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## **IDENTIFICATION OF ECOTHERAPY DESIGN CRITERIA IN PUBLIC OPEN SPACES AS AN EFFORT TO IMPROVE VISITOR'S MENTAL HEALTH**

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### **Abstract**

All activities that occur in public open spaces are basically forms of human expression as social beings who always have a deep relationship with the environment in meeting physical, psychological and social needs. Referring to mental health, the role of public open space is very important nowadays considering the number of teenagers with mental disorders in Indonesia, especially in Bali is very high. The role of public open spaces in improving the mental health of visitors is needed to reduce the prevalence of depression. The concept of ecotherapy in public open spaces can be implemented to promote mental health through human interaction with green spaces. This study aims to formulate ecotherapy design criteria in public open spaces and find out the design elements of public open spaces in Denpasar City and Klungkung Regency that need to be adjusted to be able to implement the ecotherapy concept. A synthesis of various ecotherapy theories and the link between public open spaces and mental health, as well as various studies or studies that have been conducted previously were carried out to formulate ecotherapy design indicators and sub-indicators in public open spaces. The research method used is mixed methods, by applying qualitative and quantitative approaches. The results of the study concluded that the two public open spaces which are the objects of study need to adjust the accessibility criteria, location, zoning, parking, furniture, facilities, and sign systems.

**Keywords:** Ecotherapy, Mental Health, Public Open Spaces, Bali

### **1. INTRODUCTION**

Apart from being the lungs of the city and a binder in the structure of the city, public open spaces also play an important role as the center of interaction and social society both formal and informal, both individuals and groups. Public open space must actually be used by the community for various activities. According to (Mehta, 2013) the types of social behavior that can occur in public spaces are classified into three, namely relaxation, interaction, and affiliation. All types of social behavior that occur in public open spaces are basically forms of human expression as social beings who always have a deep relationship with the environment and nature in meeting physical, psychological (mental), and social needs.

In an effort to meet physical needs, open space always provides a place of physical activity that can be used by the public to improve physical health (Rutherford, 2012). Public open spaces with all the features they have are very related to human psychological (mental) health, by spending time in natural areas can help humans overcome mental problems (Kara and Oruç, 2021). Public green open spaces have also been shown to amplify human pro-social experiences that can help support social health such as reducing loneliness (Astell-Burt et al, 2021).

Referring to psychological health, interacting activities carried out on public green open spaces can cause positive changes in various psychological parameters including stress, concentration, depression, and aggression (Wilson et al, 2009). The role of public open space is very important today considering the number of people with mental disorders suffered by Indonesian adolescents is very high, recorded at 2.45 million adolescents in the country (results of the Indonesia National Adolescent Mental Health survey).

Moreover, the prolonged Covid-19 pandemic has a direct impact on all aspects of human life, including changing the way of interacting and how to use public spaces (Sepe, 2021). All restrictions and adaptations that must be carried out related to the pandemic cause limited space for humans as social creatures which results in new problems for individuals such as mental depression (Sulis, 2020). Bali itself is ranked fourth in the number of people with severe mental disorders in Indonesia according to the Basic Health Research of the Ministry of Health, after DIY Yogyakarta, Aceh, and South Sulawesi (Tribunnews.com, 2018). Denpasar City (3,348 people), Badung Regency (2,346 people), and Buleleng Regency (2,276 people), are the three highest cities/regencies in Bali with the highest prevalence of depression in the population aged  $\geq 15$  years, while Klungkung Regency (631 people) has the lowest depression prevalence rate (Ministry of Health RI, 2018).

The role of public open space as a new tourist destination in improving the mental health of visitors is needed to reduce the prevalence of depression. Open space design criteria need to be considered so that public open space can optimally play its role in improving the mental health of city residents. The concept of ecotherapy can be implemented in public open spaces to promote mental health through human interaction with green spaces (Utami, 2014). Ecotherapy is an approach that relies on the idea that humans have a harmonious relationship with the environment and nature, where the relationship will have therapeutic effects that can improve mental and emotional health (Rinihapsari, 2019 and Burls, 2007).

However, it cannot be identified whether the design of public open spaces in Denpasar City and Klungkung Regency has implemented the concept of ecotherapy to affect the prevalence rate of depression in Bali. Therefore, this study aims to formulate ecotherapy design criteria in public open spaces as an effort to improve visitors' mental health, and assess the extent to which these criteria are applied to public open spaces in Denpasar City and Klungkung Regency, and can further draw conclusions about design elements that need to be adjusted and / or need to be accommodated so that public open spaces can implement the concept of ecotherapy to improve the mental health of visitors.

## **2. LITERATURE REVIEW**

There are three types of activities that can occur in public open spaces (Gehl, 1989), including necessary activities, optional activities, and social activities. Necessary activities are routine activities carried out daily regardless of the surrounding physical

environment. Optional activities are activities carried out by the community when conditions allow and depend on the quality of the physical environment such as walking, breathing fresh air, recreation, playing. Social activities are activities that depend on the existence of others in public spaces, such as interacting, watching, listening, active or passive participation. Meanwhile, according to (Mehta, 2013) the categories of social behavior in public spaces can be classified into three according to the types of behavior that are often carried out by space users, including relaxation, interaction, and affiliation.

There is always a two-way harmonious relationship between humans and their environment. Nature and the designed built environment play an important role in accelerating healing time (Erken, 2021). There are three main functions of open space (Rutherford, 2012) including as a recreation room, sports room, and natural space. In this case, recreation rooms, sports halls, and natural spaces are a form of new tourist destinations for city residents that are very suitable for the needs of today's city residents. Open space as a recreational space provides a place for informal play and physical activity, relaxation, and social interaction. Recreation spaces improve physical and mental health through activities that provide relaxation, entertainment, or stimulation. Open space as a sports space provides a venue for formal and structured sports activities such as team competitions, physical skills development, and training. Open space as a natural space provides a setting where people can enjoy the surrounding nature, protect local biodiversity, and the natural values of the area.

Ecotherapy approach in urban green space design has the concept of reconnecting humans with nature, whether through activities in parks, gardening, interaction with animals, outdoor walks (Chalquist, 2009; Utami, 2014), so it will encourage the release of endorphins to help people feel calmer and sleep better. Ecotherapy promotes public health and mental health through the interaction of people with green spaces (Burls, 2007; Utami, 2014). Ecotherapy aims to facilitate healing and achieve well-being (a healthy mental state, including physical, mental, and emotional states), based on a harmonious relationship with ecology (Burls, 2007).

### **3. RESEARCH METHODS**

This research is a descriptive research, using quantitative methods. The quantitative paradigm uses assessment data from the research team related to the condition of public open spaces in Denpasar and Klungkung cities. The quantitative paradigm used in this study uses an assessment with a Likert scale which states that value 1 indicates very inappropriate conditions, value 2 conditions are not appropriate, value 3 conditions are not appropriate, value 4 indicates appropriate conditions, and value 5 indicates very appropriate conditions.

#### **3.1 Research Location**

The location of the study was conducted in cities or districts with the highest and lowest prevalence rates of depression in Bali Province, namely Denpasar City and Klungkung Regency. In each city and district, one of the most active public open spaces will be selected (crowded use). The public open space of Denpasar City that will be studied is the Bajra Sandhi Monument and the public open space of Klungkung Regency that will be studied is Kertha Gosa Park. Denpasar City was chosen as the research location, because according to data (Ministry of Health of the Republic of Indonesia, 2018), Denpasar was ranked at the top with the highest depression prevalence rate in Bali Province (3,348 people), while Klungkung Regency was chosen as the location of the

study, because Klungkung itself has the lowest depression prevalence rate in Bali Province (631 people), so the researcher wanted to compare the condition of public open spaces in the two places based on design criteria Ecotherapy that will be formulated first.

### 3.2 Data Collection and Analysis Methods

The data collection method is carried out through literature study, and observation. Analysis of library data was carried out to produce text data, in the form of formulation of ecotherapy design criteria in public open spaces. Data collected through observation in the form of an assessment with a likert scale of public open space design elements, will be analyzed with the help of JMP software, so that it will be known which design elements of public open space need to be adjusted or accommodated in order to better implement the concept of ecotherapy. Data collected through observation in the form of assessment were obtained from the results of assessment and direct observation by two researchers, two psychiatric specialists, and one psychologist.

### 3.3 Research Stages

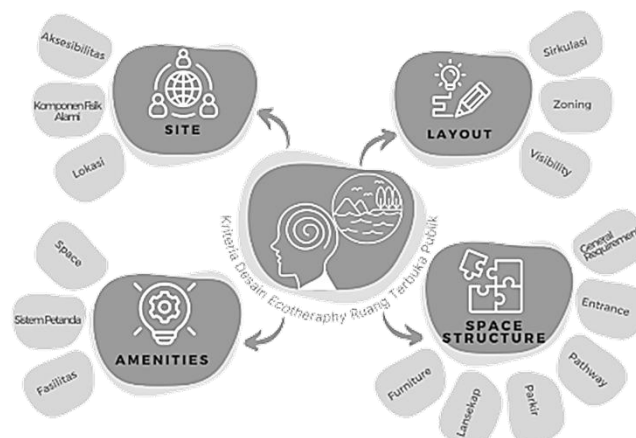
There are three stages of research that will be carried out in this study, including the formulation of ecotherapy criteria design in public open spaces, assessment of public open spaces in Denpasar City and Klungkung Regency, and drawing conclusions on public open space design elements that need to be adjusted and or accommodated to better accommodate the concept of ecotherapy.

## 4. FINDINGS AND DISCUSSION

In this section, we will describe the formulation of ecotherapy design criteria that can affect or provide psychological comfort for visitors. This formulation is obtained from synthesis of various theories and studies or previous studies that have been carried out.

### 4.1 Formulation of Ecotherapy Design Criteria

Based on the results of theoretical synthesis and several studies or research that have been carried out before, the criteria for public open space ecotherapy design that affects the mental health of visitors have four main variables, including site, layout, space structure, and amenities variables. These four variables become a unity that cannot stand alone and must be met in the design of public open spaces to be able to have a positive influence on the psychological/mental of visitors.



**Figure 1.** Formulation of Ecotherapy Design Criteria  
Source: Prasandya, 2023

The four ecotherapy design variables will be derived back into several criteria, and each criterion has sub criteria. The sub-criteria obtained will later be used as an indicator of assessing the condition of public spaces in Denpasar City and Klungkung Regency. Three criteria were obtained for site variables, three criteria for layout variables, six criteria for space structure variables, and three criteria for amenities variables. Various criteria and sub-criteria of ecotherapy design can be seen in the following table.

**Table 1.** Site Variable Ecotherapy Design Criteria and Sub Criteria

Variable: Site			
No	Criteria	Sub Criteria / Indicators	Source
1	Access- ibility	1. Easily reached by various means of transport	(National Parks Board, 2017); (Goker., Parisa., Kahveci, 2020)
		2. Close to drop off vehicles to avoid visitors walking far	
		3. Availability of secondary access, facilitating maintenance or emergency use	
2	Natural Physical Components	4. Site topography does not make it difficult for users with various abilities to move	(National Parks Board, 2017); (Goker., Parisa., Kahveci, 2020); (Didem., et al, 2021); (Ekren, 2023)
		5. It has the potential of existing landscaping, creating a natural perception of open space	
		6. The size of the open space is enough to accommodate the entire activity	
		7. The existence of open space can accommodate and attract the arrival of various fauna (birds, butterflies, small animals) that can improve the natural image of open space	
		8. The boundaries of open space are clear, & create a safe garden	
3	Location	9. Open space layout provides calm and peace, the location is far from pollution sources that can cause distractions	(Ekren, 2023); (Xiaoqi, Feng., et al, 2022); (Zaki, Ahmed., et al, 2020); (National Parks Board, 2017); (Goker., Parisa., Kahveci, 2020)
		10. Open space can minimize negative factors and external interventions from urban noise	
		11. The location of the site allows visitors to enjoy natural sounds created by leaves, the sound of running water, the sound of birds	
		12. The location of the site has good air movement	

Source: Prasandya, 2023

**Table 2.** Ecotherapy Design Criteria and Sub Criteria Variable Layout

Variable: Layout			
No	Criteria	Sub Criteria / Indicators	Source
1	Circu- lation	13. The circulation path is easy to understand (looped pattern / other simple patterns)	(National Parks Board, 2017); (Goker., Parisa., Kahveci, 2020); (Ekren, 2023)
		14. The layout of the open space is easy to understand, visible and clearly defined from the entrance, users enter easily into the open space	
2	Zoning	15. Has activities zone and restorative zone	(National Parks Board, 2017); (Goker., Parisa., Kahveci, 2020); (Tambunan., et al, 2021); (Zaki, Ahmed., et al, 2020)
		16. The division of private space / isolated places zones is clear	
		17. The setting is organized and arranged in a clear area so that visitors can easily understand a place	
3	Visi- bility	18. Open space provides a clear view from all sides	(National Parks Board, 2017); (Zaki, Ahmed., et al, 2020)
		19. Offers beautiful open space views and visible from the entrance	

Source: Prasandya, 2023

**Table 3.** Criteria and Sub Criteria for Space Structure Variable Ecotherapy Design

<b>Variable: Space Structure</b>			
<b>No</b>	<b>Criteria</b>	<b>Sub Criteria / Indicators</b>	<b>Source</b>
1	General Requirement	20. Accommodates the physical and emotional safety of users	(National Parks Board, 2017); (Zaki, Ahmed., et al, 2020); (Ekren, 2023)
		21. Accommodates the physical and emotional comfort of users	
		22. Interesting space elements, can distract users from stress	
		23. Maintenance & sustainability of the space is well maintained	
2	Entrance	24. Entrance is interesting and becomes the center of attention	(National Parks Board, 2017); (Zaki, Ahmed., et al, 2020)
		25. Entrance is easy to see and easy to reach, accessible for all users	
3	Pathway	26. Pedestrian path with simple track, accessible for wheelchair users, and equipped with rest spots	(National Parks Board, 2017); (Zaki, Ahmed., et al, 2020); (Krasilnikova., et al, 2021)
		27. Safe and convenient passage available	
		28. Well-organized and non-conflicting paths	
		29. Path design motivates users to move	
4	Parking	30. Parking locations are clearly visible and accessible	(National Parks Board, 2017); (Zaki, Ahmed., et al, 2020); (Goker., Parisa., Kahveci, 2020)
		31. Vehicle parking distance close to open space	
		32. Availability of parking areas with the amount of parking that suits your needs	
5	Landscape	33. Landscape elements are multi-sensory	(National Parks Board, 2017); (Zaki, Ahmed., et al, 2020); (Goker., Parisa., Kahveci, 2020)
		34. There are natural and artificial waterscape elements that provide a relaxing effect	
		35. Visitors can access gardens & gardens directly	
		36. The use of plants that can attract fauna	
		37. Accommodates a variety of vegetation types	
6	Furniture	38. Accommodates vegetation types by diversifying colors, shapes, textures, aromas	(National Parks Board, 2017); (Zaki, Ahmed., et al, 2020); (Didem., et al, 2021)
		39. Furniture is multi-purpose, flexible / movable	
		40. Furniture has long durability, easy maintenance, functional	
		41. Furniture design is attractive and fun for all visitors	
		42. Availability of art elements that have effective and informative messages	
		43. Various seating options are available that are strategically placed	
		44. There is lighting that supports a sense of security and provides a beautiful view	
45. There are shaded areas that accommodate large group activities and shelters for small groups			

Source: Prasandya, 2023

**Table 4.** Ecotherapy Design Criteria and Sub Criteria Variable Amenities

<b>Variable: Amenities</b>			
<b>No</b>	<b>Criteria</b>	<b>Sub Criteria / Indicators</b>	<b>Source</b>
1	Space	46. Following universal design principles	(National Parks Board, 2017); (Zaki, Ahmed., et al, 2020); (Ekren, 2023); (Kim, Sunyoung, 2021); (Didem., et al, 2021); (Polat., et al, 2017); (Tambunan., et al, 2021)
		47. Space design encourages physical activity	
		48. Provide opportunities for a wide selection of spaces that can be used by groups or individuals	
		49. Accommodating open spaces that are flexible / multi-functional and attractive	
2	Map System	50. The open space is equipped with a sign system and informative graphic elements	(National Parks Board, 2017); (Zaki, Ahmed., et al, 2020)
		51. Placement of marking systems in strategic locations	
		52. There is a sign system that shows directions and parking lots, entrances, exit routes	

3	Facili-ties	53. Accommodating the role of open space as a leisure space	(Polat., et al, 2017); (Tambunan., et al, 2021); (Kim, Sunyoung, 2021); (Didem., et al, 2021); (Zaki, Ahmed., et al, 2020); (Aristyowati., et al, 2021); (Barton, Rogesron, 2017); (Boz, Aybuke Ozge, and Canan, 2020); (National Parks Board, 2017); (Goker., Parisa., Kahveci, 2020)
		54. Accommodating the role of open space as an exercise space with facilities in the form of sports fields, cycling paths, jogging tracks, reflection paths, meditation areas	
		55. Accommodating the role of open space as a hobby space with facilities in the form of gardening space / urban farming (therapeutic horticulture), skatepark, care farming / animal-assisted interventions	
		56. Accommodating the role of open space as an education space with facilities in the form of a place to read / study, a mini library	
		57. Availability of guard post facilities, clean toilets, trash cans, wi-fi	

Source: Prasandya, 2023

#### 4.2 Public Space Elements in Denpasar and Klungkung City that Need to Be Adjusted

To find out the elements of public space that need to be adjusted to better accommodate the concept of ecotherapy, researchers together with mental health experts (psychiatric specialists and psychologists) have assessed the condition of the public space. The assessment is carried out on a Likert scale, a value of 1 indicates a very inappropriate condition, a value of 2 indicates a non-conforming condition, a value of 3 indicates a non-conforming condition, a value of 4 indicates a suitable condition, and a value of 5 indicates a very suitable condition.

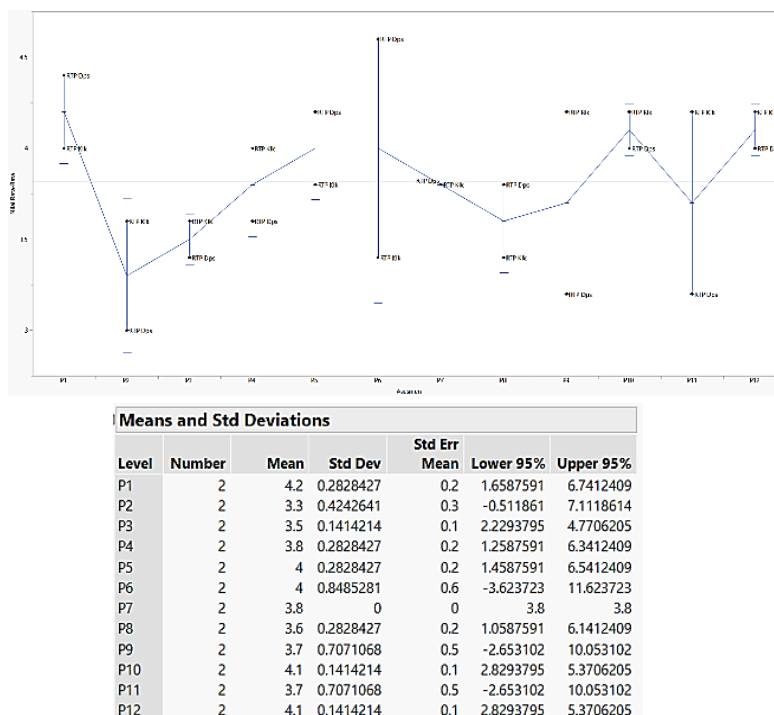
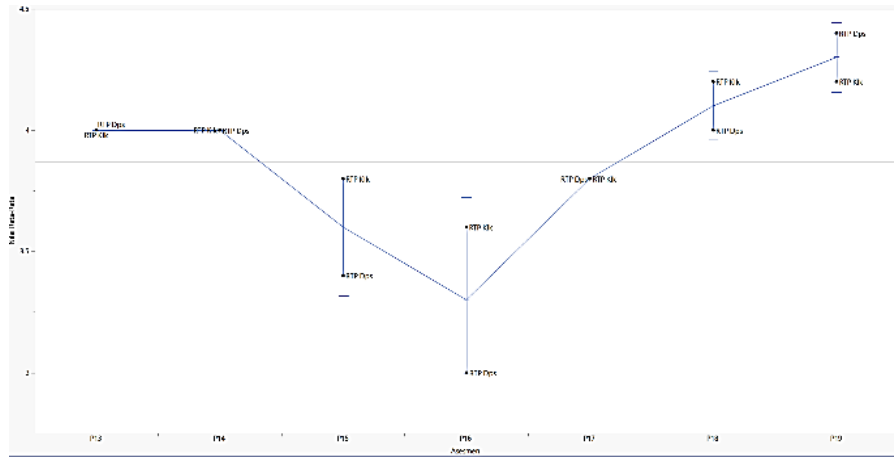
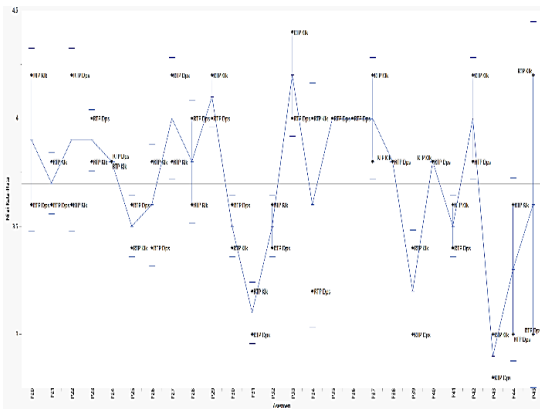


Figure 2. Results of Bivariate Analysis of Site Variables  
Source: Prasandya, 2023

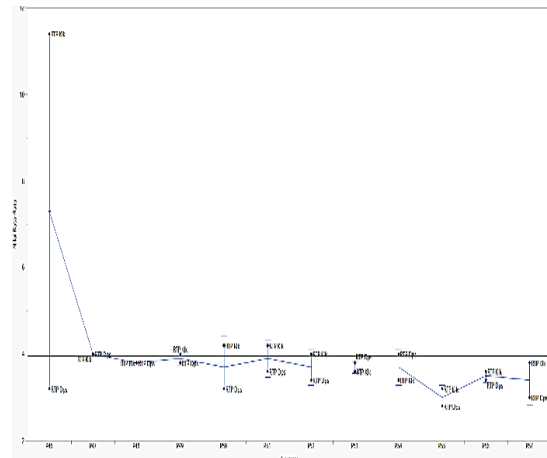


Means and Std Deviations						
Level	Number	Mean	Std Dev	Std Err		
				Mean	Lower 95%	Upper 95%
P13	2	4	0	0	4	4
P14	2	4	0	0	4	4
P15	2	3.6	0.2828427	0.2	1.0587591	6.1412409
P16	2	3.3	0.4242641	0.3	-0.511861	7.1118614
P17	2	3.8	0	0	3.8	3.8
P18	2	4.1	0.1414214	0.1	2.8293795	5.3706205
P19	2	4.3	0.1414214	0.1	3.0293795	5.5706205

Figure 3. Results of Bivariate Analysis of Layout Variables  
 Source: Prasandya, 2023



Means and Std Deviations						
Level	Number	Mean	Std Dev	Std Err		
				Mean	Lower 95%	Upper 95%
P20	2	3.9	0.4242641	0.3	0.0081306	7.7118614
P21	2	3.7	0.1414214	0.1	2.4293795	4.9706205
P22	2	3.9	0.4242641	0.3	0.0881386	7.7118614
P23	2	3.9	0.1414214	0.1	2.6293795	5.1706205
P24	2	3.8	0	0	3.8	3.8
P25	2	3.5	0.1414214	0.1	2.2293795	4.7706205
P26	2	3.6	0.2828427	0.2	1.0587591	6.1412409
P27	2	4	0.2828427	0.2	1.4587591	6.5412409
P28	2	3.8	0.2828427	0.2	1.2587591	6.3412409
P29	2	4.1	0.1414214	0.1	2.8293795	5.3706205
P30	2	3.5	0.1414214	0.1	2.2293795	4.7706205
P31	2	3.1	0.1414214	0.1	1.8293795	4.3706205
P32	2	3.5	0.1414214	0.1	2.2293795	4.7706205
P33	2	4.2	0.2828427	0.2	1.6587591	6.7412409
P34	2	3.6	0.5656854	0.4	-1.482482	8.6824819
P35	2	4	0	0	4	4
P36	2	4	0	0	4	4
P37	2	4	0.2828427	0.2	1.4587591	6.5412409
P38	2	3.8	0	0	3.8	3.8
P39	2	3.2	0.2828427	0.2	0.6587591	5.7412409
P40	2	3.8	0	0	3.8	3.8
P41	2	3.5	0.1414214	0.1	2.2293795	4.7706205
P42	2	4	0.2828427	0.2	1.4587591	6.5412409
P43	2	2.9	0.1414214	0.1	1.6293795	4.1706205
P44	2	3.3	0.4242641	0.3	-0.511861	7.1118614
P45	2	3.6	0.8485281	0.6	-4.023723	11.223723



Means and Std Deviations						
Level	Number	Mean	Std Dev	Std Err		
				Mean	Lower 95%	Upper 95%
P46	2	7.3	5.7982756	4.1	-44.79544	59.395439
P47	2	4	0	0	4	4
P48	2	3.8	0	0	3.8	3.8
P49	2	3.9	0.1414214	0.1	2.6293795	5.1706205
P50	2	3.7	0.7071068	0.5	-2.653102	10.053102
P51	2	3.9	0.4242641	0.3	0.0881386	7.7118614
P52	2	3.7	0.4242641	0.3	-0.111861	7.5118614
P53	2	3.7	0.1414214	0.1	2.4293795	4.9706205
P54	2	3.7	0.4242641	0.3	-0.111861	7.5118614
P55	2	3	0.2828427	0.2	0.4587591	5.5412409
P56	2	3.5	0.1414214	0.1	2.2293795	4.7706205
P57	2	3.4	0.5656854	0.4	-1.682482	8.4824819

Figure 4. Results of Bivariate Analysis of Space Structure Variables (Left) and Amenities (Right)  
 Source: Prasandya, 2023



The results of the research team's assessment on the sub-criteria of site variables (Figure 2) that are predominantly accommodated in both public open spaces include being easily reached by various means of transportation, having the potential for existing landscapes that can create landscape experience, having a sufficient space size to accommodate all visitor activities, open space can minimize negative factors of urban noise, as well as having good air movement. While the dominant sub-criteria are not accommodated in both public open spaces, they are close to the drop off vehicles, the availability of secondary access that facilitates staff in maintenance, clear open space boundaries, locations far from sources of air and noise pollution, and site locations allow visitors to enjoy natural sounds. The dominant sub-criteria that are not accommodated must certainly be reconsidered in both places of public open space to be able to accommodate the concept of ecotherapy.

The results of the research team's assessment of the sub-criteria of layout variables (Figure 3) that are predominantly accommodated in both public open spaces include having circulation paths that are easy to understand, open space layouts are easy to understand, open spaces have a clear view from all sides and make visitors feel safe, and offer beautiful and visible views of open space from the entrance. While zoning criteria (having activity and restorative zones, clear division of public and private zones, and having an orderly setting) are dominant criteria not accommodated in both public open spaces. Meeting zoning criteria is certainly needed in both places of public open space to be able to accommodate the concept of ecotherapy.

The results of the research team's assessment of the sub-criteria of the space structure variable (Figure 4) that are predominantly accommodated in both public open spaces include open space elements accommodating physical and emotional security, open space elements are attractive and can distract users from stress, maintenance and sustainability of well-maintained open spaces, entrance attractive, has a safe and comfortable path, has a well-organized path, path design can motivate visitors to move, landscape elements are multi-sense, landscape design allows visitors to access gardens and plants directly, the use of plants that can attract fauna, accommodate varied types of vegetation, furniture has long durability, sculpture elements are available and Artwork that has an effective and informative message.

The dominant sub-criteria are not accommodated in both public spaces including entrance easy to see and easy to reach, accessible pedestrian paths for wheelchair users, parking locations can be clearly seen and accessible to visitors, vehicle parking distances close to open spaces, parking areas are available with the number according to needs, natural and artificial waterscape elements are available , Furniture that is flexible and multi-purpose, attractive furniture design, available various choices of movable seating, available lighting that supports a sense of security and provides environmental aesthetics, and there are shaded areas that can accommodate large group and small group activities. The fulfillment of the dominant sub-criteria is not accommodated in these two public spaces certainly needs to be reconsidered so that these public open spaces can accommodate the concept of ecotherapy.

The results of the research team's assessment of the sub-criteria of variable amenities (Figure 5) are predominantly accommodated in both public open spaces, only space design that allows safe and comfortable use for everyone, space design can encourage users to do physical movements and other activities, accommodate open spaces that are flexible and multifunctional, and informative sign systems. While other sub-criteria cannot be accommodated in both public open spaces. The amenities variable sub-

criterion is the sub-criterion that most cannot be accommodated in both public open spaces. For this reason, the fulfillment of all sub-criteria in the amenities variable needs to be reconsidered so that public open spaces can accommodate the concept of ecotherapy.

Based on the results of bivariate analysis of all variables that can be seen in Figure 6, judging from the site variables, it can be concluded that the two public open spaces that are used as dominant study objects have accommodated the criteria of natural physical components, while the accessibility and location criteria still need to be adjusted again in order to accommodate the concept of ecotherapy that supports visitors' mental health. Important accessibility criteria to be adjusted include bringing public open spaces closer to the vehicle drop off area so that visitors are not far away from walking to open spaces, and accommodating secondary access in areas that can be used by staff at any time in case of emergency.

Important location criteria to be adjusted include allowing the area to accommodate natural sounds generated by the sound of leaves, running water, and animal chirping to be able to provide a calming natural perception to visitors and allow open space areas to be free from air pollution and noise that can cause distractions.

Judging from the layout variables, based on the results of bivariate analysis, it can be concluded that the two public open spaces that are the dominant study objects have accommodated circulation and visibility criteria. Zoning criteria that are important to adjust to both public open spaces include being able to better accommodate activity zones and restorative zones with balanced quantities and accommodating zone divisions that include public and private zones more clearly. Judging from the space structure variable, based on the results of bivariate analysis, it can be concluded that the two public open spaces used as study objects cannot meet parking criteria and furniture criteria.

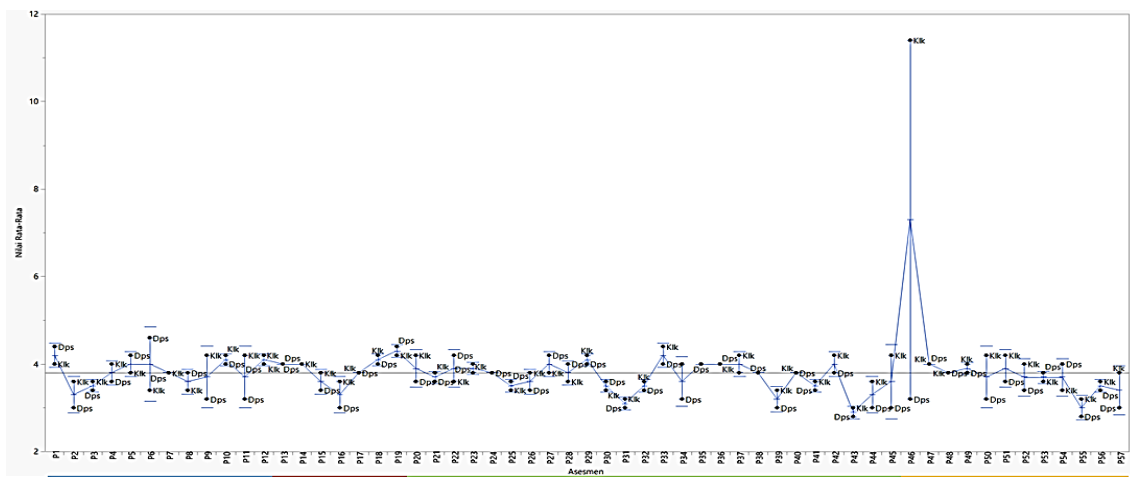


Figure 5. Results of Bivariate Analysis of Overall Variable Variables

Source: Prasandya, 2023

Both public open spaces that are used as objects of study are very good at accommodating landscape criteria. Some sub-criteria that need to be readjusted in both public open spaces to better accommodate the concept of *ecotherapy* include both public open spaces must be more able to accommodate the physical and emotional comfort of visitors by presenting an aesthetic environment that helps visitors to relax, the second entrance of public open spaces must be more visible and accessible for people with disabilities, and pedestrian paths in both public open spaces must be accessible to wheelchair users.

Judging from the amenities variable, based on the results of bivariate analysis, it can be concluded that the two public open spaces that are used as study objects are very good at accommodating space criteria. Second, the public open space used as the object of study cannot meet the criteria of facilities and marking systems properly. Some sub-criteria that must be adjusted to both public open spaces include equipping open space areas with an informative marking system in showing directions or routes; location of entrance; parking; gathering place; and so on, more accommodating space that can act as leisure space (in the form of seating under a tree, playground, resting area, culinary area, hiking space, and art place), more accommodating space that acts as exercise space (bicycle paths, reflection paths, meditation areas), more accommodating spaces that act as Hobby Space (urban farming, skatepark, care farming), accommodates more spaces that act as education space (places to read or study, mini libraries), and accommodates other supporting facilities needed in the area such as guard posts, trash cans placed at strategic points, clean toilets with sufficient clean water availability, and Wi-Fi.

## 5. CONCLUSION

In order to create public open spaces as new tourist destinations for city residents that can improve the mental health of visitors, the design elements of two public open spaces used as research objects, namely Bajra Sandi Monument and Kertha Gosa Park, need to be adjusted. Based on the bivariate analysis conducted, the public open space used as the object of research, namely Bajra Sandi Monument and Kertha Gosa Park, has been very good in accommodating the sub-criteria of landscape, space, visibility, and circulation. Some criteria that need to be considered again and must be accommodated by public open spaces to be able to implement the concept of ecotherapy include criteria for facilities, parking, furniture, marking systems, entrance, zoning, and accessibility. The two characteristics of public open space that are used as research objects are both lacking in meeting the indicators on the variables: amenities, site, and space structure, so relevant stakeholders need to pay attention and meet every dominant indicator that is not met in order to create public open space that can improve the mental health of visitors.

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