy	There is a space that provides opportunities for patients to engage in success-triggering activities, such as animal training areas.
	(2-A-C) Narrative sequence	Changing patients' negative narrative perceptions of the hospital. Hospitals are typically associated with blue curtains, windowless rooms, noisy machines, and bright fluorescent lights.
	(2-A-D) Comprehension of whereabouts	Patients can visually see the surrounding environment.
	(2-A-E) Simplicity	Simple design, emphasis on minimalism, and ease of use and functionality.
	(2-A-F) Predictability	Room design that is easily readable, understood, and used by patients. Patients can anticipate all outcomes resulting from their actions or activities in using the room.
	(2-A-G) Design that does not promote uncertainty	Creating a place or environment that is clear and free from uncertainty. The design should be easily understood by patients.
	(2-A-H) Inclusive design	Wards are designed considering use by various parties other than patients. This means the wards should be easily accessible by patients' families, doctors, nurses, and hospital staff, with facilities that support activities for individuals other than patients.
	(2-A-I) Space for social support)	Creating meeting spaces that promote spontaneous social interaction and social support.
	(2-A-J) Daylight, sunlight, windows and lighting's effect on health	The ward has windows and openings that are adequate to allow natural light to enter the room.
	(2-A-K) The impact of color on health	The use of colors in ward design consists of calming colors that can create a comfortable and peaceful environment.
Meaningfulness	(3-A-A) Setting the stage for positive narratives	Symbols or visual elements within the ward that have a positive effect on patient healing. These symbols or visual elements can symbolize or convey optimistic messages, inspire, and boost morale.
	(3-A-B) Embodying meaningful symbolic expressions	Wards are designed by incorporating symbols, metaphors, or visual elements that convey positive meanings and evoke positive emotions.
	(3-A-C) The impact of culture, religion and art on health	Patients have access to cultural, religious and art activities/facilities.
	(3-A-D) The impact of animals, sports and music on health	Accommodating activities related to animals, sports, and music. These activities can provide a sense of normalcy to patients, thus aiding in the healing process.
	(3-A-E) The restorative environment	The ward has an outdoor area or garden that is easily accessible to patients.
	(3-A-F) Nature and its meaning for health	Designing spaces or environments that leverage the surrounding nature to optimize the relationship between patients and the natural environment.
	(3-A-G) Talk-therapy groups	There are common facilities that patients can use for group discussions and enhance social support.
	(3-A-H) Promoting self-identity	There are activities or facilities where patients can better understand themselves or rediscover their identity.
	(3-A-I) Hospital impact on the environment	There are adequate facilities for the processing and disposal of medical and biochemical waste.
	(3-A-J) Design for positive choices	Ward designs can have a motivating effect on patients to engage in activities that result in positive outcomes for themselves and others.

The final phase involves assembling a multidisciplinary team of assessors, including the researcher, an architect, a psychiatrist, and a nurse, to evaluate the inpatient ward based on the developed criteria. These assessors were selected based on their expertise in architecture, psychology, health, and their experience with the hospital environment. Objectivity and impartiality were prioritized to ensure accurate and unbiased results. The team used the scoring system to evaluate the ward's design, collectively deliberating on the results to provide valuable feedback.

Based on the evaluation data, the team established a passing grade within the scoring system, set at 70. Any criterion scoring below this threshold was not considered Salutogenic and required further discussion and improvement. This approach allowed the team to identify specific areas in need of redesign, offering actionable recommendations for enhancing the Salutogenic qualities of the inpatient ward. These findings will contribute to the future development of Bali Mental Hospital, ensuring it supports patient well-being in line with Salutogenic principles. Figure 2 below shows the process of creating the assessment criteria based on architectural classification of each SOC component.

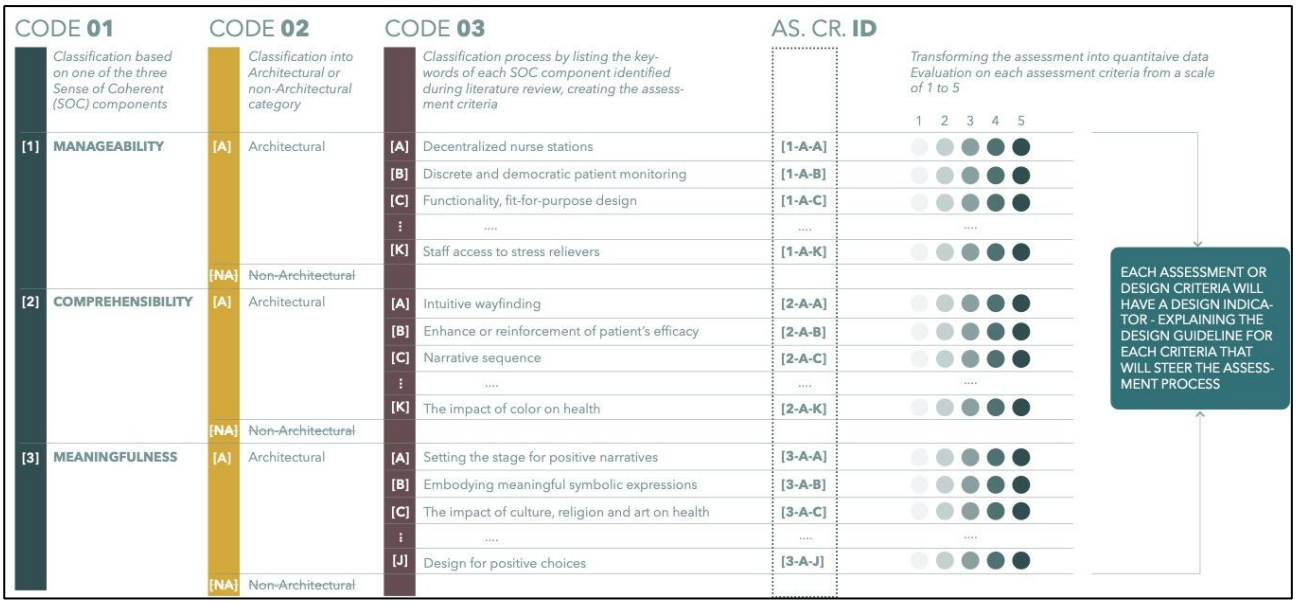

Figure 2. Formulation of assessment criteria
Source: author, 2024

3. Result and Discussion

Manageability

Based on the architecture assessment, we can see that in terms of Manageability, the results reveal that seven out of eleven criteria were positioned below the threshold of 70, while only four managed to receive sufficient scores. The seven criteria that did not pass the assessment include Decentralized Nurse Stations (60%), where only one nurse station was present in the ward, located centrally but with limited visual access to monitor patients. Discrete and Democratic Patient Monitoring (55%) also scored low, as the informal spaces for staff to monitor patients inside the ward could be improved by providing a higher-quality space that ensures staff comfort. In terms of Functionality and Fit-for-Purpose Design (60%), the rooms inside the ward could be optimized to enhance usability and functionality for patients.

Safety by Design (65%) is another area requiring improvement. While safety measures are crucial, the Salutogenic approach emphasizes that security features should not create an imprisoned feeling for patients. Discreetly integrating security bars and other safety elements with aesthetic appeal is essential. Similarly, Barrier-Free Accessibility or Universal Design (60%) is lacking, as the ward design does not sufficiently support independence and comfort for patients with disabilities, especially those in wheelchairs. The absence of ramps and grab bars increases reliance on nurses, reducing patient autonomy.

The Design of Positive Affordances (65%) falls short, as several design elements could be enhanced to foster a more supportive environment in line with Salutogenic Architecture principles. Lastly, Crowding Space (55%) presents a challenge. While social interaction is encouraged for healing, patient privacy is equally important. However, the current ward design restricts privacy due to partially open toilets and bathrooms. Although intended for patient monitoring and safety, this design choice contradicts the privacy principles of the Salutogenic approach. These findings highlight key areas for improvement to enhance manageability and overall patient experience in the ward and is summarized in Table 2 and shown in Figure 3 in the form of a radar chart.

Table 2. Assessment results of the Manageability component
Source: author, 2024

Assessment Criteria	1-A-A	1-A-B	1-A-C	1-A-D	1-A-E	1-A-F	1-A-G	1-A-H	1-A-I	1-A-J	1-A-K
Assessor 1	5	2	3	3	2	4	3	2	3	4	4
Assessor 2	3	3	3	3	4	3	3	4	3	5	4
Assessor 3	3	2	3	4	3	4	3	2	5	5	3
Assessor 4	1	4	3	3	3	4	4	3	5	4	4
Score per Criteria	12	11	12	13	12	15	13	11	16	18	15
Percentage Score	60%	55%	60%	65%	60%	75%	65%	55%	80%	90%	75%
Overall Performance	**76%**										

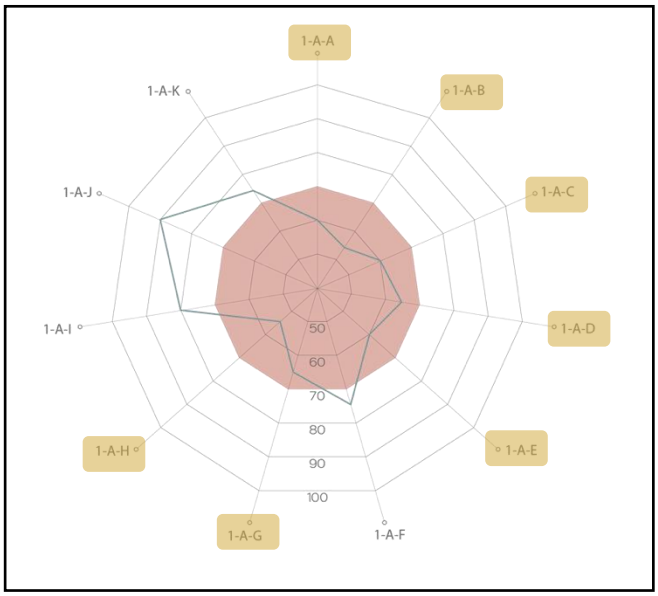

Figure 3. Manageability assessment results as a radar chart
(highlighted are criteria that needs improvement)
Source: author, 2024

The findings indicate substantial room for enhancement in the architecture design of the inpatient ward concerning Salutogenic Architecture. The majority of its design criteria fell below the passing grade, contributing to an overall low score of 67%. This underscores the inadequacy of the Manageability aspect within the architecture design of the ward. Consequently, the research team must delve into identifying design solutions and improvements to enhance the ward's Manageability significantly.

Comprehensibility

The comprehensibility component performed better than manageability, with most criteria exceeding expectations, except for the "Design that does not promote uncertainty," which scored 65%. This was due to the ward's layout being difficult for external users to navigate, with numerous corners and obstructive elements

causing confusion. To improve, the arrival space should be redesigned to provide clearer visual cues, making it easier for users to understand and navigate the layout [2]. Overall, the Comprehensibility component scored 76%, suggesting room for improvement in enhancing the ward's clarity and user experience. The Comprehensibility assessment result is summarized in Table 3 and shown in Figure 4 in the form of a radar chart.

Table 3. Assessment results of the Comprehensibility component
Source: author

Assessment Criteria	2-A-A	2-A-B	2-A-C	2-A-D	2-A-E	2-A-F	2-A-G	2-A-H	2-A-I	2-A-J	2-A-K
Assessor 1	4	4	4	5	4	4	3	4	4	5	4
Assessor 2	3	3	3	3	4	4	4	4	4	5	4
Assessor 3	4	5	3	3	4	4	3	4	3	3	4
Assessor 4	3	3	4	3	4	4	3	4	4	5	4
Score per Criteria	14	15	14	14	16	16	13	16	15	18	16
Percentage Score	70%	75%	70%	70%	80%	80%	65%	80%	75%	90%	80%
Overall Performance	**76%**										

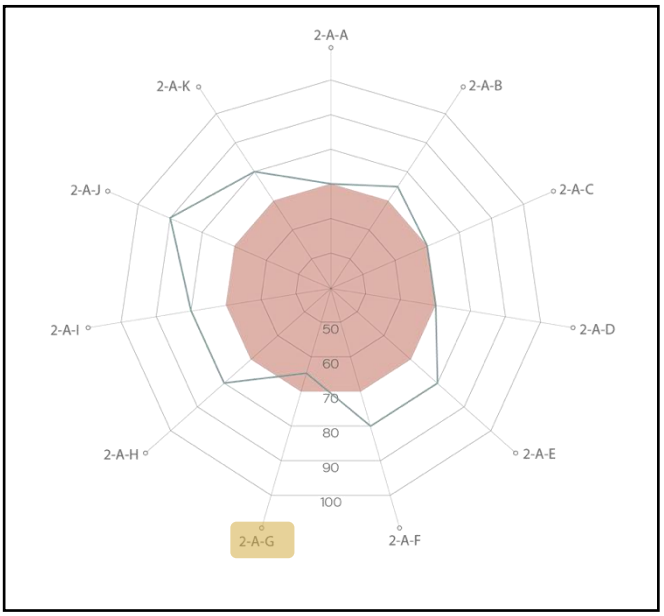

Figure 4. Comprehensibility assessment results as a radar chart
(highlighted are criteria that needs improvement)
Source: author, 2024

Meaningfulness

The Meaningfulness component did not perform as well as Comprehensibility, with two criteria scoring below 70%. The criterion "Embodying meaningful symbolic expressions" scored 60%, indicating the need for more symbols, metaphors, and visually meaningful elements that convey hope and encouragement, which are crucial for mental recovery. "Design for positive choices" scored 50%, reflecting the underutilization of public spaces intended to encourage positive outcomes for patients. Although the ward includes areas for patient interaction, they are not optimized to motivate beneficial activities. Overall, Meaningfulness achieved a score of 72%, surpassing the passing grade but with considerable potential for further improvement, especially in these two areas. The Meaningfulness assessment result is summarized in Table 4 and shown in Figure 5 in the form of a radar chart.

Table 4. Assessment results of the Meaningfulness component
Source: author, 2024

Assessment Criteria	3-A-A	3-A-B	3-A-C	3-A-D	3-A-E	3-A-F	3-A-G	3-A-H	3-A-I	3-A-J
Assessor 1	4	4	4	4	5	4	5	4	4	3
Assessor 2	4	4	5	4	3	4	3	4	5	3
Assessor 3	3	3	3	3	3	3	3	3	4	2
Assessor 4	3	1	5	4	5	4	4	4	2	2
Score per Criteria	14	12	17	15	16	15	15	15	15	10
Percentage Score	70%	60%	85%	75%	80%	75%	75%	75%	75%	50%
Overall Performance	**72%**									

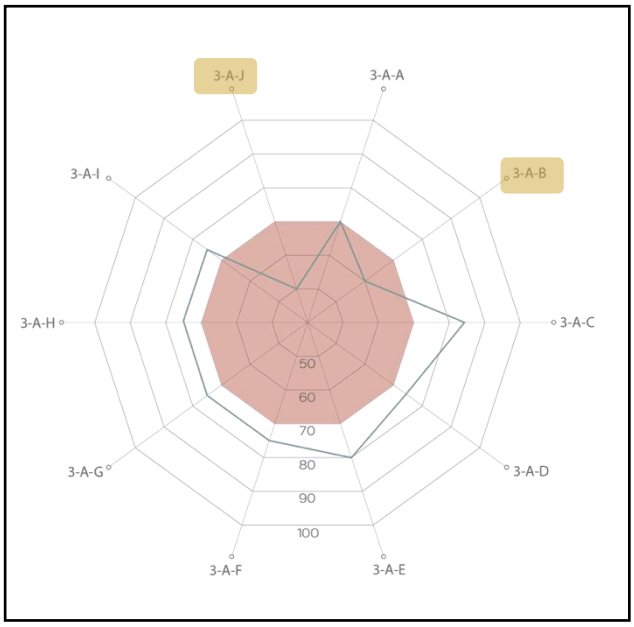

Figure 5. Meaningfulness assessment results as a radar chart
(highlighted are criteria that needs improvement)
Source: author, 2024

Design Recommendation

The assessment results revealed that manageability had the lowest performance among the three components, with seven criteria scoring below the 70% threshold. This indicates significant challenges in the design's ability to provide users with a sense of control and ease in managing their environment. To address this, the focus should be on developing targeted design recommendations aimed at improving these seven underperforming manageability criteria, ensuring that the ward becomes more user-friendly and empowering for patients, ultimately enhancing their recovery experience.

The current centralized nurse station should be replaced by multiple, smaller, decentralized stations strategically placed throughout the ward to improve visual access and patient monitoring. Decentralized stations allow nurses to be closer to patients, enhancing both supervision and patient interaction, while reducing the institutional feel of the environment. These stations should be positioned to provide unobstructed sightlines to patient areas, enabling proactive care while promoting a sense of safety and security.

To improve informal monitoring spaces for staff, dedicated areas should be designed with both staff comfort and patient privacy in mind. Spaces should offer comfortable seating, natural light, and soundproofing to ensure staff can rest and observe discretely without interrupting the therapeutic environment. Integrating design features like transparent yet soundproof materials would allow for visual monitoring without creating

a constant, overt surveillance atmosphere, thus promoting a more democratic approach to patient supervision [2].

The interior spaces of the ward should be redesigned to better serve the practical needs of patients. Rooms should be adapted with modular and flexible furniture to accommodate various patient activities and therapeutic requirements. In addition, storage solutions that minimize clutter and increase accessibility will contribute to a more orderly, usable environment, aligning with the principle of fit-for-purpose design [19]. Functional layouts can support patients' independence and create a more dignified experience.

Security measures such as bars or restricted areas should be implemented in ways that prioritize both safety and aesthetics, avoiding an institutional or "prison-like" feeling. One solution is to use laminated glass, which provides security without appearing harsh, or incorporating more natural elements like greenery or textured walls to mask security features. The goal is to balance safety with a therapeutic environment that fosters recovery without increasing anxiety.

The ward should adopt a universal design approach, ensuring that all areas are accessible to patients with varying mobility needs. This includes installing ramps, grab bars, and wider doorways to accommodate wheelchair users, as well as ensuring the flooring is slip-resistant and free of obstructions [20]. Making the ward fully accessible will enhance patient autonomy, reduce the need for staff assistance, and contribute to a sense of control over their environment, which is critical for psychological well-being.

Positive affordances can be promoted by designing spaces that encourage beneficial behaviors and activities for patients. For example, incorporating multi-sensory rooms, calming therapeutic gardens, and seating arrangements that foster social interaction while respecting personal space can enhance the healing environment. Such designs promote autonomy, engagement, and recovery, aligning with the Salutogenic approach to creating environments that support health and well-being.

While social interaction is vital for recovery, privacy must also be respected. The current ward design, which includes partially open toilets and bathrooms, undermines patients' ability to control their privacy. To address this, bathrooms should be redesigned with frosted glass or opaque materials that allow for staff monitoring without compromising privacy. In addition, personal space should be delineated clearly, ensuring that communal areas are well-defined to prevent crowding while still encouraging social engagement in shared spaces.

4. Conclusion

This study has demonstrated the significance of applying the Salutogenic framework—specifically the components of manageability, comprehensibility, and meaningfulness—to the architectural design of psychiatric healthcare facilities. By assessing the Bisma ward of Bali Provincial Mental Hospital, the research highlighted critical areas in need of improvement, particularly in the manageability aspect, where seven out of eleven criteria failed to meet the desired threshold. These findings emphasize the need for decentralized nurse stations, enhanced patient monitoring spaces, and improved functionality, safety, and accessibility, ensuring that the design fosters a supportive, user-friendly environment for patients. While Comprehensibility and Meaningfulness components performed relatively well, there is still significant potential for enhancing the ward's design to better align with Salutogenic principles. The design recommendations outlined in this research provide actionable insights for improving the ward’s architecture, ensuring it actively contributes to the well-being and recovery of patients. Future developments should focus on implementing these design strategies to create a more holistic, healing environment that empowers patients and supports their mental health recovery.

5. Acknowledgements

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6. Conflict of Interest

The authors declare that there are no conflicts of interest related to this research. The study was conducted independently, and no financial, institutional, or personal relationships influenced the findings, analysis, or conclusions presented in this article. The funding for this research was provided by the Directorate of Research and Community Service (DPPM) of Warmadewa University, which had no role in the study design, data collection, analysis, interpretation, or manuscript preparation. Additionally, the authors have no affiliations with Bali Provincial Mental Hospital that could result in any conflict of interest regarding the study outcomes.

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