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Pocket Parks: A New Approach to Improving the Psychological and Physical Health of Recreationists

Yabing Huang [1,2], Xiaoqian Lin [1,2], Shumeng Lin [1,2], Ziyi Chen [1,2], Weicong Fu [1,2], Minghua Wang [1,2] and Jianwen Dong [1,2,*]

[1] College of Landscape Architecture and Art, Fujian Agriculture and Forestry University, 15 Shangxiadian Rd., Fuzhou 350000, China; 2201775005@fafu.edu.cn (Y.H.); 1221775002@fafu.edu.cn (X.L.); 1221775066@fafu.edu.cn (S.L.); 3211726008@fafu.edu.cn (Z.C.); weicong.fu@fafu.edu.cn (W.F.); wmh42699@163.com (M.W.)

[2] Wuyishan National Park Research Institute, 166 Yanfu Rd., Nanping 354300, China

* Correspondence: fjdjw@fafu.edn.cn

Abstract: The increasing density of cities poses a huge threat to public health, so pocket parks with high accessibility and flexibility have become potential resources to promote public health. In this context, the ways in which pocket parks can improve public health have become the focus and challenge of current research. This study selected 10 different types of pocket parks in Fuzhou, China, as the research subjects and collected real-time psychological and physiological data of participants by watching videos of the sample plots. The aim was to explore the impact of the environmental characteristics of pocket parks on the psychological and physiological responses of recreational users. The results of the study showed that: (1) the environmental characteristics of pocket parks significantly affect the psychological and physiological responses of recreationists. Different environmental characteristics can affect recreationists' emotional state, attention recovery, environmental preferences, and the indicators of IBI, HR, SDNN, RMSSD, pNN50, SCL, and EMG to varying degrees. (2) The environment of pocket parks may encourage recreationists to generate positive psychological benefits when the site is larger and has a higher degree of scenic beauty, and when the space is not effectively confined. A pocket park environment with a low paving ratio, open view, cultural elements, topographic changes, special vegetation and distributing space can also have a positive effect on the psychological benefits of recreationists to a certain extent. Low canopy density and high green visibility can also play a role in suppressing negative emotions. (3) Pocket parks with high levels of depression and off-site disturbance are not conducive to positive physiological responses from recreationists, while pocket parks with high levels of green visibility and beauty and specialized vegetation are more likely to provide health benefits to them.

Keywords: pocket parks; EAPRS; emotional states; environmental preferences; restorative evaluation; HRV; SCL; EMG; biopsychological benefits

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1. Introduction

The World Health Organization (WHO) predicted in 2014 that more than 70% of the worldwide population will live in cities in the next 30 years [1]. With the rapid growth of total population and population density in the process of urbanization, most cities have to be densely populated. In addition, this trend is closely related to the compact city development approach. In the history of the debate over the "compact city" and "sprawled city", most scholars have believed that the former can promote the efficient use of urban resources, which is in line with the future development of cities [2]. However, this assertion was made on the basis of some Western low-density cities (some Western cities in the 1950s to 1960s under the impetus of suburbanization in the dispersed form of low-density development, thus leading to the proposition of urban development of high-density compact cities, the smart growth strategy), which does not apply to most developing countries that are experiencing the process of agglomeration-type urbanization. Urban densification has brought about a series of problems in the utilization of resources, such as land, energy, transportation, buildings, and the environment, and therefore high-density cities are the urban status quo in most developing countries, and are mostly regarded as an "urban problem" [3]. Rapid changes in the living environment and associated lifestyles have presented significant threats to public health [4].

Investments and the construction of urban parks and green spaces have been increasing worldwide [4]. WHO recommends measures such as increasing the number and accessibility to promote the use of parks and green spaces to improve the health of residents [1]. Cities in many developed countries have incorporated parklands into urban planning and healthcare policies to safeguard their residents' health [5]. However, for most high-density cities, it is tough to calculate the "increase and decrease" in the park green space problem, especially for large park green spaces in the city center (e.g., city-level and regional-level comprehensive parks); the measures needed to be taken are extremely challenging. The increase in urban population and the expansion of gray land have gradually reduced the per capita area of existing green space, and the difficulty and cost of new construction are also increasing, although often only at the planning level [6]. Under such circumstances, the marginalization of large parks and green spaces has become a more common phenomenon, and the "miniaturization" and "fragmentation" of parks and green spaces in urban centers has been a gradual trend [1,6–8].

Influenced by the irreversible trends of urbanization and high density, pocket parks, an essential form of urban park green space, can be flexibly arranged in streets, alleys, and other scattered open spaces. Their advantages, including large numbers, wide distribution, accessibility, and relative ease to renovate, make them potential resources for "public health interventions based on the natural environment" [2]. Urbanization has been shown to have a strong negative impact on urban biodiversity, reducing the diversity and abundance of organisms such as birds and butterflies [9]. Pocket parks, on the other hand, provide a relatively protected environment for urban wildlife, providing green space for birds and butterflies to breed, feed and migrate, and have become a habitat for many urban wildlife species. As of now, there is no precise definition of the area of a pocket park. Normally, the area of urban pocket parks is approximately equivalent to one to three homesteads [10]. Based on the size of pocket parks summarized by previous scholars and practical cases of pocket park construction [10–12], this study defines the area of urban pocket parks as 400–8000 m^2.

Urban green spaces are recognized as an essential public mental health resource because of their ability to restore mental fatigue and relieve psychological stress [13–15]. Overall, urban green spaces can contribute to mental health recovery in two ways. On the one hand, green spaces can alleviate stressors that can harm people's mental health, such as air pollution and noise [16]. Previous research has found that exposure to air pollution causes an increased risk of autism disorders and that exposure to various air pollutants, especially particulate matter (mainly $PM_{2.5}$), causes cognitive dysfunction, neurodevelopmental deficits, and ETCs [17,18], which exert significant negative impacts on mental health. Studies have shown that vegetation such as trees and grass can improve air quality with the help of the adsorption of particulate pollutants, thus reducing mental stress and promoting psychological recovery [19]. On the other hand, green spaces can directly or indirectly reduce psychological stress responses, promote psychological empowerment, and improve mental health. Compared to road space surrounded by buildings, a short walk along an urban road surrounded by London Plum, Cherry, or Sycamore trees significantly reduces tension, confusion, and anxiety [20]. Lawns and parks are better at reducing psychological stress levels compared with squares [21]. This reflects the direct effect of green space on reducing psychological stress, but the mechanism of occurrence has not been clearly studied. Meanwhile, green spaces and natural vegetation have a mental arousal effect [7], which can further enhance physiological levels and promote mental health. Kurt Beil's research reveals that observing vegetation can evoke positive emotions, reduce attentional fatigue, and improve brain conditions [22].

Public anxiety, stress, depression, and other psychological problems are closely related to the urban environment [13]. In recent years, with pocket parks becoming an essential part of the urban environment and extremely important to people's lives, the number of papers related to them has increased year by year. Relevant research entered a fast-developing stage in 2019 [23], and at this point an interdisciplinary combination of practical research became dominant [24–27]. Although the current research on pocket parks has entered a rapid development stage, overall the research related to the public health benefits of pocket parks is still stuck regarding psychological questionnaires for landscape evaluation. With the development of society and the innovation of science and technology, the means of landscape evaluation have gradually shifted to the assessment of the compound effect of human response and landscape, as well as the exploration of the process and mechanism of human perception. While current domestic research on pocket parks seldom evaluates people's perceptions of the landscape comprehensively in terms of psychological and physiological multidimensionality, this research obtained data more scientifically and intuitively with the help of questionnaire surveys and physiological feedback technology, combining quantitative research and qualitative research.

Considering the limitations of previous studies and the necessity of improving the environment of urban pocket parks, this study selected pocket parks in Fuzhou, China, as experimental sample sites, screened and quantified the environmental features of pocket parks, explored the effects of different environmental features on the psychological and physiological responses of recreationists by using experimental comparative research methods, and analyzed which pocket parks with which environmental features have more positive benefits for human health.

2. Materials and Methods

2.1. Overview of the Study Areas

Fuzhou (located between 25°15′ N and 26°39′ N, 118°08′ E and 120°31′ E), the capital of southeastern China's Fujian province, is located in the southeast of Fujian province. Fuzhou is the political, cultural, and transportation center of Fujian Province, and also an important city along the southeast coast of China. Fuzhou has a superior geographical position, facing the Taiwan Strait to the east, and is the nearest provincial capital city from the Chinese mainland to Taiwan (Figure 1). Fuzhou has a typical subtropical monsoon climate, warm and humid, with plenty of sunshine, abundant rainfall, slight frost and no snow, and long summers and short winters; the average annual precipitation is 900~2100 mm, and the average annual temperature is 20~25 °C (68~77 °F). Its topography is characteristic of estuarine basins, dominated by mountains and hills. This study defines the research area as pocket parks in Fuzhou city, including pocket parks and recreational gardens (strip parks and street green spaces) with an area of 400–8000 m^2. According to the planning texts and subsequent field research, it was found that a large number of pocket parks have been built in Fuzhou. Pocket parks are frequently visited and have high research feasibility, which is highly significant and valuable in research. Choosing Fuzhou city as a research area could provide scientific suggestions for urban pocket parks.

Given the large number, different styles, and scattered distribution of pocket parks within the research area, it was necessary to select a number of representative objects for in-depth analysis. Referring to the sampling methods of relevant studies, a "gradually focused" sampling process was developed, consisting of three steps: technical analysis, including a comprehensive review, field investigation, including classification and screening, and a determination of research samples [7,28]. A total of 74 parks were found to meet the preset sampling "standards", and 10 of them were selected as research samples, numbered S01~S10 (Figure 2).

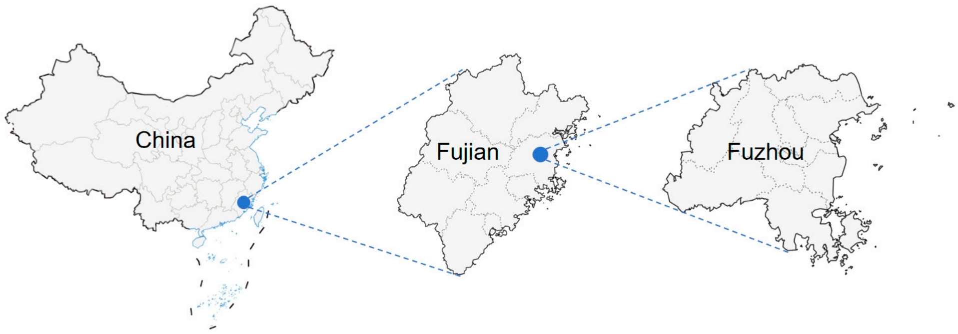

Figure 1. Location of Fuzhou city on the map of China.

Figure 2. S1–S10 sample plots.

2.2. Environmental Characteristic Index Selection and Data source

Considering the lack of attention given to environmental characteristics in previous environmental behavior research, Saelens et al. developed the Environmental Assessment of Public Recreation Spaces (EAPRS) [29]. The EAPRS method and its conclusions have been widely used in related studies [30–32]. Peschardt recently applied it to identify physical elements of concern in the Danish pocket park use study [33]. The study used the remaining 9/40 items for the next step of the analysis after excluding a number of entries that applied only to the integrated park and those that appeared in one or all of the study subjects (where it was not possible to attribute the behavioral changes to specific elements in the data statistics). Inspired by this, based on the actual situation of the sample, this paper adopted 12 EAPRS elements as evaluation indicators. The percentage paved and canopy density were measured and calculated through the OVI interactive positioning platform; the green visibility was measured through the Cat's Eye Quadrant mini program. Cat's Eye Quadrant is a WeChat mini program that performs simple and repetitive recognition and counting tasks for researchers. The system is based on image recognition technology that takes photos of the research area, and calculates the average, maximum, and minimum green visibility within the program based on the project. The scenic beauty was determined by inviting 17 doctoral students in landscape architecture to evaluate the photos of 10 sample plots and conducting statistical calculations. According to the SBE evaluation method proposed by American environmental psychologists Daniel et al., a scale reflecting the quality of landscape units can be obtained by measuring users' aesthetic attitudes towards plant landscapes [31]. The indicators were selected from four aspects: (a) unattractive to charming; (b) unhappy to pleasant; (c) anxious to calm; (d) uncomfortable to comfortable (each number from 1 to 7 represents a different degree, such as unattractive scenery–charming: 1 represents unattractive, 7 represents charming; numbers between 2 and 6 represent different degrees of unattractive or charming, with numbers closer to 1 indicating less attractive, and closer to 7 indicating more charming). The presence or absence of spatial containment, wide field of vision, topographic changes, cultural elements, leisure facilities, special vegetation, distributing space and external off-site interference through on-site observation could be evaluated.

In addition, it was found that the larger the site area, the more conducive it was to meeting user needs; the site perimeter/area ratio has an essential impact on the use behavior, and when it is too slender or dispersed the user experience will be significantly compromised, especially for small sites [7,28]. This shape index was further developed into the site area/equivalent perimeter circle ratio, which, in turn, was controlled between 0 and 1, indicating a more compact site when closer to 1. Therefore, the two indicators of site area and site shape were also included in the environmental indicators of this study. The content of the variables and data sources are shown in Table 1.

Table 1. Content and data source of environmental characteristic variables in pocket parks.

Level 1 Variables	Level 2 Variables	Variable Content	Data Sources
Site area	--	Remote sensing orthographic projection area of the site	Ovi Interactive Positioning platforms
Site shape	Shape index	Shape index developed from the ratio of site area/circular area of equal circumference	Ovi Interactive Positioning platformsformula conversion
EAPRS elements	Percentage paved (%)	The area occupied by each style of ground pavement/total plot area	Ovi Interactive Positioning platforms
	Canopy density (%)	Total projected area of tree canopy at ground level in direct sunlight/total plot area	
	Green visibility (%)	Proportion of objects seen by people's eyes that are green plants	Cat's eye quadrant applet
	Scenic beauty (%)	Degree of scenic beauty	Expert questionnaire
	Spatial Containment	Whether the site space is effectively delimited, cohesive, independent or private	On-site observation
	Wide field of vision	Whether the range of space that the human eye can see when it fixates on a point or a patch is open or not	
	Topographic changes	Changes in the topography of the site as a whole or locally	
	Cultural elements	Sculptures, fountains, stone carvings and other humanistic elements	
	Leisure facilities	Pavilions, porches, arbors, etc., other than ordinary seats	
	Special vegetation	Flower border, shrub, or tree shape, etc.	
	Distributing space	Open space with an area larger than 20 m $\times$ 20 m	
	Off-site interference	Degree of disturbance from people, traffic, etc. outside the park	

2.3. Physiological and Psychological Response Indicator Measurement Experiments

2.3.1. Experimental Objects

The sample size was estimated using G *Power 3.1.9.2 software by setting the effect size f = 0.25, the alpha error probability value to 0.05, and the statistical efficacy to 0.8, estimating the total sample size to be at least 27 individuals [34].

The official experiment took place in September 2022. Previous studies have shown that involving college students as research participants is both extensive and scientific [35–37]. Finally, 50 college students were recruited as subjects in the formal experiment. There were 22 males and 28 females, with an average age of (24.6 $\pm$ 3.2) years. The admission criteria were as follows: (1) subjects were healthy and had no history of cardiovascular disease; (2) subjects had not taken any drugs within one week and had no history of mental or neural diseases; (3) it was the first time that subjects had participated in such an experiment; and (4) subjects needed to sign their informed consent.

2.3.2. Experimental Design

Wearing the instrument for a long time while exposed to outdoor experiments will increase the subject's anxiety and tension, affecting the experimental data and the field experimental environment of the interference factors. In order to control variables, the field recording video was selected and then taken back to the laboratory for the study. Ten sample plots were filmed on June 2022, choosing 8:00–12:00 and 14:00–16:00 time periods, and using a Canon 700D for video recording in the sample plots to choose a more open space in the location, mounted on a tripod with a height of 1.5 m for fixed-point recording with a single recording time of not less than 5min.

The experiment was conducted in a repeated measures ANOVA design, with pocket parks with different environmental characteristics as the independent variable and subjects' physiological and psychological responses as the dependent variables. In order to control irrelevant variables in the experiment, a set of sample video sounds was selected as the uniform background sounds for ten sets of sample videos.

2.3.3. Selection of Experimental Equipment and Indicators

(1) Physiological response

The ErgoLAB intelligent wearable human factors platform of Jinfa Technology Co. (Beijing, China). was used to collect the blood volume pulse (PPG), electromyography (EMG), and electrocorticography (EDA) data of the subjects and transmit the data to a computer through the wireless data collection system to realize the real-time recording, displaying, and analyzing of the signals. The sampling rate of PPG and EDA is 64 Hz, and the sampling rate of EMG is 1024 Hz. Figure 3 shows the ErgoLAB intelligent wearable human factors platform.

① One of the effects that environmental stimuli have on an individual is to alter the individual's arousal level. The skin conductance level (SCL) refers to the absolute value of skin electricity (also known as basic skin conductance) between two points on the skin, which is an effective indicator to measure arousal level. The SCL enables the observation of changes in people's sympathetic nerve activity and levels of emotional arousal and is not subject to parasympathetic innervation [38]. It has been shown that sympathetic activity can be increased within 2 min [39]. This index has been widely used as a measure of mood in environmental experiences [39,40].

② Heart rate variability (HRV) refers to the variation in cycle-to-cycle differences of heartbeats and is a valid indicator for assessing autonomic function and cardiac load [41]. In this study, we used the time and frequency domain analysis in the typical HRV analysis, and the indexes' significance is shown in Table 2.

③ Facial electromyography (EMG) refers to the electrical signals accompanying the nervous system's control of facial muscle activity (contraction or relaxation) and is a sensitive indicator of emotional pleasure [42]. Generally speaking, when the facial frowning muscle stops contracting, it is presented as a relaxed state. This study collected the evaluation indexes using normalized mean values in μV.

Figure 3. ErgoLAB intelligent wearable human performance platform.

Table 2. HRV indicators and significance.

	Norm	Hidden Meaning	Physiological Significance
Time domain analysis	IBI	Interval between adjacent normal R waves	Reflects the amplitude of the ECG signal, a value that correlates with blood pressure and can be used as an indicator of mood classification
	HR	Number of heartbeats per minute in quiet state	Reflects individual physiological states and levels of arousal and stress
	SDNN/ms	Standard deviation of normal R-R interval	Reflects the slowly changing component of HRV and is related to parasympathetic and sympathetic activation. The greater the standard deviation the higher the HRV, and vice versa.
	RMSSD/ms	Root mean square of the difference between two neighboring R-R intervals	An indicator of parasympathetic activity, and increased parasympathetic activity increases RMSSD.
	pNN50/%	Percentage of the number of adjacent RR intervals with a difference of >50 ms to the total number of RR intervals	Reflecting abrupt changes in the R-R interval provides a more timely and accurate reflection of parasympathetic activity.
Frequency domain analysis	LF	Low frequency bands of heart rate variability (0.04~0.15 Hz)	Reflects sympathetic tone.
	HF	High frequency bands of heart rate variability(0.15~0.4 Hz)	Reflects the strength of parasympathetic modulation.
	LF/HF	Ratio of LF to HF	Reflects the regulatory balance of the autonomic nervous system.

(2) Psychological response

The data on the psychological response aspect of this study were obtained by means of a questionnaire, which consisted of the following three main sections:

① Parsimonious Observations of Mood Scale (POMS). This has been widely used to assess the performance of respondents' mental states during environmental experiences [43,44]. The POMS is also known as the Profile of Mood States (PMS) and is designed to measure the real-time psychological feelings of a person in a natural environment. The 30-item scale is designed to assess six emotional states: anger (*A*), confusion (*C*), depression (*D*), fatigue (*F*), tension (*T*), and vigor (*V*). The scale had internal consistency Cronbach alpha values ranging from 0.62 to 0.82 in a study with a sample of Chinese people [45]. Each item is rated on a 0–4 (hardly ever-very much) scale, with the mood disorder score $TMD = (T + F + A + C + D) - V$, with higher scores indicating higher negative mood states, i.e., a more disturbed, depressed, or dysfunctional mood, and vice versa for positive mood states.

② Attention Recovery Scale (PRS). Hartig constructed the "Attention Recovery Scale" to measure environmental restorative qualities and psychological perceptions based on the four major properties of the Attention Recovery Theory (Distance, Charisma, Extensibility, and Compatibility) proposed by Kaplan S and Kaplan R. In a follow-up study, Hartig combined the concepts of consistency and legibility to integrate a measure that could reasonably represent extensibility and improved the missing items of the original PRS scale [46]. Wang Xinxin et al. reviewed the reliability and validity of the Chinese version of the PRS, which is suitable for urban park restorative assessment, with a homogeneity reliability Cronbach's α value of 0.80–0.91 [47].

③ Environmental Preference Scale. Environmental preference is an evaluation that refers to the tendency of users to prefer a particular environment [48,49]. Kaplan believes that people's environmental preferences originate from the evolution of past species, and the environment that individuals prefer is more likely to meet their needs so they have a strong desire to integrate into it [50]. Meanwhile, Kaplan et al., from the perspective of information and needs, pointed out that landscape environments characterized by consistency, complexity, legibility, and mystery are more likely to elicit preferences [50].

The Attention Recovery Scale in the questionnaire designed in this study draws on the modified scale of Huang Zhangzhan et al. and consists of 18 items in 4 dimensions of distance, extension, charm, and compatibility, and the Environmental Preference Scale draws on the studies of Huang Zhangzhan et al. and Li Yinghong et al. and consists of 14 items in 4 dimensions of consistency, legibility, complexity, and mystery in the Environmental Preference Scale [51,52]. Both of the above scales measure question items using a 7-point Likert scale method, with options consisting of 1 (strongly disagree) to 7 (strongly agree).

2.3.4. Experimental Procedures

The experimental period was from 13 to 27 September 2022, and both experiments were conducted in the time periods of 8:00–12:00 and 14:00–17:00. There was only 1 main subject and 1 subject in the laboratory, to try to avoid the interference of irrelevant factors. The experimental photographs are shown in Figure 4. The specific experimental procedure was as follows. (1) The subject arrived at the laboratory and rested for 5 min to calm the heartbeat and respiration; (2) after a detailed explanation of the experimental steps and the use of the instrument, the subject was put on the instrument for the baseline collection of blood volume pulse (PPG), electromyography (EMG), and electrocorticography (EDA) (3 min), during which the subject was asked to maintain a comfortable sitting posture, avoid significant body movements such as head rotation, and remain silent and relaxed, and was not allowed to use electronic products, sleep, etc.; (3) the video of the sample site started to play (5 min), the subject watched it in a comfortable seated position, and physiological data were continuously recorded during the process; (4) after the viewing, the equipment was removed and the subject filled in the psychological response questionnaire; (5) after a 3 min break, steps (3)–(4) were repeated until 10 sets of sample site videos had been viewed (Figure 4).

2.4. Data Analysis Methods

After the physiological data had been extracted and exported using ErgoLAB for signal eigenvalue, all data were entered and analyzed using SPSS 23.0 software. The data were analyzed using Pearson correlation analysis, which is a statistical analysis method used to study whether there exists some dependence between environmental characteristics and the physiological and psychological responses of the subjects and to explore the direction of correlation and statistical analysis method of correlation degree. A positive correlation is considered to exist when the direction of change of the two variables is the same. A negative correlation is considered to exist when the direction of change of the two variables is the opposite [2]. When $p < 0.05$, it is considered to have a significant correlation.

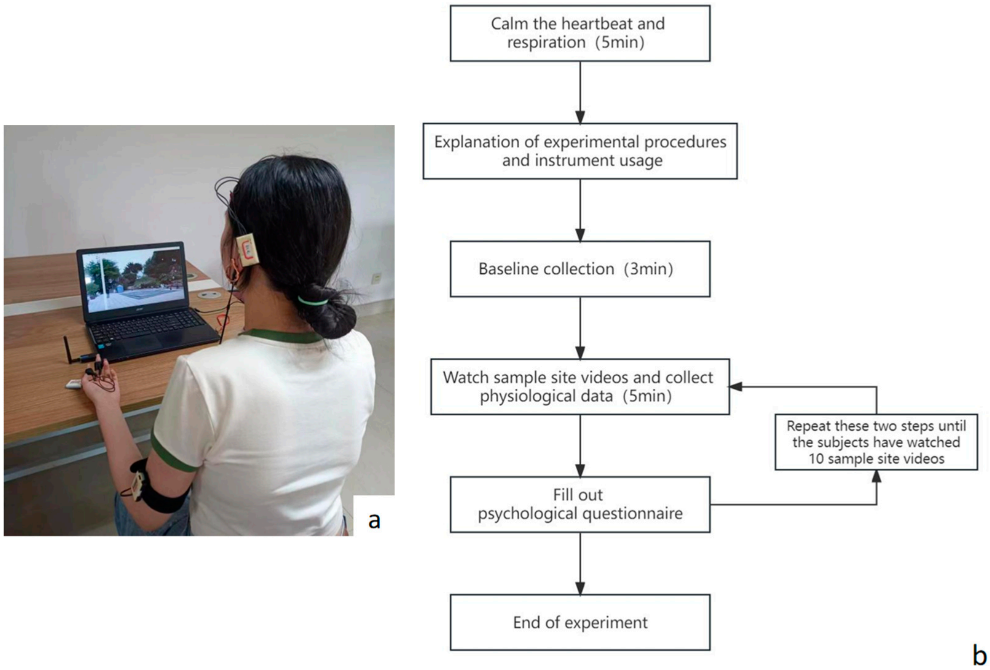

Figure 4. (**a**) Experimental scene graph; (**b**) experimental flowchart.

3. Results

3.1. Environmental Characteristics of Pocket Parks

In April 2022, members of the study group (with three doctorates and five masters in landscape architecture) conducted a 1-month field research of 10 sample sites. The environmental characteristics of spatial containment were evaluated, including a wide field of vision, topographic changes, cultural elements, leisure facilities, special vegetation, distributing space, and external off-site interference, as "yes or no" variables with T indicating yes and F indicating no. The final statistics were obtained for the environmental characteristics of each study site (Table 3).

Table 3. Statistical results of environmental characteristics in various sites.

Sample Site		S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
EAPRS element	Site areas (m^2)	791	1844	1170	1899	517	2490	447	2670	3761	439
	Site shape	0.66	0.76	0.75	0.74	0.76	0.62	0.57	0.78	0.75	0.65
	Percentage paved (%)	89.51	77.06	52.74	75.41	76.02	79.00	48.32	57.53	57.25	77.90
	Canopy density (%)	81.63	82.14	91.32	70.46	61.34	53.21	64.68	24.89	36.52	17.94
	Green visibility (%)	51.61	67.41	74.07	59.91	56.72	60.93	60.72	30.72	46.94	17.38
	Scenic beauty (%)	52.57	82.14	60.71	46.43	57.14	60.71	78.57	64.28	85.71	39.29
	Spatial containment	T	F	F	F	T	F	T	F	F	T
	Wide field of vision	T	T	F	T	F	T	F	T	T	F
	Topographic changes	F	T	F	F	F	T	F	T	T	T
	Cultural elements	F	T	F	F	F	T	F	T	T	T
	Leisure facility	F	T	T	F	F	F	F	F	F	T
	Special Vegetation	F	F	F	F	F	T	T	F	T	F
	Distributing space	F	T	F	T	F	T	T	T	T	T
	Off-site interference	T	T	T	T	T	T	F	T	F	F

3.2. Environmental Characteristics and Psychological Response Correlations

(1) Emotional state

Pearson's correlation analysis between emotional state scores and environmental characteristics of each sample site revealed that the emotional state of the subjects can be significantly affected by the site area, percentage paved, canopy density, green visibility, scenic beauty, spatial containment, wide field of vision, cultural elements, special vegetation, distributing space, and off-site interference (Table 4).

Table 4. Pearson correlation analysis results of environmental characteristics of the pocket parks and subjects' emotional states.

Environmental Characteristics		Tension (*T*)		Anger (*A*)		Fatigue (*F*)		Confusion and Depression (*C+D*)		Vigor (*V*)		*TMD*	
		r	***P***	***r***	***P***	***r***	***P***	***r***	***P***	***r***	***P***	***r***	***P***
	Site areas	−0.333 *	0.032	−0.224 *	0.021	−0.197 *	0.038	−0.220 *	0.033	0.313 *	0.030	−0.164 *	0.041
	Site shape	0.086	0.780	0.044	0.667	0.051	0.663	0.030	0.912	−0.098	0.061	−0.072	0.122
	Percentage paved	0.121 *	0.039	0.103 *	0.030	0.188 *	0.044	0.110 *	0.047	−0.201 *	0.042	0.159 *	0.046
	Canopy density	0.210 *	0.039	0.099	0.056	0.206 *	0.033	0.310 *	0.013	−0.301 *	0.019	0.232 *	0.023
	Green visibility	−0.312 **	0.004	−0.410 **	0.000	−0.397 **	0.002	−0.211 *	0.013	0.204 *	0.041	−0.188 *	0.032
	Scenic beauty	−0.420 **	0.007	−0.378 **	0.005	−0.395 **	0.002	−0.406 **	0.005	0.511 **	0.002	−0.422 **	0.005
	Spatial containment	0.201 *	0.015	0.103 *	0.043	0.091	0.644	0.167 *	0.042	−0.201 *	0.045	0.197 *	0.047
EAPRS element	Wide field of vision	−0.175 *	0.033	−0.223 *	0.022	−0.202 *	0.030	−0.236 *	0.027	0.227 *	0.031	−0.208 *	0.034
	Topographic changes	−0.157	0.940	−0.131 *	0.046	−0.086	0.740	−0.177 *	0.042	0.202 *	0.037	−0.090	0.721
	Cultural elements	−0.157	0.940	−0.131 *	0.046	−0.086	0.740	−0.177 *	0.042	0.202 *	0.037	−0.090	0.721
	Leisure facility	−0.042	0.776	−0.067	0.614	−0.155 *	0.042	0.088	0.610	0.102	0.089	−0.122	0.630
	Special vegetation	−0.077	0.615	−0.155 *	0.039	-0.189 *	0.030	−0.220 *	0.029	0.209 *	0.025	−0.199 *	0.037
	Distributing space	−0.268 *	0.040	−0.163 *	0.033	−0.198 *	0.031	−0.233 *	0.022	0.310 *	0.018	−0.229 *	0.025
	Off-site interference	0.231 *	0.033	0.102 *	0.049	0.202 *	0.035	0.197 *	0.044	−0.188 *	0.049	0.206 *	0.039

Note: *: $p < 0.05$; **: $p < 0.01$.

(2) Attention recovery

The Pearson correlation analysis between the scores of attention recovery dimensions and the environmental characteristics of each sample site indicated that the subjects' attention recovery could be significantly affected by the environmental characteristics of the pocket park, such as site area, percentage paved, scenic beauty, spatial containment, wide field of vision, topographic changes, cultural elements, leisure facility, special vegetation, distributing space, and off-site interference (Table 5).

Table 5. Pearson correlation analysis results of environmental characteristics of the pocket parks and subjects' attention recovery.

Environmental Characteristics		Being Away		Extent		Fascination		Compatibility	
		r	***p***	***r***	***p***	***r***	***p***	***r***	***p***
	Site areas	0.172 **	0.006	0.257 **	0.000	0.308 **	0.000	0.255 **	0.000
	Site shape	−0.081	0.203	0.004	0.950	0.038	0.553	−0.051	0.423
	Percentage paved	−0.126 *	0.046	−0.140 *	0.026	−0.099	0.119	−0.099	0.119
	Canopy density	0.055	0.389	0.001	0.990	−0.029	0.646	0.033	0.602
	Green visibility	0.079	0.213	0.055	0.388	0.041	0.515	0.092	0.146
	Scenic beauty	0.255 **	0.000	0.279 **	0.000	0.291 **	0.000	0.271 **	0.000
	Spatial containment	−0.149 *	0.018	−0.170 **	0.007	−0.251 **	0.000	−0.210 **	0.001
EAPRS element	Wide field of vision	0.107	0.090	0.154 *	0.015.	0.181 **	0.004	0.205 **	0.001
	Topographic changes	0.163 *	0.010	0.161 *	0.011	0.284 **	0.000	0.183 **	0.004
	Cultural elements	0.163 *	0.010	0.161 *	0.011	0.284 **	0.000	0.183 **	0.004
	Leisure facility	0.135 *	0.033	0.007	0.918	0.117	0.065	0.029	0.650
	Special vegetation	0.201 **	0.001	0.222	0.000	0.210 **	0.001	0.235 **	0.000
	Distributing space	0.091	0.153	0.062	0.327	0.119	0.061	0.158 *	0.012
	Off-site interference	−0.143 *	0.023	−0.119	0.061	−0.106	0.096	−0.099	0.118

Note: *: $p < 0.05$; **: $p < 0.01$.

(3) Environmental preferences

Pearson correlation analyses between the scores of environmental preference dimensions and the environmental characteristics of each sample site revealed that the subjects' evaluation of their environmental preference could be significantly affected by the site area of pocket parks, the percentage paved, the canopy density, the scenic beauty, the spatial containment, the broad field of vision, the topographic changes, the cultural elements, the special vegetation, the distributing space, and the off-site interference. (Table 6).

Table 6. Pearson correlation analysis results of environmental characteristics of the pocket parks and subjects' environmental preferences.

Environmental Characteristics		Coherence		Legibility		Complexity		Mystery	
		r	*P*	*r*	*P*	*r*	*P*	*r*	*P*
EAPRS element	Site areas	0.176 **	0.005	0.283 **	0.000	0.365 **	0.000	0.297 **	0.000
	Site shape	0.046	0.473	0.057	0.366	0.022	0.732	0.008	0.905
	Percentage paved	−0.185 **	0.003	−0.112	0.077	−0.185 **	0.003	−0.171 **	0.007
	Canopy density	0.001	0.984	−0.162 *	0.010	-0.061	0.336	−0.083	0.191
	Green visibility	0.072	0.259	−0.108	0.087	0.073	0.250	0.025	0.693
	Scenic beauty	0.209 **	0.001	0.164 **	0.009	0.321 **	0.000	0.245 **	0.000
	Spatial containment	−0.174 **	0.006	−0.211 **	0.001	−0.299 **	0.000	−0.237 **	0.000
	Wide field of vision	0.043	0.495	0.175 **	0.005	0.181 **	0.004	0.096	0.131
	Topographic changes	0.109	0.087	0.284 **	0.000	0.280 **	0.000	0.256 **	0.000
	Cultural elements	0.109	0.087	0.284 **	0.000	0.280 **	0.000	0.256 **	0.000
	Leisure facility	0.063	0.324	0.040	0.526	0.024	0.708	0.089	0.162
	Special vegetation	0.142 *	0.025	0.130 *	0.040	0.304 **	0.000	0.262 **	0.000
	Distributing space	0.087	0.168	0.171 **	0.007	0.168 **	0.008	0.129 *	0.041
	Off-site interference	−0.089	0.161	−0.094	0.140	−0.110	0.083	−0.162 *	0.010

Note: *: $p < 0.05$; **: $p < 0.01$.

3.3. Correlation between Environmental Characteristics and Physiological Responses

(1) HRV time domain indicators

The Pearson correlation analysis of HRV time domain indexes with environmental characteristics of each sample site showed that the HRV time domain indexes of the subjects could be significantly affected by the three environmental characteristics of pocket parks, namely, canopy density, green visibility, and off-site interference (Table 7).

Table 7. Results of Pearson correlation analysis between environmental characteristics of the pocket parks and HRV time domain indicators of subjects.

Environmental Characteristics		IBI		HR		SDNN		RMSSD		pNN50	
		r	*P*	*r*	*P*	*r*	*P*	*r*	*P*	*r*	*P*
EAPRS element	Site areas	0.016	0.796	−0.018	0.772	−0.017	0.795	−0.017	0.795	0.028	0.663
	Site shape	−0.011	0.860	0.023	0.719	0.069	0.280	0.062	0.333	−0.015	0.808
	Percentage paved	−0.042	0.509	0.048	0.450	−0.025	0.694	−0.024	0.706	−0.087	0.169
	Canopy density	−0.144 *	0.023	0.156 *	0.014	−0.142 *	0.025	−0.137 *	0.030	−0.192 **	0.002
	Green visibility	−0.130 *	0.039	0.140 *	0.027	−0.124 *	0.049	−0.122	0.053	−0.157 *	0.013
	Scenic beauty	−0.012	0.854	0.012	0.846	−0.047	0.461	−0.052	0.417	−0.022	0.728
	Spatial containment	0.043	0.503	−0.045	0.475	0.054	0.396	0.055	0.391	0.028	0.663
	Wide field of vision	−0.042	0.509	0.045	0.483	−0.084	0.186	−0.079	0.213	−0.077	0.225
	Topographic changes	0.068	0.285	−0.075	0.240	0.036	0.569	0.030	0.639	0.085	0.180
	Cultural elements	0.068	0.285	−0.075	0.240	0.036	0.569	0.030	0.639	0.085	0.180
	Leisure facility	−0.015	0.817	0.017	0.784	−0.013	0.832	−0.022	0.727	v0.005	0.941
	Special vegetation	0.032	0.616	−0.043	0.501	−0.043	0.502	−0.040	0.526	0.055	0.386
	Distributing space	0.059	0.350	−0.067	0.288	0.019	0.761	0.011	0.868	0.108	0.090
	Off-site interference	−0.111	0.081	0.122	0.053	−0.054	0.391	−0.047	0.458	−0.159 *	0.012

Note: *: $p < 0.05$; **: $p < 0.01$.

(2) HRV frequency domain metrics

Pearson's correlation analysis of HRV frequency domain indexes with each sample site's environmental features showed no significant correlation between LF, HF, and LF/HF indexes and all environmental features (Table 8). It indicated that the environmental features of the pocket parks did not significantly affect the HRV frequency domain indexes of the subjects.

Table 8. Pearson correlation analysis results of environmental characteristics of the pocket parks and HRV frequency domain indexes of subjects.

Environmental Characteristics		LF		HF		LF/HF	
		r	*P*	*r*	*P*	*r*	*P*
	Site areas	−0.050	0.428	−0.038	0.546	−0.036	0.572
	Site shape	0.057	0.366	0.059	0.353	0.048	0.448
EAPRS element	Percentage paved	0.035	0.585	−0.006	0.931	0.086	0.173
	Canopy density	−0.008	0.905	−0.064	0.310	−0.013	0.835
	Green visibility	−0.001	0.987	−0.055	0.383	−0.024	0.704
	Scenic beauty	−0.018	0.780	−0.010	0.877	−0.034	0.589
	Spatial containment	0.076	0.232	0.066	0.296	0.071	0.263
	Wide field of vision	−0.066	0.299	−0.086	0.176	−0.014	0.828
	Topographic changes	−0.046	0.465	0.007	0.915	−0.025	0.693
	Cultural elements	−0.046	0.465	0.007	0.915	−0.025	0.693
	Leisure facility	−0.044	0.493	0.002	0.975	−0.035	0.578
	Special vegetation	−0.039	0.538	−0.037	0.556	−0.049	0.440
	Distributing space	−0.092	0.148	−0.046	0.472	−0.044	0.484
	Off-site interference	0.033	0.607	−0.020	0.756	0.013	0.841

(3) SCL, EMG

The Pearson correlation analysis of SCL, EMG indexes, and environmental characteristics of each sample site, showed that the canopy density of pocket parks significantly affected the SCL indexes of subjects, and the canopy density, green visibility, scenic beauty, and special vegetation significantly affected the EMG indexes of subjects (Table 9).

Table 9. Pearson correlation analysis results of environmental characteristics of the pocket parks and subjects' SCL and EMG indicators.

Environmental Characteristics		SCL		EMG	
		r	*P*	*r*	*P*
	Site areas	0.013	0.841	0.026	0.332
	Site shape	−0.027	0.667	0.031	0.551
EAPRS element	Percentage paved	−0.071	0.264	−0.014	0.756
	Canopy density	−0.135 *	0.032	−0.261 *	0.013
	Green visibility	−0.085	0.181	0.303 *	0.021
	Scenic beauty	0.015	0.814	0.290 *	0.040
	Spatial containment	0.035	0.585	−0.011	0.836
	Wide field of vision	−0.083	0.191	0.059	0.710
	Topographic changes	0.065	0.308	0.087	0.333
	Cultural elements	0.065	0.308	0.087	0.333
	Leisure facility	−0.022	0.725	0.007	0.822
	Special vegetation	0.079	0.212	0.212 *	0.027
	Distributing space	0.060	0.346	0.074	0.163
	Off-site interference	−0.107	0.091	−0.204	0.637

Note: *: $p < 0.05$.

4. Conclusions and Discussion

4.1. Discussion

(1) The psychological state of recreational users is largely influenced by the site area, scenic beauty, and whether the space is enclosed in the pocket park. The larger the site area, the higher the scenic beauty, and if the space is not effectively limited, the pocket park environment can promote positive psychological benefits for recreational users. In the optimum pocket park the proportion of paving is low, the field of vision is wide, and there are cultural elements and terrain changes. A pocket park environment with special vegetation and distribution space can also have a positive effect on the psychological benefits of tourists to a certain extent. In addition, environments with

low canopy closure and high green vision rate have a positive effect on suppressing negative emotions.

(2) The physiological state of recreationists is most likely to be affected by the degree of canopy density in pocket parks. The higher the degree of canopy density, the higher the HR of recreationists would be, and the lower the IBI, SDNN, RMSSD, pNN50, SCL, and EMG would be. Secondly, green visibility also has an effect on the physiological response of recreationists to some extent. The higher the green visibility, the higher the HR of recreationists would be, and the lower the IBI, SDNN, and pNN50 would be. In addition, an environment with a high degree of scenic beauty and special vegetation will significantly increase EMG, and an environment with external disturbances will decrease pNN50. Previous studies have found that IBI, RMSSD, pNN50, and SDNN decrease during stress [42], suggesting that pocket parks with high levels of canopy density and off-site disturbances decrease the parasympathetic tone and autonomic nervous system of the recreationists, which in turn leads to an elevated stressful state. This is corroborated by the rise in HR with high canopies, proving that the heart rate of recreationists will increase in a high-depression environment to produce a sense of tension. The reduction in SCL and EMG suggests that this type of environment also reduces the emotional arousal and pleasure of the recreationists, resulting in a more subdued emotional state. There are different interpretations of HR indicators, and some studies have suggested that stress and tension can lead to an increase in heart rate [43], but being in a state of arousal can also lead to the same response, as illustrated by the relationship between physiological state and green visibility in this study, which shows that pocket parks with high green visibility can promote recreationists' emotional well-being, as a high green visibility environment can give recreationists a sense of novelty and pleasure, and a state of arousal, resulting in a more spiritless state than in daily life. Because the high green visibility environment will make recreationists feel a sense of novelty and pleasure different from their daily life, they will be in a state of excitement, leading to an increase in HR. Therefore, this study concludes that when green visibility is higher, HR goes up, which can be interpreted as a positive psychological state. The HR index can be interpreted according to the characterization of the environment and the rest of the physiological indexes and the IBI, SDNN, and pNN50 can also be interpreted in such a way. The above interpretation also confirms that EMG is a key physiological indicator, which directly reflects the emotional pleasure of the recreationist, and can be used to determine whether the HRV indicator should be interpreted as positive or negative and can be recognized as an essential indicator for interpreting the impact of the environment on the physiological response of the recreationist. Therefore, it is also essential to know whether or not pocket parks have special vegetation, which can directly contribute to the elevation of the EMG, perhaps for the reason that special vegetation enriches the color of the landscape and the aroma of the plants, thus enhancing the emotional pleasure of the recreationists. Overall, pocket parks with high canopy density and off-site disturbances are not conducive to positive physiological responses from recreationists, and pocket parks with high green visibility, high scenic beauty, and special vegetation are more likely to produce health benefits for recreationists.

4.2. Conclusions

In this paper, site area, site shape, and EAPRS elements of each sample site were selected to form the environmental characteristic indicators of pocket parks, and quantified to analyze which environmental characteristics can significantly affect the physiological and psychological response indicators of subjects and the assessment of health benefits. The following conclusions were drawn:

(1) The environmental characteristics of pocket parks significantly affect recreationists' psychological and physiological responses. Psychological responses significantly affect the emotional state, attention recovery, and environmental preference of recre-

ationists, and physiological responses significantly affect the IBI, HR, SDNN, RMSSD, pNN50, SCL, and EMG indicators of recreationists.

(2) The environmental characteristics of the pocket park, such as site area, the percentage paved, scenic beauty, spatial containment, wide field of vision, cultural elements, special vegetation, distributing space, and off-site interference, can significantly affect the emotional state, attention recovery, and environmental preference of the subjects. In addition, canopy density, green visibility, and topographic changes can also affect the psychological response of the subjects to some extent. Overall, the three environmental features of the site area, scenic beauty, and spatial containment had the most significant effect on psychological response, and these three environmental states significantly affected all the factors of psychological response.

(3) The canopy density of the pocket park significantly affects HRV time domain indicators, SCL, and EMG, and green visibility significantly affects some of the HRV indicators and EMG. In addition, scenic beauty and special vegetation also have a significant positive effect on EMG. Overall, canopy density has the most notable effect on physiological indicators, having a significant adverse effect on IBI, SDNN, RMSSD, pNN50, SCL, and EMG, and a significant positive effect on HR. This is followed by green visibility, which will have a significant adverse effect on IBI, SDNN, and pNN50, and a significant positive effect on HR, and EMG. Scenic beauty and special vegetation have a significant positive effect on EMG, and a pocket park environment with a high degree of beauty and special vegetation can enhance the emotional pleasure of recreationists.

5. Shortcomings and Prospects

(1) In this study, recreationists' visual perceptions of the pocket park environment were measured and evaluated by watching a video. This method inevitably compromised the subjects' experience of their five senses. Subsequent experiments can be conducted in real-life environments.

(2) Geographical differences in economies, humanities, etc., can lead to different research results. In the future, more studies can be conducted in different regions to address geographical characteristics.

(3) In addition to the two primary senses of sight and sound, the discipline of landscape architecture is laying more emphasis on the five senses of landscape experience by recreationists, the potential links that may exist among senses, and the possibility that there may be selective attentional competition, i.e., regarding which of the five senses stimulates perceptions and thus leads to different modal perceptual design strategies. Further experiments are required to explore the interactions and contributions of multiple senses in landscape evaluation.

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References

1. Sugiyama, T.; Carver, A.; Koohsari, J.; Veitch, J. Advantages of public green spaces in enhancing population health. *Landsc. Urban Plan.* **2018**, *178*, 12–17. [CrossRef]
2. Bosch, M.V.D.; Sang, A.O. Urban natural environments as nature-based solutions for improved public health—A systematic review of reviews. *Environ. Res.* **2017**, *158*, 373–384. [CrossRef] [PubMed]
3. Li, T.; Wang, X.F. Connotation and realizing route of Healthy China. *Health Econ. Res.* **2016**, *7*, 4–10. [CrossRef]
4. Hou, Y.J.; Zhao, X.L.; Zhu, X. Evolution of Western Landscape Architecture Based on Health-trend. *Chin. Landsc. Archit.* **2015**, *5*, 101–105. [CrossRef]
5. Shan, X.Z. Common diseases in China overlooked. *Science* **2015**, *347*, 620–621. [CrossRef]
6. Jiang, B.; Zhang, T.; Sullivan, W.C. Healthy Cities: Mechanisms and Research Questions Regarding the Impacts of Urban Green Landscapes on Public Health and Well-being. *Landsc. Archit. Front.* **2015**, *12*, 24–36.
7. Guo, T.H.; Dong, L.; Sun, Q.H. Design and Evidence Analysis on the Method of Evidence-based Therapeutic Landscape Design. *Landsc. Archit.* **2015**, *7*, 106–112. [CrossRef]
8. Thompson, C.W. Linking landscape and health: The recurring theme. *Landsc. Urban Plan.* **2011**, *99*, 187–195. [CrossRef]
9. Tzortzakaki, O.; Kati, V.; Panitsa, M.; Tzanatos, E.; Giokas, S. Butterfly diversity along the urbanization gradient in a densely-built Mediterranean city: Land cover is more decisive than resources in structuring communities. *Landsc. Urban Plan.* **2019**, *183*, 79–87. [CrossRef]
10. Francis, C.C.M.; Yu, K.J.; Sun, P.; Wang, Z.F. *Human Places—Guidelines for the Design of Urban Open Spaces*, 2nd ed.; China Architecture & Building Press: Beijing, China, 2001.
11. Zhang, W.Y. Pocket Parks—Oasis Away from the Bustle of High Density Midtown. *Chin. Landsc. Archit.* **2007**, *23*, 7. [CrossRef]
12. Li, X.T.; Bao, S.D. Discussion on the Restoration Environment Construction of Pocket Parks. *Mod. Hortic.* **2020**, *43*, 2. [CrossRef]
13. Mckenzie, K.; Murray, A.; Booth, T. Do urban environments increase the risk of anxiety, depression and psychosis? An epidemiological study. *J. Affect. Disord.* **2013**, *150*, 1019–1024. [CrossRef] [PubMed]
14. Kim, J.H.; Gu, D.; Sohn, W.; Kil, S.H.; Kim, H.; Lee, D.K. Neighborhood Landscape Spatial Patterns and Land Surface Temperature: An Empirical Study on Single-Family Residential Areas in Austin, Texas. *Int. J. Environ. Res. Public Health* **2016**, *13*, 880. [CrossRef] [PubMed]
15. Markevych, I.; Schoierer, J.; Hartig, T.; Chudnovsky, A.; Hystad, P.; Dzhambov, A.M.; De Vries, S.; Triguero-Mas, M.; Brauer, M.; Nieuwenhuijsen, M.J. Exploring pathways linking greenspace to health: Theoretical and methodological guidance. *Environ. Res.* **2017**, *158*, 301–317. [CrossRef]
16. James, P.; Hart, J.E.; Banay, R.F.; Laden, F. Exposure to Greenness and Mortality in a Nationwide Prospective Cohort Study of Women. *Environ. Health Perspect.* **2016**, *124*, 1344–1352. [CrossRef]
17. Hahad, O.; Lelieveld, J.; Birklein, F.; Lieb, K.; Munzel, T. Ambient Air Pollution Increases the Risk of Cerebrovascular and Neuropsychiatric Disorders through Induction of Inflammation and Oxidative Stress. *Int. J. Mol. Sci.* **2020**, *21*, 4306. [CrossRef]
18. Ting, R.; Xinguo, W.; Yang, W. Do cognitive and non-cognitive abilities mediate the relationship between air pollution exposure and mental health? *PLoS ONE* **2019**, *14*, e0223353. [CrossRef]
19. Pugh, T.A.M.; Mackenzie, A.R.; Whyatt, J.D.; Hewitt, C.N. Effectiveness of green infrastructure for improvement of air quality in urban street canyons. *Environ. Sci. Technol.* **2012**, *46*, 7692–7699. [CrossRef]
20. Elsadek, M.; Liu, B.; Lian, Z.; Junfang, X. The influence of urban roadside trees and their physical environment on stress relief measures: A field experiment in Shanghai. *Urban For. Urban Green.* **2019**, *42*, 51–60. [CrossRef]
21. Li, Y.X.; Rodiek, S.; Wu, C.Z.; Wang, X.X.; Chen, Y. Stress recovery and restorative effects of viewing different urban park scenes in Shanghai, China. *Urban For. Urban Green.* **2016**, *15*, 112–122. [CrossRef]
22. Kurt, B.; Douglas, H. The Influence of Urban Natural and Built Environments on Physiological and Psychological Measures of Stress—A Pilot Study. *Int. J. Environ. Res. Public Health* **2013**, *10*, 1250–1267. [CrossRef]
23. Zhai, Y.T.; Zhang, W.T.; Ding, W. A Review of Domestic Urban Pocket Parks Research Based on CiteSpace. *Urban Archit.* **2023**, *20*, 149–152. [CrossRef]
24. Huiyun, P.; Xiangjin, L.; Tingting, Y.; Shaohua, T. Research on the Relationship between the Environmental Characteristics of Pocket Parks and Young People's Perception of the Restorative Effects—A Case Study Based on Chongqing City, China. *Sustainability* **2023**, *15*, 3943. [CrossRef]

25. Jiading, Z.; Jianlin, L.; Yueli, X.; Guoming, L. Pedestrian-level gust wind flow and comfort around a building array–Influencing assessment on the pocket park. *Sustain. Cities Soc.* **2022**, *83*, 103953. [CrossRef]
26. Elika, S.G.; Mehrdad, K.; Armin, A.; Zahra, A.G.; Farshid, A.; Amir, M. Locating pocket parks: Assessing the effects of land use and accessibility on the public presence. *Environ. Sustain. Indic.* **2023**, *18*, 100253. [CrossRef]
27. Zhang, L.; Xu, X.; Guo, Y. The Impact of a Child-Friendly Design on Children's Activities in Urban Community Pocket Parks. *Sustainability* **2023**, *15*, 73. [CrossRef]
28. Guo, T.H.; Dong, L.; Liu, C. Identifying Features Influencing the Use of Smallscale Urban Park under the Health Perspective. *Chin. Landsc. Archit.* **2020**, *36*, 5. [CrossRef]
29. Saelens, B.E.; Frank, L.D.; Auffrey, C.; Whitaker, R.C.; Burdette, H.L.; Colabianchi, N. Measuring Physical Environments of Parks and Playgrounds: EAPRS Instrument Development and Inter-Rater Reliability. *J. Phys. Act. Health* **2006**, *3*, S190. [CrossRef]
30. Kaczynski, A.T.; Potwarka, L.R.; Saelens, B.E. Association of park size, distance, and features with physical activity in neighborhood parks. *Am. J. Public Health* **2008**, *98*, 1451–1456. [CrossRef]
31. Schipperijn, J.; Bentsen, P.; Troelsen, J.; Toftager, M.; Stigsdotter, U.K. Associations between physical activity and characteristics of urban green space. *Urban For. Urban Green.* **2013**, *12*, 109–116. [CrossRef]
32. Chen, F.; Lin, J.Q.; Zhu, X. Landscape Activity Evaluation of Elder's in Winter City Base on the Methods of EAPRS and NGST. *Chin. Landsc. Archit.* **2015**, *31*, 100–104. [CrossRef]
33. Peschardt, K.K.; Stigsdotter, U.K. Associations between park characteristics and perceived restorativeness of small public urban green spaces. *Landsc. Urban Plan.* **2013**, *112*, 26–39. [CrossRef]
34. Hyun, K. Sample size determination and power analysis using the G*Power software. *J. Educ. Eval. Health Prof.* **2021**, *18*, 17. [CrossRef]
35. Evans, G.W. Assessment of Environmental Aesthetics in Scenic Highway Corridors. *Environ. Behav.* **1980**, *12*, 255–273. [CrossRef]
36. Brown, T.C. Production and Cost of Scenic Beauty: Examples for a Ponderosa Pine Forest. *For. Sci.* **1987**, *19*, 394–410. [CrossRef]
37. Cai, X.B.; Xie, Z.T.; Lin, P. Psychological Evaluation of Visitors on City Park Scene Safety. *Chin. Landsc. Archit.* **2012**, *28*, 109–113.
38. Ge, Y.; Chen, Y.N.; Liu, Y.F.; Li, W.; Sun, X.H. Electrophysiological Measures Applied in User Experience Studies. *Adv. Psychol. Sci.* **2014**, *22*, 9. [CrossRef]
39. Mark, A.L.; Victor, R.G.; Nerhed, C.; Wallin, B.G. Microneurographic studies of the mechanisms of sympathetic nerve responses to static exercise in humans. *Circ. Res.* **1985**, *57*, 461–469. [CrossRef]
40. Hedblom, M.; Gunnarsson, B.; Iravani, B.; Knez, I.; Schaefer, M.; Thorsson, P.; Lundstrm, J.N. Reduction of physiological stress by urban green space in a multisensory virtual experiment. *Sci. Rep.* **2019**, *9*, 10113. [CrossRef]
41. Fujimura, T.; Okanoya, K. Heart Rate Variability Predicts Emotional Flexibility in Response to Positive Stimuli. *Psychology* **2012**, *3*, 578–582. [CrossRef]
42. Lang, P.J. The emotion probe. *Am. Psychol.* **1995**, *50*, 371–385. [CrossRef]
43. Deng, L.; Li, X.; Luo, H.; Fu, E.K.; Jia, Y. Empirical study of landscape types, landscape elements and landscape components of the urban park promoting physiological and psychological restoration. *Urban For. Urban Green.* **2019**, *48*, 126488. [CrossRef]
44. Shacham, S. A Shortened Version of the Profile of Mood States. *J. Pers. Assess.* **1983**, *47*, 305–306. [CrossRef] [PubMed]
45. Wang, J.P.; Lin, W.J.; Chen, Z.G.; Cui, J.N.; Liu, J. POMS for use in China. *Acta Psychol. Sin.* **2000**, *4*, 110–114. [CrossRef]
46. Hartig, T.; Korpela, K.; Evans, G.W.; Garling, T. A measure of restorative quality in environments. *Hous. Theory Soc.* **1997**, *14*, 175–194. [CrossRef]
47. Wang, X.X.; Wu, C.Z.; Yan, J. Experimental Study of the Perceived Restorative Scale (PRS) in Chinese by Evaluating the Restorative Qualities of Urban Park Scenes. *Chin. Landsc. Archit.* **2019**, *35*, 4.
48. Hagerhall, C.M.; Purcell, T.; Taylor, R. Fractal dimension of landscape silhouette outlines as a predictor of landscape preference. *J. Environ. Psychol.* **2004**, *24*, 247–255. [CrossRef]
49. Zhai, Y.J. Landscape Architecture Planning and Design Strategy based on Environmental Psychology-Natural Environment Preference Theory as an Example. In Proceedings of the 2016 Annual Meeting of the Chinese Society of Landscape Architecture, Changsha, China, 15–17 April 2016.
50. Kaplan, R.; Kaplan, S. *The Experience of Nature: A Psychological Perspective*; Cambridge University Press: Cambridge, UK, 1989.
51. Huang, C.C.; Huang, F.M.; Zhou, H.C. Relationship between environmental preference and environmental restorative perception: A case study of mountain landscape. *J. Outdoor Recreat. Study* **2008**, *21*, 1–25.
52. Li, Y.H.; Liang, W.C. Psychological models in landscape assessment. *J. Landsc.* **2000**, *7*, 67–87.