



HOW URBAN PARK CPTED INFLUENCES REVISIT INTENTION THROUGH PLACE ATTACHMENT WITH SOCIOECONOMIC STATUS AS A MODERATOR

Fei Hou¹, Aldrin Abdullah^{2*}, Nooriati Taib³

*^{1,2,3}School of Housing, Building and Planning,
UNIVERSITI SAINS MALAYSIA*

Abstract

Urban parks offer spaces for daily leisure and psychological recovery. However, safety concerns can reduce users' willingness to revisit. This study draws on crime prevention through environmental design (CPTED) and environmental psychology. It examines how CPTED shapes revisit intention in urban parks. It also tests place attachment as a mediator and socioeconomic status (SES) as a moderator. The data were collected from 361 users of Baitashan Park in Lanzhou, China. The data were analysed using partial least squares structural equation modelling. The results show that CPTED has a significant positive effect on place attachment. CPTED also has a significant positive effect on revisit intention. Place attachment partially mediates the link between CPTED and revisit intention. This pattern suggests that safety-oriented design encourages repeat use by building emotional bonds with the park. SES further strengthens the effects of CPTED on both place attachment and revisit intention. However, SES does not change the association between place attachment and revisit intention. Overall, the findings highlight an emotional pathway through which CPTED supports sustained park use. They also stress the need for socially inclusive safety design in urban parks.

Keywords: Urban Park, Crime Prevention through Environmental Design, Place Attachment, Revisit Intention, Socioeconomic Status

² Corresponding author. Email: aldrin@usm.my

INTRODUCTION

In the field of environmental design, the value of urban parks has long been recognised. As an integral part of users' daily lives, urban parks not only provide physical space for leisure but also play a pivotal role in alleviating environmental stress and promoting physical and mental restoration (Bai et al., 2025). Despite these advantages, existing research indicates that parks, as open public spaces, are naturally exposed to potential crime risks while offering accessibility (Spencer & Schnell, 2025). This safety hazard directly threatens park vitality: even with high-quality natural landscapes and facilities, users' psychological defence mechanisms will be triggered when perceiving insecurity. This not only inhibits use frequency but also significantly undermines their future revisit intention (Wang et al., 2022). Therefore, for planners, the core challenge extends beyond merely beautifying the landscape and providing services. It lies in actively mitigating criminal opportunities through environmental design to rebuild user trust and sustain long-term revisit behaviour. Addressing this issue is a critical priority at the intersection of urban planning and environmental psychology. Furthermore, safe cities are crucial to the success of community development, urban development, and nation building (Shamsuddin & Azim Hussin, 2013).

Specifically, from an environmental psychology perspective, Nursyamsiah & Setiawan (2023) argue that rational spatial layout and clear accessibility serve not only as functional indicators but also create an atmosphere of defensible space, thereby fostering a sense of belonging and deepening users' place attachment. Research consistently shows that higher levels of belonging and place attachment positively predict users' revisit intention (Isa et al., 2020). However, it is crucial to note that perception is not uniform. Due to diverse backgrounds, groups of different socioeconomic status (SES) often exhibit significant disparities in interpreting environmental risk signals, influenced by their living environments, prior safety experiences, and resource accessibility (Evans & Kantrowitz, 2002). In other words, users from different SES strata may perceive the utility of the same CPTED strategy differently. Consequently, this study aims to examine the relationship between Crime Prevention Through Environmental Design (CPTED) and revisit intention in urban parks, incorporating SES as a moderating variable. The findings will offer critical insights for the renewal and refined governance of urban parks, particularly in formulating targeted CPTED strategies and socially inclusive design schemes.

LITERATURE REVIEW

CPTED and Revisit Intention

CPTED is no longer confined to crime control but is increasingly recognised as a marker of environmental quality that can enhance the appeal of public open

spaces and promote favourable behavioural responses (Mak & Jim, 2022). The dimensions emphasised by CPTED, such as natural surveillance, territoriality, access control, and image management, help reduce concealed spaces and enhance a sense of order, thereby enhancing users' perceived safety and reducing fears of crime (Mehta & Gopalakrishnan, 2024). Chen and Hedayati Marzbali (2024) found that implementing higher levels of environmental maintenance and optimisation in urban parks through CPTED not only improves perceived safety but also increases visit frequency and length of stay. In addition, CPTED can enhance users' perceived satisfaction with urban parks by improving and optimising environmental quality, thereby strengthening user loyalty (Hou, Hedayati Marzbali, & Abdullah, 2025). In sum, a higher level of CPTED is expected to encourage individuals to develop more positive usage behaviours. Relevant research in environmental psychology shows that place attachment is an important psychological link between the physical environment and individual behaviour (Jayakody et al., 2024; Xu et al., 2022). High environmental quality, safe atmosphere, and positive landscape image can enhance users' emotional identity and sense of belonging. When users perceive the physical environment as safer and more orderly, they are more likely to develop trust and closeness toward the setting, which deepens place attachment and translates into more stable, loyal behaviour (Wu et al., 2024). Moreover, although optimised urban park design can effectively enhance satisfaction, it is primarily through place attachment that users' revisit intention is strengthened (Çevik, 2020). Therefore, this study proposes the following hypothesis:

H1: CPTED has a positive effect on urban park users' place attachment.

H2: CPTED has a positive effect on urban park users' revisit intention.

H3: Place attachment has a positive effect on urban park users' revisit intention.

H4: Place attachment mediates the relationship between CPTED and revisit intention.

SES and Parks

Users with different SES exhibit clear stratification in the accessibility and frequency of use of urban parks (Huang et al., 2022). High-SES individuals generally live in areas with better public services and economic conditions, and thus have easier access to parks with higher landscape quality and more comprehensive safety management (Mohamed et al., 2025). In contrast, low-SES residential environments are more likely to face problems such as inadequate facilities, crowding, and lower perceived safety, where potential environmental risks and uncivil behaviours are also more prevalent (Baum et al., 1999). These SES differences not only influence revisit intention and length of stay but also

shape users' perceived safety and environmental quality. Based on this, the following hypothesis are proposed:

H5: Associations between study variables differ by SES.

Figure 1 presents the proposed model based on the hypothesis, which examines the relationships among CPTED, place attachment, and revisit intention while accounting for differences in SES.

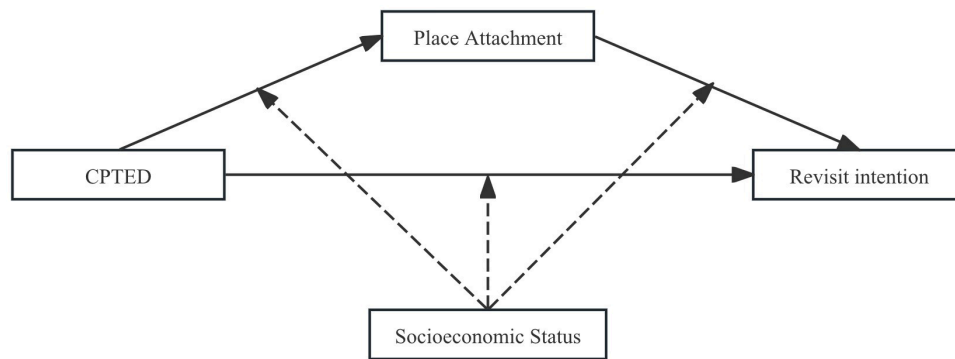


Figure 1: Research model
 Source: Authors (2026)

RESEARCH METHODOLOGY

Study Site

This study selected Baitashan Park in Chengguan District, Lanzhou, China, as the study site, and park users as the survey participants. Chengguan District is the most populous area in Lanzhou, with high population density, commercial function agglomeration, and dense transportation hubs (Jiang et al., 2022). As a result, it accommodates a diverse and highly mobile population, and the socioeconomic context around the park is relatively complex. In this context, Baitashan Park can typically reflect the characteristics of perceived safety, place attachment, and revisit intention, thereby providing strong representativeness.

Questionnaire Design

This study developed a questionnaire based on previous studies, comprising two parts. The first part collected information of the participants, including gender, age, education level, occupation, and monthly income. SES was operationalised as a latent construct measured by three items: education level, occupation and monthly income (Smith et al., 2017). The second part measured the study variables based on conceptual frameworks (Table 1). CPTED was assessed using 17 items from Hou, Hedayati Marzbali, & Abdullah (2025), covering four

dimensions: surveillance, territoriality, access control, and image management. Place attachment was measured with seven items across two dimensions developed by Chen et al. (2026). Revisit intention was measured following Zhan et al. (2024). All items were rated on a five-point Likert scale ranging from “strongly disagree (1)” to “strongly agree (5)”.

Table 1: Constructs and measurement items

Variable	Item code	Item
CPTED (1=strongly disagree, 5=strongly agree)		
Surveillance	S1	Security devices and lighting equipment are properly installed for safety in this park.
	S2	Security guard service in this park is acceptable.
	S3	Security Administration in this park is acceptable.
	S4	There is no obstacle on the borders and entrances of this park, which do not interrupt the view.
	S5	Crowds can reduce potential infringement in this park
Territoriality	T1	The spatial boundary is clear and well-defined in this park.
	T2	Users can distinguish various functional areas by different topographical designs in this park.
	T3	Fences or plantings can clearly define and delineates between private, semi-private and public spaces in this park.
	T4	Plants cannot obscure users' views.
Access Control	AC1	Design of the entrance space is appropriate and clearly identified.
	AC2	The road connectivity design are appropriate and well.
	AC3	Design and layout of parks signage play an important role.
	AC4	Accesses to this park is clear and easily identifiable.
Image and Maintenance	IM1	Inside of the park are clean and well maintained.
	IM2	Park facilities (such as benches, dustbins, and signage) are well-maintained.
	IM3	Lighting system works well especially in the nighttime.
	IM4	There is no malicious graffiti phenomenon.
Place Attachment (1=strongly disagree, 5=strongly agree)		
Place Identity	PI1	I have a lot of fond memories of the park.
	PI2	I miss the park when I am away for a long time.
	PI3	The park reminds me of some of my loved ones (parents, children, friends, etc.).
	PI4	This park has a special meaning to me.
Place Dependence	PD1	I prefer to visit the park because I believe it offers a good, clean, safe, and relaxing environment.
	PD2	I am more satisfied with the activities in this park than in other parks.
	PD3	This park is the most suitable place for me to relax.

Revisit Intention (1=strongly disagree, 5=strongly agree)		
	RI1	I have a strong desire to revisit this park next time.
	RI2	I will revisit this park in the near future.
	RI3	I will make this my first choice for my next visit to the park.

Source: Authors (2026)

Procedure

This study used convenience sampling to recruit target participants who were aged 18 years or above and had previously visited Baitashan Park. The questionnaire was distributed online through Wenjuanxing from February to April 2024 (<https://www.wjx.cn/>). Before completing the questionnaire, respondents were informed of the purpose of the study, the voluntary nature of participation and the confidentiality of their responses. Only those who read and agreed to this information were allowed to proceed with the questionnaire. To improve data quality, the questionnaire included two attention test items, each with a single correct answer. Questionnaires that failed either attention test item or contained incomplete responses were excluded from the analysis. A total of 429 questionnaires were collected through the online survey. After data screening, 361 valid questionnaires were retained for subsequent analysis, giving a valid completion rate of 84.15%. The data were stored on a password-protected computer and were accessible only to the researchers involved in this study. A post-hoc power analysis was conducted using G*Power 3.1. With the significance level set at $\alpha=0.05$ and an effect size of 0.15, the achieved statistical power was 0.89. This result indicates that the final sample size ($n=361$) is sufficient to meet the analytical requirements of this study.

RESULTS

Descriptive Statistics

Among the 361 respondents, 176 were male (48.8%), and 185 were female (51.2%), with a mean age of 40 years. Occupations included unemployed (28, 7.8%), manual workers (80, 22.2%), sales/service and general workers (123, 34.1%), self-employed (98, 27.0%), and professionals/officials (32, 8.9%). Education levels were secondary or below (18, 5.0%), high school (53, 14.7%), junior college (94, 26.0%), undergraduate (152, 42.1%), and master's degree or above (44, 12.2%). Monthly income was < 4,500 CNY (30, 8.3%), 4,500–5,999 (58, 16.1%), 6,000–7,999 (76, 21.0%), 8,000–9,999 (143, 39.6%), and $\geq 10,000$ (54, 15.0%).

Measurement Model Evaluation

Table 2 reports the reliability and convergent validity of the constructs, while Figure 2 presents the measurement model results. All Cronbach's alpha and

composite reliability values exceeded 0.70, and all AVE values were above 0.50, indicating acceptable internal consistency and convergent validity. Discriminant validity was examined using the Fornell–Larcker criterion and HTMT. As shown in **Table 3**, the square root of AVE for each construct on the diagonal was higher than the corresponding inter-construct correlations. **Table 4** further shows that all HTMT values were below 0.85, providing additional support for discriminant validity. Collinearity was also checked using VIF values, which ranged from 1.000 to 2.826 and were below the recommended threshold of 3.3. Overall, these results indicate that the measurement model had adequate reliability, validity and collinearity diagnostics for further structural model analysis (Hair et al., 2019).

Table 2: Reliability and convergent validity results

Variable	Dimension	$\alpha (\geq 0.7)$	CR (≥ 0.7)	AVE (≥ 0.5)
CPTED		0.955	0.959	0.58
	Surveillance	0.91	0.933	0.736
	Territoriality	0.897	0.928	0.764
	Access Control	0.883	0.919	0.741
	Image Management	0.892	0.925	0.755
Place Attachment		0.906	0.926	0.64
	Place Identity	0.874	0.922	0.798
	Place Dependence	0.887	0.922	0.747
Revisit Intention		0.87	0.921	0.794
SES		0.708	0.821	0.609

Source: Authors (2026)

Table 3: Fornell-Larcker criterion

Variable	AC	IM	S	T	PD	PI	RI	SES
AC	0.861							
IM	0.707	0.869						
S	0.668	0.699	0.858					
T	0.742	0.682	0.711	0.874				
PD	0.36	0.382	0.365	0.36	0.864			
PI	0.413	0.388	0.393	0.403	0.661	0.893		
RI	0.372	0.354	0.343	0.405	0.284	0.34	0.891	
SES	0.13	0.153	0.112	0.171	0.164	0.169	0.098	0.78

Source: Authors (2026)

Table 4: HTMT results

Variable	AC	IM	S	T	PD	PI	RI	SES
AC								
IM	0.796							
S	0.745	0.775						
T	0.834	0.763	0.786					
PD	0.406	0.43	0.406	0.404				
PI	0.47	0.44	0.441	0.456	0.75			
RI	0.424	0.402	0.386	0.458	0.323	0.389		
SES	0.159	0.173	0.127	0.213	0.178	0.189	0.109	

Source: Authors (2026)

Table 5 indicates that the model has moderate predictive power. The R^2 values indicate the explanatory power of the structural model for the endogenous constructs. Specifically, the model explained 24.7% of the variance in place attachment and 24.2% of the variance in revisit intention, suggesting a moderate level of explanatory power. All Q^2 values are greater than 0, indicating that the model had acceptable predictive relevance for place attachment and revisit intention. In addition, the model fit of 0.405 suggests a statistically meaningful model with satisfactory goodness of fit (GoF) (Hair et al., 2019).

Table 5: Coefficient of determination and predictive relevance and GoF

Variable	R^2	Q^2	AVE	GoF
CPTED	–	–	0.58	
PA	0.247	0.233	0.64	$\sqrt{(\bar{R}^2 \times AVE)} = \sqrt{0.245 \times 0.671} = 0.405$
RI	0.242	0.209	0.794	

Source: Authors (2026)

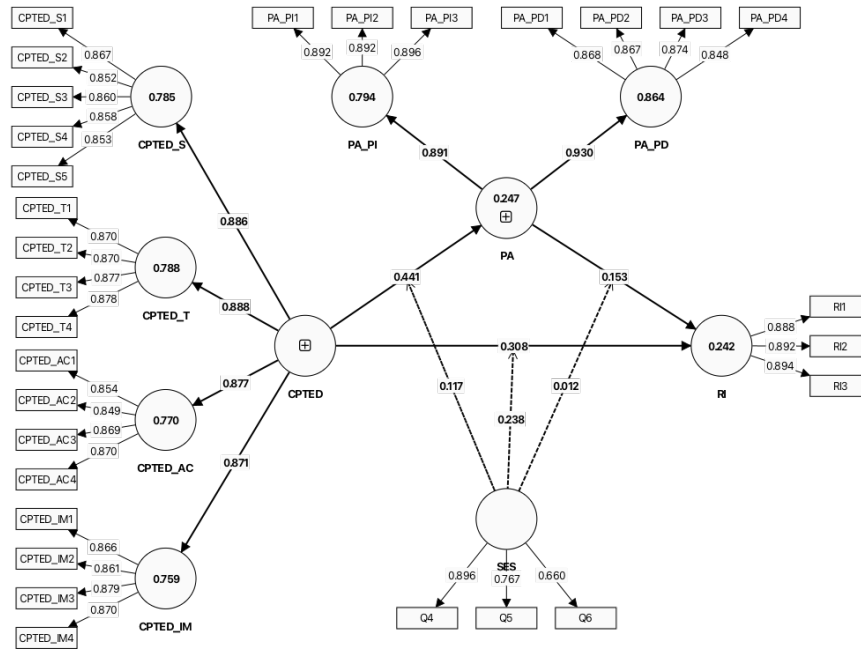


Figure 2: Measurement model path coefficients.
Source: Authors (2026)

Structural Model Evaluation

The significance of the direct, mediating, and moderating effects was tested using bootstrapping with 5,000 subsamples, bias-corrected 95% confidence intervals, and a two-tailed significance test at the 5% level (**Figure 3**). Effects were considered significant when the confidence interval did not include 0. **Table 6** shows the direct relationships between the main variables. CPTED has a strong positive effect on place attachment ($\beta = 0.441$, 95% CI [0.346, 0.526], $T = 9.698$, $p < 0.001$). When users perceive better surveillance, clearer boundaries, easier access and better maintenance, they also report stronger emotional bonds with the park. CPTED also has a positive direct effect on revisit intention ($\beta = 0.308$, 95% CI [0.200, 0.418], $T = 5.595$, $p < 0.001$), which means that a safer and more orderly environment makes users more willing to come back. In addition, place attachment is positively related to revisit intention ($\beta = 0.153$, 95% CI [0.046, 0.260], $T = 2.791$, $p < 0.01$). Users who feel attached to the park are more likely to choose it again for future visits.

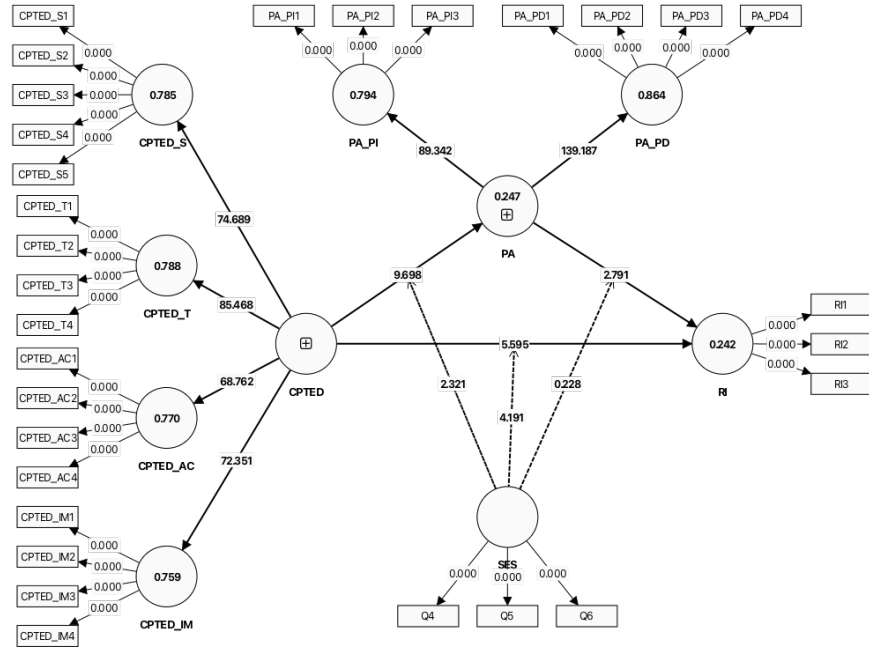


Figure 3: Bootstrapping results for the structural model.
 Source: Authors (2026)

Table 6: Results of Hypothesis (direct effects)

Hs	Relationship	β	T value	f^2	95% CI	p	Decision
H1	CPTED→PA	0.441	9.698	0.246	[0.346, 0.526]	0.000 ***	Support
H2	CPTED→RI	0.308	5.595	0.095	[0.200, 0.418]	0.000 ***	Support
H3	PA→RI	0.153	2.791	0.023	[0.046, 0.260]	0.005 **	Support

Note: *** $p < 0.001$, ** $p < 0.01$.

Source: Authors (2026)

Table 7 presents the mediating relationships in the model. Place attachment emerges as a significant mediator between CPTED and revisit intention ($\beta = 0.068$, 95% CI [0.021, 0.119], $T = 2.723$, $p < 0.01$). When users perceive higher levels of CPTED, they feel more emotionally attached to the park, and this attachment in turn increases their intention to revisit. This finding suggests that CPTED operates not only through a direct behavioural route but also through an emotional pathway that converts safer design into more stable repeat-use intentions.

Table 7: Results of Hypothesis (indirect effect)

Hs	Relationship	β	95% CI	T value	p	Decision
H4	CPTED→PA→RI	0.068	[0.021, 0.119]	2.723	0.006**	Support

Note: ** $p < 0.01$.

Source: Authors (2026)

SES was further included in the structural model as a moderating variable. Specifically, interaction terms between SES and the relevant predictors were created to examine whether SES changed the strength of the relationships between CPTED, place attachment and revisit intention. **Table 8** reports the moderating role of SES. SES moderates the relationship between CPTED and place attachment ($\beta = 0.117$, 95% CI [0.019, 0.216], $T = 2.321$, $p = 0.020$) and the relationship between CPTED and revisit intention ($\beta = 0.238$, 95% CI [0.126, 0.342], $T = 4.191$, $p < 0.001$). Since both confidence intervals exclude 0, these moderating effects are significant. By contrast, SES does not moderate the relationship between place attachment and revisit intention ($\beta = 0.012$, 95% CI [-0.088, 0.123], $T = 0.228$, $p = 0.820$), as the confidence interval includes 0.

Table 8: Results of Hypothesis (moderation effect)

Hs	Relationship	β	95% CI	T value	p	Decision
H5	SES*CPTED→PA	0.117	[0.019, 0.216]	2.321	0.02*	Support
	SES*CPTED→RI	0.238	[0.126, 0.342]	4.191	0.000***	Support
	SES*PA→RI	0.012	[-0.088, 0.123]	0.228	0.82	Not support

Note: *** $p < 0.001$, * $p < 0.05$

Source: Authors (2026)

DISCUSSION

Key Findings

The significant positive effects of CPTED on place attachment and revisit intention show that safety oriented design in urban parks is not only a technical tool to reduce crime risk, but also an important source of positive experience (Çevik, 2020). Natural surveillance, clear territoriality, access control, and image management create a setting that feels orderly, clean, and predictable, which helps users build trust in the park over time (Hou, Hedayati Marzbali, & Abdullah, 2025). This result shows that CPTED measures can directly enhance emotional bonds with the park and revisit intention.

A notable finding is that place attachment mediates the link between CPTED and revisit intention, suggesting that safety design works through an emotional route (Ling et al., 2024). Prior research has often focused on perceived safety or satisfaction as the main bridge to loyalty (Plunkett et al., 2019). Our results indicate that what matters in parks is also a sense of belonging and identity built through repeated safe and pleasant experiences. CPTED creates conditions

that support daily activities, social interaction and positive memories (Cozens & Stoks, 2025; Lee et al., 2016). Over time, these experiences accumulate into attachment to the park, which in turn encourages users to choose the same park again when planning future visits.

Evidently, the moderation results indicate that SES strengthens the positive effects of CPTED on both place attachment and revisit intention, with high SES users more likely to read safety and order cues as signs of a high-quality park and convert them into emotional bonds and repeat use (Hou, Hedayati Marzbali, Maghsoodi Tilaki, et al., 2025). For low SES users, the same CPTED improvements bring smaller gains, which is consistent with studies showing that environmental upgrades are often unequally experienced across social groups (Lee et al., 2023). SES does not change the link between place attachment and revisit intention, suggesting that once attachment is formed, its impact on revisit intention is broadly similar for all users. Park designers and managers should therefore integrate CPTED with targeted efforts to improve visibility, accessibility and inclusiveness, particularly for low SES users, so that future upgrades in Baitashan Park and similar urban parks in Lanzhou translate into safer, fairer and more sustained use.

Implications and Future Research

Based on the findings, CPTED should be interpreted as more than crime prevention. It can be framed as a long-term spatial strategy that supports safe and sustainable park use. Park designers should embed CPTED into layout decisions, such as clear sightlines, legible paths, well-defined zones, and reduced hidden corners. They should also combine CPTED with inclusive design, especially for low-SES users, by improving accessibility, wayfinding, and everyday comfort. Meanwhile, park managers should treat CPTED as routine governance. They can maintain lighting, trim vegetation to protect visibility, manage circulation with clear signage, and respond quickly to damage or disorder. The SES moderation suggests that safety is experienced differently across social groups, so updates should prioritise vulnerable areas and ensure that low-SES users gain real and shared benefits.

This study has several limitations. Firstly, the cross-sectional design means that the relationships among CPTED, place attachment and revisit intention should be understood as associations at a specific point in time, rather than as causal or temporal effects. Future research could use longitudinal or repeated-measure designs to examine how users' attachment to parks develops through repeated visits and safety-related experiences. Secondly, the study focused only on Baitashan Park in Lanzhou. Although this site provides a useful case for examining CPTED, place attachment and revisit intention, the findings may not be directly generalisable to parks with different spatial layouts,

management practices or neighbourhood contexts. Future studies could compare multiple parks across different urban settings to test whether the proposed relationships remain consistent.

CONCLUSION

This study examined how CPTED influences urban park users' intention to revisit in the specific context of Baitashan Park in the Chengguan District of Lanzhou. Using survey data from park users, the analysis shows that CPTED has positive effects on both place attachment and revisit intention in this setting. Place attachment partly explains how safety oriented design in Baitashan Park is translated into repeated use. The findings also indicate that SES changes the strength of the effects of CPTED on place attachment and revisit intention, while the association between place attachment and revisit intention remains stable.

These results suggest that in parks such as Baitashan, which serve mixed socioeconomic groups and experience intensive daily use, CPTED should be regarded as both a crime prevention tool and a long term investment in user engagement. For Lanzhou and similar Chinese cities, priority should be given to inclusive CPTED measures that are visible, accessible and easy to understand, particularly for lower SES users, so that safety improvements support safe and equitable park use over time.

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DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author(s).

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