Contents available at Iraqi Academic Scientific Journals

Iraqi Journal of Architecture and Planning

المجلة العراقية لهندسة العمارة والتخطيط

Journal homepage: https://iqjap.uotechnology.edu.iq

Impacts of Design Features in Urban Green Spaces on Place Attachment and Visitors' Experience

تأثير عناصر تصميم المساحات الخضراء الحضرية على الارتباط بالمكان وتجربة الزوار

Mahmoud Abuhayya [a] *, Albert Fekete [a]

[a] Institute of Landscape Architecture, Urban Planning and Garden Art, Hungarian University of Agriculture and Life Sciences, 1118 Budapest, Hungary.

Submitted: 04/06/2023 Accepted: 04/07/2024 Published: 09/09/2024

K E Y W O R D S

Urban Green Spaces, Place Attachment, Visitor Experience, Design Features, Health Benefits

A B S T R A C T

This study aims to investigate the influence of perceived design features of Urban Green Spaces (UGSs) on visitors' place attachment, motivation to visit, happiness, and health benefits. A cross-sectional survey design was employed, and data were collected from visitors to four UGSs in Gaza City using a systematic sampling approach. The survey instrument incorporated established items from previous studies and underwent rigorous expert review to ensure validity and reliability. The findings highlight the importance of specific design elements in enhancing UGSs attractiveness and fostering place attachment. While perceived UGSs design showed weak associations with motivation, happiness, and health outcomes, it exhibited a moderate positive correlation with place attachment. The study's implications underscore the significance of UGSs design in creating meaningful experiences and promoting a sense of belonging among visitors, informing evidence-based design practices and policies. Further research is needed to delve into the complex relationship between UGSs design, visitor experiences, and well-being outcomes.

الكلمات المفتاحية

المساحات الخضراء الحضرية، الارتباط بالمكان، تجربة الزوار، عناصر تصميم، فوائد صحية.

الملخص

تهدف هذه الدراسة إلى التحقيق في تأثير عناصر التصميم المدركة للمساحات الخضراء الحضرية على ارتباط الزوار بالمكان والدافع للزيارة والسعادة والفوائد الصحية. لأجل ذلك، تم استخدام تصميم مسح مقطعي، كما تم جمع البيانات من زوار أربع مساحات خضراء في مدينة غزة باستخدام نهج أخذ العينات المنهجي. وتضمنت استبانة المسح عناصر ثابتة من الدراسات السابقة وخضعت لتحكيم الخبراء لضمان الصلاحية والموثوقية. تسلط نتائج هذه الدراسة الضوء على أهمية عناصر تصميم محددة للمساحات الخضراء الحضرية لتعزيز الارتباط بالمكان وزيادة فائدة وجاذبية المساحات الخضراء الحضرية. أظهرت الدراسة أن عناصر تصميم المحددة ترتبط ارتباطاً إيجابيًا معتدلًا مع الارتباط بالمكان، في حين أظهرت ارتباطات ضعيفة بالتحفيز للزيارة والسعادة والفوائد الصحية. تؤكد الآثار المترتبة على الدراسة على أهمية تصميم المساحات الخضراء الحضرية في خلق تجارب ذات معنى وتعزيز الشعور بالانتماء بين الزوار والترويج لممارسات وسياسات التصميم القائمة على الأدلة. هناك حاجة إلى مزيد من البحث للتعمق في العلاقة المعقدة بين تصميم المساحات الخضراء الحضرية وعلاقتها بالارتباط بالمكان والفوائد الصحية للزوار.

* Correspondent Author contact: mahmooed@gmail.com
DOI: https://doi.org/10.36041/iqjap.2024.140791.1075

1. Introduction:

Urban green spaces (UGSs) encompass natural or open areas within cities and are characterized by grass, trees, shrubs, and other vegetation, as defined by the United Nations Environmental Protection Agency (Rajput et al., 2021). These spaces come in various sizes, ranging from community gardens to expansive public parks (Taylor & Hochuli, 2017). UGSs play a crucial role in creating livable and sustainable cities, particularly considering the ongoing urbanization and city growth. They have become increasingly essential for preserving the quality of life of urban dwellers by providing a wide array of benefits. These benefits can be classified into environmental, social, aesthetic, and biodiversity categories (Rajput et al., 2021, pp. 15–21). On the other hand, place attachment to UGSs has become an important topic in urban planning and management. Place attachment refers to the emotional connection individuals develop with the physical environment, which can significantly influence their attitudes, behaviour, and perceptions towards a particular place (Hosseini et al., 2021).

Previous studies have extensively examined various aspects of place attachment and its relationship with urban green spaces. For instance, Ramkissoon et al. (2013) investigated the dimensions of place attachment and their associations with place satisfaction and pro-environmental behavioural intentions. Özkan and Yilmaz (2019) conducted a case study focusing on Trabzon urban squares to explore the effects of physical and social attributes on place attachment, particularly emphasizing place dependency. Karami et al. (2014) delved into the correlation between urban spaces and place attachment, specifically in the Narmak neighbourhood in Tehran, providing insights into urban space features and recommendations for designing measures in residential complexes. Alrobaee and Al-Kinani (2019) shed light on the role of place dependence, discussing dimensions such as place quality and place expectation and their influence on place attachment. Furthermore, B. Han et al. (2021) examined how place attachment and greenway attributes impact older adults' well-being, considering greenways' behavioural, environmental, and intermediate attributes. These studies, along with others conducted by H. Zhang et al. (2018), Mohapatra and Mohamed (2013), Eskandari et al. (2019), Ujang (2016), Shabak et al. (2015), Lafortezza et al. (2009), Fongar et al. (2019), Zhang et al. (2017), and Cleary et al. (2019), collectively contribute to our understanding of the dimensions of place attachment, the effects of physical and social attributes, and the significance of green spaces in fostering place attachment and well-being in urban environments.

Despite the growing body of literature on the influence of urban green spaces on human well-being and place attachment, there is a lack of comprehensive understanding regarding the specific design features of UGSs that contribute to visitors' place attachment, motivation to visit, happiness, and health benefits. While some studies have explored the relationship between UGSs design and these outcomes, there is a need for further research that examines the perceived design elements of UGSs and their impact on visitors' emotional connections, motivations, happiness, and health outcomes.

The study aims to investigate the influence of perceived design features of Urban Green Spaces (UGSs) on visitors' place attachment, motivation to visit, happiness, and health benefits. The research objectives are to examine the relationship between the perceived design of UGSs and the level of place attachment among visitors and to assess the influence of different design features of UGSs on visitors' motivation to visit, happiness, and health benefits. The research question guiding this study is: How do perceived design features of UGSs influence visitors' place attachment, motivation to visit, happiness, and health benefits?

2. Research Methodology:

2.1. Theoretical Framework:

Urban Green Spaces (UGS) are defined as natural or open areas within urban environments characterized by the presence of vegetation, such as grass, trees, and shrubs. These spaces range from small community gardens to large public parks, playing a crucial role in enhancing urban livability and sustainability. The United Nations Environmental Protection Agency highlights UGS's importance in counterbalancing rapid urbanisation's effects by providing essential ecological and social functions (Rajput et al., 2021).

UGS offer a multitude of benefits that can be categorized into environmental, social, and aesthetic dimensions. Environmentally, UGS contribute to reducing urban heat islands, improving air quality, and

aiding in stormwater management. They serve as habitats for urban wildlife, thus supporting biodiversity. Socially, UGS are vital recreational spaces that promote physical activity, relaxation, and social interaction. They provide venues for community gatherings and events, fostering community cohesion and enhancing the social fabric of urban areas. Aesthetically, well-designed UGS add to the visual appeal of urban landscapes, offering scenic beauty and tranquillity, which contribute to the overall well-being of urban residents.

The evaluation of UGS involves assessing their accessibility, usability, and overall impact on the urban environment and its inhabitants. Key indicators include the availability of green space per capita, plant species diversity, recreational facilities, and user satisfaction. Evaluations often employ quantitative measures, such as spatial analysis and biodiversity assessments, and qualitative approaches, like visitor surveys and interviews. These evaluations help urban planners and policymakers make informed decisions to enhance the functionality and sustainability of UGS, ensuring they meet the needs of the community and contribute positively to urban ecosystems.

In evaluating Urban Green Spaces (UGS), a rigorous selection process is essential to ensure a comprehensive and representative sample. For the study, several criteria were meticulously considered to capture a diverse array of UGSs in Gaza City. These criteria included the type of UGS, ranging from community gardens to larger parks, which reflects the variety of green spaces available within the urban context. The size and location of each UGS were assessed to ensure coverage of different scales and neighbourhoods, thus providing a representative cross-section of the city's green infrastructure. Accessibility was also a critical factor, ensuring that the selected UGSs were reachable and usable by a broad population segment. Furthermore, the presence of greenery and natural features, such as trees, water bodies, and landscaped areas, was evaluated to understand their contribution to the ecological and aesthetic quality of the spaces. This comprehensive selection approach helps understand the diverse characteristics of UGSs and their impact on urban residents' experiences and place attachment.

2.2. Study Design:

This study employed a cross-sectional survey design to investigate visitor attachment to urban green spaces in Gaza City. The survey was conducted between April and May 2023, and data were collected from visitors to the selected UGSs during peak hours on weekdays and weekends.

Selection of UGSs: The selected UGSs were centrally located in Gaza City, making them easily accessible to residents and visitors. Additionally, they were chosen for their varied features and historical significance within the city. These factors made the selected UGSs suitable for examining visitor attachment, well-being, and perceptions of greenery and natural elements, providing a comprehensive analysis of attachment to UGSs in Gaza City. Based on the criteria above, four UGSs were selected for this study: Site 1, the Unknown Soldier Square, Site 2, Alsaraya, Site 3, Municipality Garden, and Site 4, Palestine Square. Figure (1) displays the locations of all the sites within the Gaza City Center map.

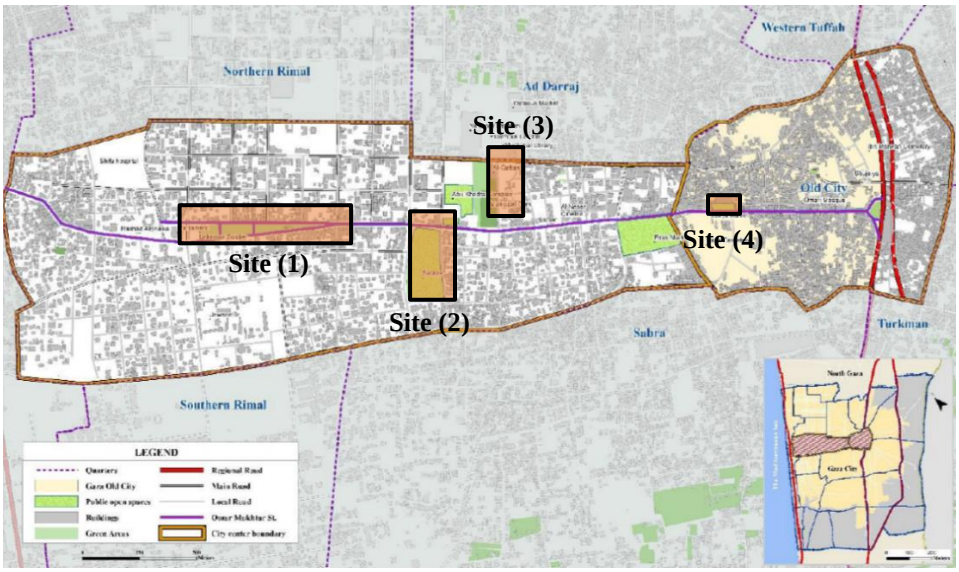

Figure 1: Map of selected UGSs in Gaza City Center (Source: Gaza Municipality, edited by authors).

2.3. Sampling and Sample Size:

Selecting an appropriate sample is crucial in ensuring the validity and reliability of survey results. In this study, the sample consisted of visitors to four urban spaces in Gaza City who met specific criteria, including 18 years or older and willing to participate in the survey; this sample includes adults with mature perspectives on UGS and its impact. Adults must provide more nuanced and informed feedback about their experiences and attachments to UGSs. Furthermore, focusing on willing participants enhances the validity of the data by ensuring that responses are genuine and reflective of true opinions, thereby improving the reliability of the survey results. This approach helps obtain accurate insights into how UGS design affects visitor experiences and place attachment. A systematic sampling approach was employed to achieve a representative sample, which involved selecting every 10th visitor who entered the urban space during the survey period. The sample size was determined based on statistical power calculations, which indicated that a sample size of 400 visitors would yield a sufficient level of statistical significance and precision of estimates. This sample size was divided equally across the four urban spaces, with 100 visitors surveyed at each site. The selection criteria and sampling approach used in this study were designed to ensure a diverse and representative sample of visitors to the four urban spaces, which would enhance the generalizability of the study findings and increase their validity.

2.4. Survey Instrument:

In this study, the survey instrument was designed to comprehensively assess visitors' perceptions of UGSs design and the study aspects. This was achieved by incorporating items from existing studies, including those by Lee and Kim (2015), Madureira et al. (2018), Lo and Jim (2012), Sanesi and Chiarello (2006), Campagnaro et al. (2020), which were adapted to suit the specific research questions of the current investigation. The survey items were carefully selected and modified to ensure that they accurately captured visitors' attachment to the UGSs, evaluated their perceptions of design features in these areas, and assessed their overall place attachment and well-being during their visit. By incorporating established items from previous studies, the survey instrument could draw on a wide range of expertise and research findings in this area, providing a comprehensive and reliable means of data collection.

In order to guarantee the accuracy and dependability of the questionnaire, a rigorous review process was undertaken. Specifically, seven eminent experts in landscape architecture and urban planning were invited to evaluate the survey instrument critically. This review process was essential to identify any potential flaws in the survey instrument and ensure that the questions were appropriately framed and constructed. The experts examined the questionnaire from multiple angles, including its design, wording, structure, and overall coherence. They provided feedback and recommendations to enhance the questionnaire's validity and reliability. Through this process, the questionnaire underwent several iterations and revisions based on the feedback provided by the experts. This rigorous review process was critical in ensuring that the questionnaire was comprehensive, relevant to the research questions, and methodologically sound and scientifically rigorous. Thus, the input and expertise of these seven experts were instrumental in refining the survey instrument to make it a valid and reliable tool for data collection, ultimately contributing to the rigour and validity of the research findings.

The survey questionnaire consisted of three main sections. The first section focused on gathering socio-demographic information from the participants, including their age, gender, location (resident or visitor), occupation, education level, frequency of visiting urban green spaces, and the typical duration of their visits. The second section aimed to assess the perceived design features of urban green spaces. Participants were asked to rate their agreement with statements related to the design of the UGS, such as having an attractive design and a clear layout, incorporating human-made features and elements, incorporating a large proportion of green cover with high quality, incorporating various natural features, incorporating having a unique or memorable character. The third section focused on the participants' level of place attachment to the UGS. They were asked to rate their agreement with statements about place identity, dependence, emotional bonding, social bonding, and environmental concern. Lastly, participants were asked to rate their agreement with statements related to other aspects of their experiences, such as their motivation to visit the UGS, feelings of happiness when visiting the UGS, and perceptions of their health concerning visiting the UGS.

2.5. Data Analysis:

The present study used descriptive statistics to analyze the collected data comprehensively. Specifically, this involved conducting an in-depth examination of the demographic information, visitor perceptions, visitor attachment, and visitor well-being data to gain a thorough understanding of the patterns and trends within the data. To achieve this, a range of statistical techniques were applied to the data, including calculating mean scores for each item on the survey. This provided a comprehensive overview of the respondents' attitudes and perceptions towards the greenery and natural elements in the selected UGSs and their overall well-being during their visit. Moreover, it allowed for identifying significant differences or similarities in visitor experiences across the various UGSs.

The statistical analysis was performed using the latest version of the Statistical Package for the Social Sciences (SPSS), version 27. This software package is widely recognized as a highly reliable and user-friendly tool for data analysis in the social sciences and was therefore deemed suitable for the present study. Using SPSS also allowed for applying advanced statistical techniques, such as inferential statistics, to explore the relationships and interactions between the variables.

Ethical Considerations:

Ethical considerations were taken into account in this study. The survey was voluntary, and participants were informed that their participation was anonymous and confidential. Participants were also informed that they had the right to withdraw from the study without giving a reason. Informed consent was obtained from all participants before they completed the survey.

2.6. Limitations:

Several limitations should be acknowledged in this study. Firstly, the cross-sectional survey design limited the establishment of causal relationships between variables. Secondly, the study focused on UGSs in Gaza City, which may limit the generalizability of the findings to other contexts. Thirdly, self-report measures were used, subject to response biases and subjective interpretations. Lastly, the sampling approach relied on visitors' willingness to participate, potentially introducing selection bias.

3. Results:

3.1. Perceived Design Features of Urban Green Spaces:

Respondents were asked to rate their perceptions of UGS's design in this section. The Table provided includes six items rated on a Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The items relate to various aspects of the UGS design, such as its attractiveness, layout and organization, incorporation of human-made and natural features, and unique or memorable character.

Table (1) displays the survey results that assessed respondents' perception towards the design and features of UGSs.

Table 1: Means and Test Values for Visitor Perception of Urban Green Space (Source: Authors).

#	Item	Mean	S.D	Proportional Mean(%)	Test Value	P-Value (Sig.)	Rank
1	The UGS has an attractive design.	2.710	1.485	54.20	-3.905	0.000	3
2	The layout and organization of the UGS are clear and easy to understand.	2.603	1.497	52.05	-5.312	0.000	6
3	The UGS incorporate human-made features and elements.	2.615	1.487	52.30	-5.177	0.000	5
4	The UGS incorporates a large proportion of high-quality green cover and multiple uses.	2.718	1.466	54.35	-3.855	0.000	1
5	The UGS incorporate various natural features and elements.	2.635	1.499	52.70	-4.869	0.000	4
6	The UGS has a unique or memorable character and elements.	2.715	1.456	54.30	-3.916	0.000	2
Total		**2.666**	**0.917**	**53.32**	**-7.289**	**0.000**	

The Table displays the survey results that assessed respondents' perceptions of the design and features of UGSs. The mean score and standard deviation (S.D.) were calculated for each item, along with the proportional mean, test value, p-value, and rank.

The item with the highest mean score and ranking was "The UGS incorporate large proportion green cover with high quality, and multiple uses" (mean = 2.718, rank = 1). This indicates that participants highly valued the presence of greenery in UGS and preferred it to be of high quality and able to serve multiple functions. This finding aligns with previous research that has identified the importance of green spaces in improving the aesthetic appeal of urban areas, promoting biodiversity, and providing recreational opportunities for individuals (Colding & Barthel, 2017; Shanahan et al., 2015).

The item with the second-highest ranking was "The UGS has a unique or memorable character and elements" (mean = 2.715, rank = 2). This suggests that participants appreciated UGS, which was distinctive and memorable, potentially enhancing their overall experience and satisfaction with the space. This finding is consistent with studies highlighting the role of unique design features in increasing green spaces' attractiveness and perceived value (e.g., Shoval et al., 2016).

The third-highest ranked item was "The UGS has an attractive design" (mean = 2.710, rank = 3), indicating that participants also highly valued aesthetic appeal. This aligns with previous research that has emphasized the importance of visual quality in promoting positive attitudes towards green spaces and encouraging their use (Kaplan & Kaplan, 1989).

The remaining items were also rated highly, with mean scores ranging from 2.603 to 2.635. Overall, the results suggest that participants placed significant importance on the design aspects of UGS, including incorporating natural and human-made features, clear layout and organization, and varied natural elements. These findings have important implications for the design and management of UGS, highlighting the need to prioritize factors such as greenery, uniqueness, and aesthetic appeal to enhance their overall value and effectiveness.

3.2. Place Attachment to the UGS:

To understand the level of place attachment to UGS, the questionnaire consisted of statements related to five dimensions of place attachment: place identity, place dependence, emotional bonding, social bonding, and environmental concern. Based on the questionnaire analysis, the mean scores and test values for the level of place attachment to the UGS are presented in Table (2) below. The respondents were asked to rate their agreement with various statements about place attachments on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 2: Means and Test values for "Level of Place Attachment to the UGS" (Source: Authors).

#	Item	Mean	S.D	Proportional Mean(%)	Test Value	P-Value (Sig.)	Rank
1	Place identity: I feel a sense of identity with this UGS.	2.838	1.457	56.75	-2.231	0.026	1
2	Place dependence: I rely on this UGS for my recreational and social needs.	2.685	1.458	53.70	-4.321	0.000	2
3	Emotional bonding: I have strong emotional ties to the UGS.	2.598	1.505	51.95	-5.347	0.000	5
4	Social bonding: I feel a sense of community and visitors in the UGS.	2.628	1.501	52.55	-4.962	0.000	4
5	Environmental concern: I feel responsible for protecting and preserving the UGS.	2.673	1.495	53.45	-4.380	0.000	3
Total		**2.684**	**0.678**	**53.68**	**-9.319**	**0.000**	

The results indicate that the respondents reported a high level of place attachment to the UGS, with an overall mean score of 2.684 (53.68% proportional mean). Among the five dimensions of place attachment, "place identity" had the highest mean score of 2.838 (56.75% proportional mean) and was ranked first. This indicates that the respondents felt a sense of identity with the UGS. The second highest mean score was for "place dependence", with a score of 2.685 (53.70% proportional mean) and was ranked second. This suggests that the respondents rely on the UGS for their recreational and social needs.

The mean "environmental concern" score was 2.673 (53.45% proportional mean) and ranked third. This indicates that the respondents felt responsible for protecting and preserving the UGS. "Social bonding" and "emotional bonding" dimensions had mean scores of 2.628 (52.55% proportional mean) and 2.598 (51.95% proportional mean), respectively, and were ranked fourth and fifth. These results suggest that the respondents felt a sense of community and visitors in the UGS and had strong emotional ties to it. The test values for all dimensions of place attachment were significant at $p<0.05$, indicating that the means were significantly different from each other. The total test value was -9.319 ($p<0.001$), suggesting a significant difference between the mean scores for all dimensions of place attachment.

In summary, the questionnaire results suggest that the respondents had a high level of place attachment to the UGS, with the strongest dimension being "place identity." These findings have important implications for the management and planning of urban green spaces as they suggest that enhancing the sense of place identity can promote a greater attachment to the UGS among visitors.

3.3. UGS Design Relationship with Motivation, Happiness, Health, and Place Attachment:

Table (3) shows the correlations between perceived UGS design with motivation to visit, happiness, health, and level of place attachment to the UGS.

Table 3: The Relationship between UGS design and the study aspects (Source: Authors).

	Level of Place Attachment to the UGS	Health: I feel healthy when I visit the UGS	Happiness: I feel happy when I visit the UGS	Motivation to visit: I feel motivated to visit the UGS
Perceived UGS Design	.178**	0.027	0.000	0.092

Firstly, there was a weak positive correlation ($r = 0.092$) between perceived UGS design and motivation to visit. This indicates that individuals who perceive UGS design more favourably tend to feel slightly more motivated to visit these green spaces. However, it is important to note that the correlation coefficient is relatively low, suggesting that other factors may strongly influence individuals' motivation to visit UGS. Secondly, the correlation between perceived UGS design and happiness was insignificant ($r = 0.000$). This means there was no discernible relationship between individuals' perception of UGS design and their level of happiness when visiting these spaces. It implies that factors other than design, such as social interactions, activities, or personal preferences, might significantly determine one's happiness in UGS.

Thirdly, a small positive correlation ($r = 0.027$) was observed between perceived UGS design and health. This suggests that individuals who perceive UGS design more positively also tend to feel slightly healthier when visiting these green spaces. However, similar to the motivation to visit, the correlation coefficient indicates a weak association, indicating that perceived UGS design alone may not be the primary driver of health benefits experienced in UGS. Lastly, a noteworthy finding was the moderate positive correlation ($r = 0.178$**) between perceived UGS design and the level of place attachment to the UGS. This indicates that individuals with a more positive perception of UGS design are likelier to develop a stronger sense of attachment to these spaces. The coefficient suggests a stronger relationship than the other factors examined, indicating that UGS design can influence the emotional connection and sense of belonging individuals feel towards these green spaces.

The survey results provide insights into the relationships between perceived UGS design and various factors. While perceived design showed weak associations with motivation to visit, happiness, and health, it exhibited a relatively stronger correlation with place attachment. These findings suggest that UGS design can foster a sense of attachment and emotional connection, but other factors may have a greater impact on motivation, happiness, and health outcomes experienced in UGS.

4. Discussion:

The current study's findings provide valuable insights into the design features of UGS that respondents highly value. Incorporating a large proportion of high-quality green cover and multiple uses emerged as a significant aspect, indicating the importance of greenery in UGS. This finding aligns with previous research by Karami et al. (2014), which emphasized the role of qualitative design attributes in enhancing neighbourhood attachment. It suggests that including well-designed green spaces with high-

quality green cover can contribute to UGS's overall attractiveness and perceived value. Furthermore, the current study highlights the significance of unique and memorable design elements in increasing UGS's attractiveness and perceived value. This finding resonates with the research by Alrobaee and Al-Kinani (2019), which identified physical indicators, such as the existence of open and green spaces, land use diversity, and diverse housing types, as factors closely related to place attachment. The presence of distinct design features in UGS can enhance users' experiences, create a sense of place, and promote a stronger emotional connection to the surroundings.

The current study's emphasis on the role of UGS design features in enhancing visitors' experiences and overall satisfaction aligns with the growing body of literature that recognizes the positive effects of well-designed green spaces. Previous research by Lafortezza et al. (2009) and (Fongar et al., 2019) emphasizes the ability of green spaces to alleviate thermal discomfort, provide fresh air, experiences of nature, and a sense of quietness. These studies highlight the intrinsic motives that attract users to UGS and their positive impact on well-being. Additionally, the current study emphasizes the importance of considering outdoor community planning features, such as outdoor space quality, circulation planning, outdoor recreational facilities, and community layout. This finding corresponds to the research conducted by H. Zhang et al. (2018), which identified similar factors through exploratory factor analysis. It underscores the significance of comprehensive planning and design in creating UGS that are functional, accessible, and appealing to users. The current study's findings also complement the research by Eskandari et al. (2019) and Zhang et al. (2017) by emphasizing the role of place attachment components and perceived green space quality. Including well-designed green spaces, pedestrian access, furniture, and driveway access contributes to users' attachment to the place, while the availability of accessible and usable green spaces positively affects residents' satisfaction with their neighbourhood.

Secondly, the current study's findings shed light on the high level of place attachment exhibited by respondents towards UGS. Several dimensions were identified as significant contributors to this attachment, including place identity, place dependence, environmental concern, social bonding, and emotional bonding. These dimensions collectively highlight UGS's social, emotional, and ecological significance in fostering a sense of belonging and attachment among visitors. The results of the current study are consistent with previous research conducted by Ramkissoon et al. (2013), which found that place satisfaction can act as a useful antecedent to place attachment. This suggests that when individuals perceive UGS as meeting their needs and providing a satisfactory experience, they are more likely to develop a stronger attachment to those spaces. Similarly, the study by Özkan and Yilmaz (2019) demonstrated that place attachment increases in successful urban spaces where user needs are effectively met. These findings emphasize the importance of creating UGS that cater to the diverse needs of visitors, thereby fostering a stronger sense of attachment.

The current study's findings also align with the research conducted by H. Zhang et al. (2018), which revealed that higher levels of satisfaction with outdoor space quality and community layout were associated with greater place attachment and lower community participation. This suggests that a well-designed UGS with appealing outdoor spaces and a well-planned community layout can foster a sense of attachment among visitors while reducing the need for active community participation. It highlights the role of physical characteristics in shaping the social dynamics and emotional relationships individuals develop with UGS. Furthermore, the research by Mohapatra and Mohamed (2013) supports the current study's findings by emphasizing the role of place attachment in influencing collaborative management perspectives and creating socially inclusive open spaces. Place attachment fosters a sense of connection and shapes individuals' perspectives and behaviours towards managing and preserving UGS. It highlights the social underpinnings of emotional relationships with places and emphasizes the importance of fostering a sense of ownership and responsibility among visitors. The current study's findings also resonate with the research conducted by Ujang (2016), which indicates that the social attachment to places is strongly defined by interactions with familiar people in those places. It suggests that UGS should provide diverse interactions and socialization opportunities, allowing visitors to engage with familiar individuals and form meaningful social bonds. Creating multifunctional spaces within UGS can enhance its capability to accommodate various activities and facilitate diverse social interaction.

Lastly, the current study's findings regarding the relationship between perceived UGS design and factors such as motivation to visit, happiness, health, and place attachment provide valuable insights into

the role of design in shaping visitors' experiences. While weak associations were found between perceived UGS design and motivation to visit, happiness, and health, a moderate positive correlation was observed with the level of place attachment. These results suggest that while UGS design may influence visitors' experiences, other factors such as social interactions, activities, and personal preferences play a more substantial role in determining motivation, happiness, and health outcomes. These findings align with the research conducted by Özkan and Yilmaz (2019), which found that social attributes, particularly the social environment, had a higher impact on users' functional attachment than physical attributes. It indicates that the social aspects of UGS, such as social interactions and community engagement, may have a greater influence on visitors' well-being and attachment than design elements alone.

The current study's emphasis on the moderate positive correlation between perceived UGS design and place attachment is consistent with previous research findings. Studies by B. Han et al. (2021) and H. Zhang et al. (2018) highlight the significant effects of greenway quality, neighbourhood social capital, and place attachment on well-being. They suggest that positive perceptions of UGS design and a stronger sense of place attachment contribute to improved well-being outcomes. Furthermore, the research by Shabak et al. (2015) indicates that natural features and facilities in UGS have a greater effect on developing children's sense of place attachment than architectural design elements. This highlights the importance of incorporating natural elements and providing facilities that cater to the needs and preferences of different user groups, especially children, in UGS design.

The findings from Lafortezza et al. (2009) and (Fongar et al., 2019) emphasize the positive impact of frequent visits and perceived high quality of UGS on users' perceived benefits, well-being, and green space visits. These studies suggest that a positive perception of UGS design, coupled with frequent visits, contributes to enhanced user experiences and well-being outcomes. Additionally, the research by Zhang et al. (2017) and Cleary et al. (2019) supports the importance of neighbourhood satisfaction and perceptions of local urban green spaces in relation to well-being. It suggests that the quality and availability of green spaces in the neighbourhood contribute to residents' satisfaction and psychological well-being.

5. Conclusion:

In conclusion, this study examined respondents' perceptions of the design features of Urban Green Spaces and their level of place attachment to these spaces. The results revealed the importance of specific design elements in enhancing the aesthetic appeal and value of UGSs, such as incorporating a large proportion of green cover with high quality and multiple uses, as well as unique and memorable design elements in UGS. The study also found a high level of place attachment among respondents, with dimensions such as place identity, place dependence, environmental concern, social bonding, and emotional bonding contributing to this attachment. While perceived UGS design showed weak associations with motivation, happiness, and health outcomes, it exhibited a moderate positive correlation with place attachment. These findings emphasize the significance of UGS design in creating meaningful experiences and fostering a sense of belonging among visitors. They have implications for urban planners and designers in prioritizing design elements that enhance UGS attractiveness and promote place attachment. To inform evidence-based design practices and policies, further research is needed to explore the complex relationship between UGS design, visitor experiences, and well-being outcomes.

References:

Alrobaee, T. R., & Al-Kinani, A. S. (2019). Place dependence as the physical environment role function in the place attachment. IOP Conference Series: Materials Science and Engineering, 698(3), 033014. https://doi.org/10.1088/1757-899X/698/3/033014

Campagnaro, T., Vecchiato, D., Arnberger, A., Celegato, R., Da Re, R., Rizzetto, R., Semenzato, P., Sitzia, T., Tempesta, T., & Cattaneo, D. (2020). General, stress relief and perceived safety preferences for green spaces in the historic city of Padua (Italy). Urban Forestry and Urban Greening, 52. https://doi.org/10.1016/j.ufug.2020.126695

Cleary, A., Roiko, A., Burton, N. W., Fielding, K. S., Murray, Z., & Turrell, G. (2019). Changes in perceptions of urban green space are related to changes in psychological well-being: Cross-sectional and longitudinal study of mid-aged urban residents. Health & Place, 59.

https://doi.org/10.1016/J.HEALTHPLACE.2019.102201

Eskandari, M., Balilan Asl, L., & Sattarzadeh, D. (2019). Promoting the Sense of Place Attachment through Enplaning the Meaning of Place in the Open Space of Aseman-e-Tabriz Residential Complex. Armanshahr Architecture & Urban Development, 12(26), 15–30. https://doi.org/10.22034/AAUD.2019.89050

Fongar, C., Aamodt, G., Randrup, T. B., & Solfjeld, I. (2019). Does Perceived Green Space Quality Matter? Linking Norwegian Adult Perspectives on Perceived Quality to Motivation and Frequency of Visits. International Journal of Environmental Research and Public Health, 16(13). https://doi.org/10.3390/IJERPH16132327

Han, B., Li, D., & Chang, P. J. (2021). The effect of place attachment and greenway attributes on well-being among older adults in Taiwan. Urban Forestry & Urban Greening, 65, 127306. https://doi.org/10.1016/J.UFUG.2021.127306

Hosseini, F., Sajadzadeh, H., Aram, F., & Mosavi, A. (2021). The Impact of Local Green Spaces of Historically and Culturally Valuable Residential Areas on Place Attachment. Land 2021, Vol. 10, Page 351, 10(4), 351. https://doi.org/10.3390/LAND10040351

Karami, S., Ghafary, M., & Fakhrayee, A. (2014). Analyzing the Correlation between Urban Spaces and Place Attachment Evidence from: Narmak Neighborhood in Tehran. European Online Journal of Natural and Social Sciences: Proceedings, 3(4(s)), 129–139. https://european-science.com/eojnss_proc/article/view/4159

Lafortezza, R., Carrus, G., Sanesi, G., & Davies, C. (2009). Benefits and well-being perceived by people visiting green spaces in periods of heat stress. Urban Forestry & Urban Greening, 8(2), 97–108. https://doi.org/10.1016/J.UFUG.2009.02.003

Lee, Y. C., & Kim, K. H. (2015). Attitudes of citizens towards urban parks and green spaces for urban sustainability: The case of Gyeongsan City, Republic of Korea. Sustainability (Switzerland), 7(7), 8240–8254. https://doi.org/10.3390/su7078240

Lo, A. Y. H., & Jim, C. Y. (2012). Citizen attitude and expectation towards greenspace provision in compact urban milieu. Land Use Policy, 29(3), 577–586. https://doi.org/10.1016/j.landusepol.2011.09.011

Madureira, H., Nunes, F., Oliveira, J. V., & Madureira, T. (2018). Preferences for urban green space characteristics: A comparative study in three Portuguese cities. Environments - MDPI, 5(2), 1–23. https://doi.org/10.3390/environments5020023

Özkan, D. G., & Yilmaz, S. (2019). The effects of physical and social attributes of place on place attachment A case study on Trabzon urban squares. Archnet-IJAR, 13(1), 133–150. https://doi.org/10.1108/ARCH-11-2018-0010/FULL/XML

Rajput, S., Arora, K., & Mathur, R. (2021). Urban Green Space, Health Economics and Air Pollution in Delhi.

Ramkissoon, H., Smith, L. D. G., & Weiler, B. (2013). Relationships between place attachment, place satisfaction and pro-environmental behaviour in an Australian national park. Journal of Sustainable Tourism, 21(3), 434–457. https://doi.org/10.1080/09669582.2012.708042

Sanesi, G., & Chiarello, F. (2006). Residents and urban green spaces: The case of Bari. Urban Forestry and Urban Greening, 4(3–4), 125–134. https://doi.org/10.1016/j.ufug.2005.12.001

Shabak, M., Norouzi, N., Abdullah, A. M., & Khan, T. H. (2015). Children's Sense of Attachment to the Residential Common Open Space. Procedia - Social and Behavioral Sciences, 201, 39–48. https://doi.org/10.1016/J.SBSPRO.2015.08.117

Taylor, L., & Hochuli, D. F. (2017). Defining greenspace: Multiple uses across multiple disciplines. Landscape and Urban Planning, 158, 25–38. https://doi.org/10.1016/j.landurbplan.2016.09.024

Zhang, H., Matsuoka, R. H., & Huang, Y. J. (2018). How Do Community Planning Features Affect the

Place Relationship of Residents? An Investigation of Place Attachment, Social Interaction, and Community Participation. Sustainability 2018, Vol. 10, Page 2726, 10(8), 2726. https://doi.org/10.3390/SU10082726

Zhang, Y., Van den Berg, A. E., Van Dijk, T., & Weitkamp, G. (2017). Quality over Quantity: Contribution of Urban Green Space to Neighborhood Satisfaction. International Journal of Environmental Research and Public Health, 14(5). https://doi.org/10.3390/IJERPH14050535