

Perceived Environmental and Psychological Benefits of Green Spaces and Garden Plants in Maysan Governorate, Iraq: A Cross-Sectional Survey

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ABSTRACT

Urban parks and garden plants have long been touted for their potential environmental and mental health gains. To investigate the community awareness of environmental and mental health benefits of green spaces and garden plants among people of Maysan Governorate, Iraq. A descriptive cross-sectional survey was conducted 105 convenience-sampled participants. Information was gathered through a structured questionnaire which included demographic information, presence of green space and plants, environmental knowledge, perceived environmental benefits, psychological health, and knowledge of afforestation. Analysis was carried out by using Jamovi version 2.3.28. Data were analyzed using descriptive statistics, with an independent samples t-test and Pearson's correlation coefficient. The results indicated that 84.6% of the population had plants or green spaces at home, and 92.3% agreed that plants can improve air quality, 83.1% that they can reduce dust, while 85.4% considered that they can lower ambient temperature. With respect to psychological benefits, 95.4% of respondents agreed they feel relaxed in green space, 83.1% were of the opinion that plants diminish stress, and 85.4% agreed that green space has a positive impact on mood. In addition, the female participants had statistically higher environmental and psychological scores than males ($p = 0.002$ and $p = 0.033$, respectively). In addition, a positive significant correlation was found between the scores of environmental quality and psychological well-being ($r = 0.541$, $p < 0.001$). These results demonstrate public perceptions of the environmental and psychological benefits of green spaces and could inform sustainable urban planning and environmental consciousness interventions in the Maysan Governorate and comparable settings.

Keywords: Green spaces; Urban vegetation; Environmental quality; Psychological well-being; Afforestation; Maysan Governorate.

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INTRODUCTION

Plants are one of the key organisms in the ecosystem (Chen *et al.*, 2025). They are essential for the stability of the ecological system by producing oxygen, absorbing carbon dioxide, influencing local climate, and enhancing biodiversity (Edeigba *et al.*, 2024). Green spaces and garden plants represent a form of urban vegetation cover that contributes to improving the quality of the human environment and reducing pollution, especially in areas experiencing increasing urban expansion and a decline in natural spaces (Semeraro *et al.*, 2021). Green spaces perform multiple environmental functions. Trees and plants reduce the urban heat island effect by providing shade and increasing evaporation and transpiration (Liang and Huang, 2023). They also contribute to reducing the accumulation of dust and some air pollutants and improving the aesthetic appearance of residential areas (Francini *et al.*, 2022).

Therefore, afforestation and increasing vegetation cover have become important strategies for improving environmental quality and reducing some of the negative impacts associated with urban growth (Yu and Yan, 2024). The importance of plants is not limited to environmental aspects alone, but extends to human health and psychological well-being (Botkin. and Beveridge, 1997; Hall and Knuth, 2019).

Numerous studies have indicated that exposure to green spaces and interaction with plants are associated with improved mood, reduced stress levels, and enhanced feelings of comfort and connection to the natural environment. This is attributed to the sensory and psychological effects of nature, in addition to providing more tranquil and attractive environments for individuals (Ulrich and Parsons, 1992; Aerts *et al.*, 2018). This issue is particularly important in arid and semi-arid regions, where cities face environmental challenges such as high temperatures, increased dust, and a lack of green spaces (Nastos and Saaroni, 2024; Olgun *et al.*, 2024). Maysan Governorate is one of the areas that should focus on afforestation and garden establishment, especially in residential areas due to its potential role in improving the local environment and raising the quality of life (Darwish, 2024). Recently, there has been growing worldwide interest in the potential of green spaces to contribute to climate change adaptation through reduction of urban heat islands and enhancement of environmental quality. However, the data from Iraq, especially from Maysan Governorate, are scanty.

STADY OBJECTIVES

This study aimed to:

1. Assess public awareness regarding the environmental and psychological benefits of green spaces and garden plants in Maysan Governorate.
2. Examine the relationship between perceived environmental quality and psychological well-being.
3. Assess the prevalence of plants and green spaces among the community in Maysan Governorate.
4. Identify the most common plant types based on participant reports and evaluate their perceptions regarding the environmental and psychological benefits of plants and green spaces.
5. Compare scores on environmental and psychological dimensions between male and female participants, as well as examine the relationship between perceived environmental quality and psychological well-being.

MATERIALS AND METHODS

Study Design and Population

This study was conducted using a descriptive-analytical approach through a cross-sectional survey, aimed to evaluate the role of green spaces and garden plants in improving environmental quality and promoting mental health among community members in Maysan Governorate, Iraq. The study included 130 participants from various age groups and both genders, no prior sample size calculation was performed, as the study is exploratory in nature, selected using convenience sampling during the study period.

Data Collection Instrument

Data were collected using a questionnaire specifically designed to achieve the study objectives after reviewing relevant scientific literature and previous studies. The questions in the survey were taken from previous research conducted on green spaces, environmental quality and psychological well-being and were adjusted to fit the aims of this study and the local situation of Maysan Governorate (Hall and Knuth, 2019; Semeraro *et al.*, 2021; Aerts *et al.*, 2018). The questionnaire consisted of five main sections:

1. Demographic characteristics of the study participants (i.e., gender, age).
2. The accessibility of plants and green areas and the degree of engagement with them.
3. Participants' knowledge that plants have an environmental role.
4. The influence of plants and green space on psychological well-being.
5. Recognitions to importance of planting trees and limitations to growing plants.

The questionnaire consisted of closed-ended questions in the formats (Yes/To Some Extent/No) and (Always/Sometimes/No) which were suitable based on the particular section of the nature of the study.

Data Collection

The survey was electronically sent to community members in the Maysan Governorate through social media platforms including WhatsApp and Telegram, as well as university circles. There were 130 respondents in total (87 female and 43 male). The aim of the study was briefly explained and it was stressed that their participation was purely for research purposes and that they could withdraw at any time, also confidentiality about the data was guaranteed and that it would be used only for scientific research purposes.

Calculation of Environmental and Psychological Axis Scores

Environment and mind scores were derived from four items for each axis. Responses to each question item were coded as "Yes" = 3, "To Some Extent" = 2, and "No" = 1. The scores of the four items within one axis were summed up to get a total score, yielding 4 to 12 scores per domain; the higher the score, the larger was the environmental or psychological exposure (depending on the domain), as perceived by the participants.

Statistical Analysis

The analyses were performed in Jamovi 2.3.28. In addition, demographic characteristics of participants and their responses on the questionnaire were summarized by using descriptive statistics such as frequencies, percentages, means, and standard deviations. Independent-samples t-test was conducted to evaluate differences in environmental and psychological scores between male and female participants. Pearson's correlation was used to investigate the association between scores of environmental quality and psychological well-being. Statistical significance was defined as $p < 0.05$. The flowchart of the research approach is in Figure 1. After the participation of 130 subjects from Maysan Governorate, the study focused on two major issues: the environmental benefits and the psychological benefits. These factors were tested using t-tests and chi-square tests. The results suggest that access to nature may be critical for sustaining environmental and mental health, as green spaces are ultimately found to mediate relations to better environmental quality and mental well-being.

Ethical Considerations

The research was carried out on the principles of voluntary participation and informed consent. The Participants were informed about the purpose of the study, participation was voluntary, confidentiality of data was assured, no identifying personal information was collected, and data would be used only for scientific research; press Completing and returning the questionnaire was considered as giving informed consent to participate in this research.

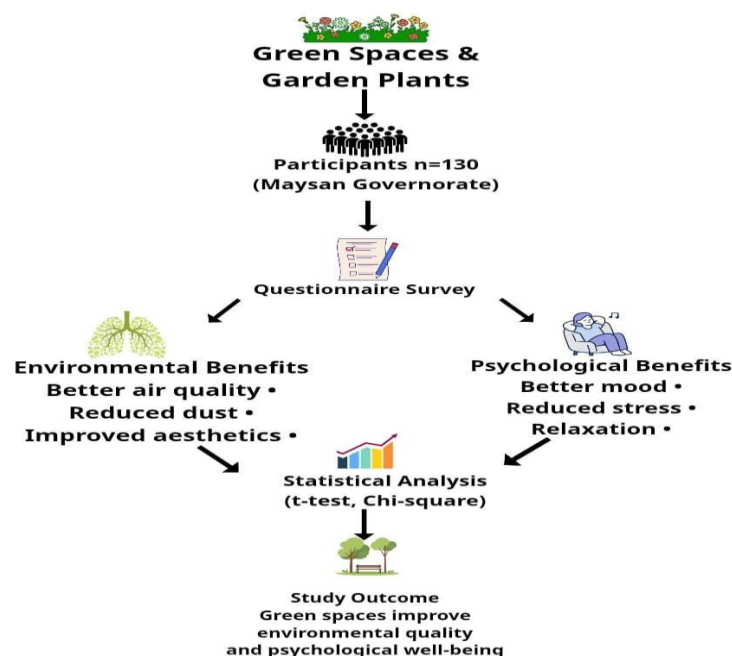


Figure (1) Study Design and Workflow of the Present Study

RESULTS AND DISCUSSION

Demographic Characteristics of Participants

A total of 130 subjects from Maysan Governorate participated in this study, 87 (66.9%) were females and 43 (33.1%) were males. Concerning age, the largest age group of participants was 20–40 years old with 65 (50.0%) participants, and the second largest age group was more than 40 years old with 54 (41.5%) participants. A total of 11 participants (8.5%) under 20 years of age took part in it. The majority of participants (110, 84.6%) declared that they have plants or green spaces in their homes, 20 of them (15.4%) answered negatively. The most frequent type was ornamental (75, 57.7%), then came shrubs (28, 21.5%) and trees (27, 20.8%).

As for plant care, 70 (53.8%) participants took care of their plants on a regular basis, 55 (42.2%) did occasionally, and 5 (3.8%) did not. The participants' demographic and plant-care related information are shown in Table 1.

Table (1) Demographic Characteristics and Plant-Related Information of the Participants

Variable	Category	Number	Percentage	Confidence Interval
Sex	Male	43	33.1%	25.2% - 41.0%
	Female	87	66.9%	59.0% - 74.8%
The age	Under 20 years	11	8.5%	3.7% - 13.3%
	20-40 years	65	50.0%	41.5% - 58.5%
	Over 40 years	54	41.5%	33.2% - 49.8%
Presence of plants	Yes	110	84.6%	78.3% - 90.9 %
	No	20	15.4%	9.1% - 21.7%
Plant type	Ornamental	75	57.7%	49.2% - 66.2%
	Shrubs	28	21.5%	14.5% - 28.5%
	Trees	27	20.8%	13.9% - 27.7%
Taking care of plants	Always	70	53.8%	45.2% - 62.4%
	Sometimes	55	42.2%	33.8% - 50.6%
	No	5	3.8%	0.6% - 7.0%

Participants' Awareness of the Environmental Role of Plants

The findings revealed that the participants were highly aware of the environmental significance of plants. 92.3% thought that plants play a role in increasing air quality, 83.1% believed in the role of plants in air quality by decreasing dust, 85.4% agreed that plants help in reducing temperature, and 90.0% thought that plants can improve the beauty of the environment around them. These are indicative of a certain level of awareness among people with respect to the environmental function of green space in the amelioration of urban environment.

Table (2) Participants' Perception of the Environmental Benefits of Green Spaces

Paragraph	Category	Number	Percentage
Do plants improve air quality?	Yes	120	92.3%
	Somewhat	10	7.7%
	No	0	0%
Do plants reduce dust?	Yes	108	83.1%
	Somewhat	22	16.9%
	No	0	0%
Do plants help lower the temperature?	Yes	111	85.4%
	Somewhat	18	13.8%
	No	1	0.8%
Do they make a place more beautiful?	Yes	117	90.0%
	Somewhat	12	9.2%
	No	1	0.8%

The Impact of Plants on Mental Health

The findings indicated an evident upward trend with the psychological effect of green spaces. 95.4% of the respondents experienced relaxation in the green environments and 83.1% agreed that plants could help in stress relief, 85.4% believed that plants had the ability to enhance the mood and 79.2% chose to spend time at venues with plant decoration. These findings support that plant and green space are key factors to influence the mental health and well-being of community dwellers.

Table (3) Impact of Plants on the Psychological State of Participants

Paragraph	Category	Number	Percentage
Do you feel relaxed when you're in green spaces?	Yes	124	95.4 %
	Somewhat	5	3.8%
	No	1	0.8%
Do plants help reduce stress?	Yes	108	83.1%
	Somewhat	22	16.9%
	No	0	0%
Do plants positively affect your mood?	Yes	111	85.4%
	Somewhat	17	13.1%
	No	2	1.5%
Do you prefer spending time in green spaces?	Yes	103	79.2%
	Somewhat	25	19.2%
	No	2	1.5%

Arithmetic Means for the Study Axes

The mean environmental perception score was 11.5 ± 0.94 , whereas the mean psychological perception score was 11.4 ± 1.06 . These values indicate generally similar mean scores across the two study domains. The descriptive statistics for the environmental and psychological domains are presented in Table 4.

Table (4) Arithmetic Mean and Standard Deviation for the Study Axe

Variable	N	Mean	SD
Environmental focus	130	11.5	0.94
Psychological focus	130	11.4	1.06

Abbreviations: Mean, mean; SD, standard deviation; N, sample size

Comparison of Environmental and Psychological Scores by Gender

An independent-samples t-test was used to compare environmental and psychological perception scores between female and male participants. Female participants had a higher mean environmental perception score than male participants (11.7 ± 0.773), (11.1 ± 1.29 , respectively), and this difference was statistically significant ($t = 3.17$, $df = 128$, $p = 0.002$). Female participants had a higher mean psychological perception score than male participants (11.5 ± 0.874 vs. 11.1 ± 1.36 , respectively), with a statistically significant difference ($t = 2.15$, $df = 128$, $p = 0.033$). The results are presented in Table 5.

Table (5) Comparison of Environmental and Psychological Perception Scores by Gender

Variable	Group	N	Mean	SD	SE	T	df	P
Environmental focus	female	87	11.7	0.773	0.0828	3.17	128	0.002
	male	43	11.1	1.29	0.196			
Psychological focus	female	87	11.5	0.874	0.0937	2.15	128	0.033
	male	43	11.1	1.36	0.207			

Abbreviations: Mean, mean; SD, standard deviation; n, sample size; SE = Standard error; df = Degrees of freedom; t, t-test statistic P, probability value.

Correlation between Environmental Quality and Psychological Well-being

Pearson's correlation analysis showed a statistically significant positive correlation between environmental perception scores and psychological well-being scores ($r = 0.541$, $p < 0.001$). This finding indicates that higher environmental perception scores were associated with higher psychological well-being scores among the participants. However, because the study used a cross-sectional design, this association should not be interpreted as evidence of a causal relationship.

Table (6) Correlation between Environmental Quality and Psychological Well-being

Variables	Environmental score	Psychological score
Environmental score	1	0.541
Psychological score	0.541	1
p-value	<0.001	

Discussion

The aim of the present study was to investigate the perceived environmental and psychological benefits of green spaces and garden plants among residents of Maysan Governorate, Iraq. The results showed that there is a high level of community awareness about the role of green spaces in improving the quality of the environment and human psychological well-being. Most of the participants were aware of the environmental significance of plants, and a similar proportion reported positive psychological experiences related to green spaces.

1. Positive Effects of Green Spaces on the Environment: Most of the participants agreed with the statements that green spaces are a source of fresh air, the dust settles, the temperature of the air decreases, and the neatness of the environment is increased (Table 5). These results are in agreement with previous reports, which have demonstrated

that vegetation in cities helps to buffer air pollution and urban heat and promote environmental sustainability (Semeraro *et al.*, 2021; Liang and Huang, 2023; Francini *et al.*, 2022). Taking into account the climate of Maysan Governorate which is hot with dust storms, promoting plant cover could be a practical and lasting solution from the environmental point of view.

2. Psychological Benefits of Green Spaces: Most participants also reported substantial psychological benefits associated with green spaces. Most respondents said that they felt more at ease in green spaces, had lower levels of stress, were in a better mood, and preferred to spend time in places with vegetation. In addition, the Pearson's correlation analysis showed a statistically significant positive correlation between quality scores of the environment and psychological well-being scores ($r = 0.541$, $p < 0.001$), which means that people who have a higher awareness of the environmental benefits of green spaces also have higher levels of psychological well-being. The findings are consistent with Hall and Knuth (2019) and Aerts *et al.* (2018), who highlighted the benefits of regular experiences in natural environments for stress reduction, emotional recovery, and mental health.

3. Differences by Gender: Independent samples t-tests showed statistically significant differences between male and female participants in both the environmental and psychological domain scores, with females having significantly higher average scores than males. These results were consistent with Sang *et al.* (2016) discussion that the women in the study perhaps had a higher level of environmental awareness and a greater understanding of the psychological benefits of green space. Similar findings also have been documented in studies of environmental behavior, indicating that women tend to be more environmentally aware and emotionally connected with natural surroundings.

4. Results have practical implications in terms of expanding green space and promoting tree planting initiatives in Maysan Governorate. Covering more land with vegetation is possible that it acts to better the environmental situation by cleaning dust, moderating temperature and even helps to empower the mental health of the community. Thus, the application of green infrastructure in urban design, housing developments, schools and other public organizations may be an effective strategy in advancing environmental sustainability and public health.

5. Limitations: There are various limitations to be considered. First, an available (convenience) sample of 130 participants from Maysan Governorate was recruited; the gender ratio was skewed towards females, which reduces the representativeness of the sample and may limit the generalizability of the results. Second, a self-reporting questionnaire was used for data collection which may allow responses to be influenced by respondents' subjectivity. Lastly, the research evaluated perceived environmental and psychological benefits as opposed to objective environmental or validated clinical psychological measures. Further research should therefore use larger, more representative samples, objective environmental indicators and standardized psychological assessments to increase the credibility of the results.

The results of this research would be useful for the local administrators of Maysan Governorate by advocating for urban greening schemes, providing more public parks, and supporting home gardening at the household level as cost-effective measures for enhancing environmental quality and the psychological well-being of its people. These findings can also inform policies of environmental and public health that advocate for sustainable urban designs.

CONCLUSIONS

The result of the study revealed that greenery and garden plants are the major factors influencing the environmental and mental well-being among the dwellers of Maysan Governorate. They are in line with the

fundamental beliefs of superiority of nature for most coverage residents – along with clean air, dust, air temperature and space esthetics. Also, green space was highly correlated with greater psychological comfort, lower levels of stress, and better mood. Results also showed higher scores of environmental and psychological perceptions in female than male participants. In addition, a significant positive correlation was detected between the quality of perceived environment and psychological well-being, which suggested that a higher awareness on environmental benefits is related to better psychological outcomes. These results highlight the benefit potential of increasing urban green cover and/or sustainable afforestation practices for enhancing environmental quality and public mental health in Maysan Governorate and potentially in other areas under similar environmental conditions.

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REFERENCES

- Aerts, R., Honnay, O. and Van Nieuwenhuysse, A. (2018). Biodiversity and human health: mechanisms and evidence of the positive health effects of diversity in nature and green spaces. *British medical bulletin*, 127(1): 5-22. <https://doi.org/10.1093/bmb/ldy021>
- Botkin, D. B. and Beveridge, C. E. (1997). Cities as environments: urban nature and city design. *Urban Ecosystems*, 1(1), 3-19. <https://doi.org/10.1023/A:1014354923367>
- Chen, H., Wu, W., Li, C., Lu, G., Ye, D., Ma, C. and Li, G. (2025). Ecological and environmental effects of global photovoltaic power plants: A meta-analysis. *Journal of Environmental Management*, 373, 123785. <https://doi.org/10.1016/j.jenvman.2024.123785>
- Darwish, A. (2024). *A Holistic blueprint for profitable regenerative agriculture in arid environments: the case of Iraq* (Doctoral dissertation, Master's thesis. University of Zagreb, Faculty of Agriculture <https://urn.nsk.hr/urn:nbn:hr:204:832653>
- Edeigba, B. A., Ashinze, U. K., Umoh, A. A., Biu, P. W., Daraojimba, A. I., Edeigba, B. A. and Daraojimba, A. I. (2024). Urban green spaces and their impact on environmental health: A Global Review. *World Journal of Advanced Research and Reviews*, 21(2), 917-927. <https://doi.org/10.30574/wjarr.2024.21.2.0518>
- Francini, A., Romano, D., Toscano, S. and Ferrante, A. (2022). The Contribution of Ornamental Plants to Urban Ecosystem Services. *Earth*, 3(4), 1258-1274. <https://doi.org/10.3390/earth3040071>
- Hall, C. R. and Knuth, M. J. (2019). An update of the literature supporting the well-being benefits of plants: A review of the emotional and mental health benefits of plants. *Journal of Environmental Horticulture*, 37(1): 30-38. <https://doi.org/10.24266/0738-2898-37.1.30>
- Liang, D., and Huang, G. (2023). Influence of urban tree traits on their ecosystem services: a literature review. *Land*, 12(9), 1699. <https://doi.org/10.3390/land12091699>
- Nastos, P. and Saaroni, H. (2024). Living in Mediterranean cities in the context of climate change: A review. *International Journal of Climatology*, 44(10), 3169-3190. <https://doi.org/10.1002/joc.8546>
- Sang, Å. O., Knez, I., Gunnarsson, B. and Hedblom, M. (2016). The effects of naturalness, gender, and age on how urban green space is perceived and used. *Urban forestry & urban greening*, 18, 268-276. <https://doi.org/10.1016/j.ufug.2016.06.008>

- Semeraro, T., Scarano, A., Buccolieri, R., Santino, A. and Aarrevaara, E. (2021). Planning of urban green spaces: An ecological perspective on human benefits. *Land*, 10(2): 105. <https://doi.org/10.3390/land10020105>
- Olgun, R., Cheng, C. and Coseo, P. (2024). Nature-based solutions scenario planning for climate change adaptation in arid and semi-arid regions. *Land*, 13(9), 1464. <https://www.mdpi.com/2073-445X/13/9/1464>
- Ulrich, R. S. and Parsons, R. (1992). Influences of passive experiences with plants on individual well-being and stress. In *Role of Horticulture in Human Well-Being and Social Development* (pp. 93-105). Timber Press.
- Yu, F. J. and Yan, L. (2024). Trends in urban vegetation growth in China from 2000 to 2022. *Land*, 13(7): 1015. <https://doi.org/10.3390/land13071015>

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