
THE ROLE OF MEANINGFULNESS AND ENVIRONMENTAL AWARENESS IN FOSTERING HAPPINESS AND REVISIT INTENTION IN BIOPHILIC CAFÉS

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Abstract

Biophilic design integrates natural elements into built environments to enhance well-being. While its benefits for satisfaction and stress reduction are well-documented, limited research explores how biophilic café environments evoke psychological and emotional responses that influence visitor behaviour. This study examines how meaningfulness and environmental awareness in biophilic cafés foster happiness and shape revisit intention. Drawing on Attention Restoration Theory and Place Attachment Theory, the study conceptualizes these pathways as symbolic and emotional mechanisms through which design influences experience and behaviour. A survey was conducted through Prolific, targeting 219 respondents in the United Kingdom who had previously visited cafés with visible biophilic design features. Data were analysed using structural equation modelling to test the hypothesized relationships between meaningfulness, environmental awareness, happiness, and revisit intention. The findings reveal that meaningful and environmental awareness self enhance happiness, which in turn increases revisit intention. Theoretically, this research extends biophilic design literature by uncovering the psychological pathways linking symbolic and emotional experiences to behavioural outcomes in hospitality contexts. Practically, it offers insights for hospitality managers and designers to create emotionally impactful, meaningful spaces that evoke well-being and loyalty suggesting that designing for connection and meaning is as essential as delivering comfort or service quality.

Keywords : Biophilic design, Visitor experience, Happiness, Revisit intention

INTRODUCTION

The rise of cafés as lifestyle destinations has become a defining phenomenon in urban tourism and hospitality, with consumers increasingly valuing not just products but holistic experiences shaped by ambience, emotion, and personal meaning (Dong & Siu, 2023; Sadeghian et al., 2023). This trend is particularly

evident in Europe, especially the United Kingdom, where a growing number of concept cafés have emerged offering more than just food and drink but also blending aesthetic interiors, wellness-promoting atmospheres, and emotionally uplifting environments (Sadeghian et al., 2023). These cafés appeal to modern consumers' desire for spaces that enable relaxation, self-

expression, and psychological restoration amid the demands of city life (Fu & Xue, 2023; Dong & Siu, 2023). In recent years, biophilic cafés such as integrating natural light, greenery, organic textures, and views of nature have attracted considerable attention to meet these evolving expectations, offering a unique combination of sensory pleasure and symbolic meaning (Chen et al., 2023; Song et al., 2022).

Biophilic cafés can be defined as hospitality spaces designed with principles of biophilic design, which integrate natural elements into built environments to enhance human well-being (Fu & Xue, 2023). These cafés simulate natural environments to provide visitors with a sense of calm, meaningfulness, and connection, creating distinctive emotional experiences that go beyond traditional café settings (Dong & Qu, 2023). In urban contexts where direct contact with nature is limited, biophilic cafés offer visitors an immersive escape from stress while evoking a personal sense of relevance and emotional uplift (Zhu et al., 2023; Chen et al., 2023). They not only serve as visually appealing spaces but also as environments that stimulate deeper symbolic and psychological pathways, fostering well-being and loyalty (Dong & Siu, 2023; Sadeghian et al., 2023).

Previous research has largely focused on the aesthetic and functional benefits of biophilic design in workplaces and healthcare settings, documenting improvements in satisfaction, stress reduction, and productivity (Fu & Xue, 2023; Song et al., 2022). Some studies in hospitality contexts have also highlighted its positive effects on customer satisfaction

and restorative experiences (Dong & Qu, 2023; Zhu et al., 2023). However, research that explicitly examines how biophilic café environments foster meaningfulness and environmental awareness, enhance happiness, and influence revisit intention remains limited. Specifically, while prior work has shown that natural environments contribute to well-being, the psychological mechanisms, particularly the roles of meaningfulness and nature related as symbolic and emotional pathways, have not been thoroughly explored in hospitality and tourism research (Dong & Siu, 2023; Song et al., 2022).

To explain these processes, the current study draws on two psychological theories. First, Attention Restoration Theory (ART) suggests that exposure to natural environments helps restore depleted cognitive resources, reduces mental fatigue, and evokes positive emotions (Fu & Xue, 2023). Biophilic cafés, by incorporating restorative environmental features, may enhance happiness by fostering relaxation and clarity (Sadeghian et al., 2023). Second, Place Attachment Theory (PAT) posits that individuals develop emotional bonds with places that feel meaningful and aligned with their identity, strengthening positive feelings and motivating revisit intention (Chen et al., 2023). Together, these theories provide a framework for understanding how biophilic café environments foster meaningfulness and environmental awareness, enhance happiness, and drive revisit intention (Dong & Qu, 2023; Zhu et al., 2023).

This research, therefore, examines how meaningfulness and environmental awareness of a visitor

become key experiential qualities of biophilic cafés, contribute to visitors' happiness and influence their intention to revisit. By addressing this gap, the study contributes to several streams of literature. It positions biophilic cafés as emotionally restorative and meaningful service environments, extending our understanding of how design can act as a symbolic and psychological driver of customer behavior (Song et al., 2022; Dong & Siu, 2023). Furthermore, it applies ART and PAT to the café context, offering a nuanced theoretical explanation of how customer experiences translate into emotional and behavioral outcomes (Chen et al., 2023; Fu & Xue, 2023). Finally, it provides actionable insights for hospitality managers, service designers, and marketers by demonstrating how biophilic cafés can evoke personal relevance, emotional uplift, and loyalty, thus suggesting that designing for meaning and connection may be as essential as providing comfort or service quality in creating sustainable, human-centered hospitality experiences (Sadeghian et al., 2023; Dong & Qu, 2023).

LITERATURE REVIEW

2.1. Attention Restoration Theory

Attention Restoration Theory (ART) suggests that exposure to natural environments helps restore depleted cognitive resources by offering experiences of "being away," fascination, extent, and compatibility (Kaplan & Kaplan, 1989). Natural settings engage involuntary attention through soft fascination, allowing directed attention to recover, reducing cognitive fatigue, and enhancing emotional well-being.

Recent research extends ART by exploring how green infrastructure in

urban settings (such as parks and biophilic cafés) supports restoration. Fu and Xue (2023) showed that green infrastructure improved cognitive restoration compared to urban views, as evidenced by better attention test scores and reduced cognitive load. Their eye-tracking study revealed that natural environments required less cognitive effort, as indicated by fewer fixations, longer fixation durations, and smaller saccade amplitudes. Moreover, individuals with higher nature-relatedness benefitted more from natural views, confirming the role of personal connection to nature.

In the context of biophilic cafés, these findings suggest that integrating natural elements not only reduces mental fatigue but also creates restorative, meaningful experiences that enhance happiness and foster revisit intention. This study therefore draws on ART to explain how biophilic café design, by mimicking restorative green infrastructure, replenishes cognitive resources and promotes well-being.

2.2. Meaningfulness, environmental awareness, and happiness in biophilic café experiences

Biophilic design integrates natural elements into built environments to enhance well-being. In hospitality, and particularly in cafés, biophilic design creates spaces that evoke positive emotional responses by fostering a sense of calm, comfort, and psychological restoration. Prior research has shown that natural and restorative environments help visitors feel emotionally uplifted and improve their overall well-being (Song et al., 2022; Dong & Qu, 2023). Moreover, visitors tend to feel more satisfied in spaces that resonate with their personal values and

foster a sense of connection with nature (Chen et al., 2023).

Biophilic cafés, through features such as greenery, natural light, and organic materials, offer visitors an experience that can be both meaningful, reflecting personal significance and values then evoke visitor environmental awareness, or a sense of unity with the natural world. According to Attention Restoration Theory (Kaplan & Kaplan, 1989), natural environments restore depleted mental resources and elevate mood, supporting findings that restorative environments contribute to subjective well-being (Wang et al., 2025). Likewise, Place Attachment Theory (Inalhan, et al. 2021) posits that when people perceive a place as meaningful and aligned with their identity, they form an emotional bond with it – a process that has been observed in nature-based tourism and hospitality settings (Ramkissoon et al., 2013; Dong & Qu, 2023). Thus, meaningfulness and visitor environmental awareness in biophilic cafés are expected to contribute to visitors' happiness by satisfying psychological needs for restoration, identity, and emotional connection.

2.3. Happiness and revisit intention in hospitality contexts

Positive emotions, such as happiness, are critical in shaping visitors' intentions to revisit hospitality spaces. When people feel happy during

their experience, they are more likely to evaluate the environment favorably, recommend it to others, and return. Previous research has demonstrated that emotional delight and positive affect foster revisit intention in hotels and nature-based destinations (Song et al., 2022; Wang et al., 2025). Furthermore, visitors in restorative and biophilic environments report higher levels of satisfaction and attachment, which subsequently strengthen their behavioral loyalty (Chen et al., 2023; Dong & Qu, 2023).

In biophilic cafés, happiness can be understood as the emotional outcome of a symbolic and emotional process activated by the design of space. When visitors find the café meaningful, offering personal relevance or reflecting their values and feel connected to nature through its features, these experiences elevate happiness. This elevated emotional state then motivates visitors to return, as they associate the café with restoration, positive memories, and well-being (Wang et al., 2025; Kuldna et al., 2020).

Therefore, happiness is expected to mediate the relationship between meaningfulness, environmental awareness, and revisit intention in biophilic cafés. Designing spaces that foster meaning, nature connection, and emotional uplift may be essential for cultivating visitor loyalty and enhancing customer well-being.

Table 1. Previous Research

Authors & Year	Context	Theories/Frameworks	Methodology & Sample	Contribution
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Chen et al. (2023)	Rural tourism in China	S-O-R model	Survey; Chinese tourists in rural areas	Shows how memorable experiences & nature connection foster post-visit intentions
Dong & Qu (2023)	Tourism in Hainan, China	Conservation of Resources (COR), biophilic hypothesis	Survey; domestic tourists in a nature-based destination	Highlights restorative experience leads to emotional outcomes and attachment
Song et al. (2022)	Hotel lobbies in USA	Biophilic design, self-image congruity	Experimental design; hotel guests exposed to biophilic vs. non-biophilic lobbies	Demonstrates biophilic design → emotions & self-concept in hospitality
Maneetha i et al. (2025)	Workplace design, USA	Signaling theory, biophilic design	Experimental vignette study; prospective employees	Extends biophilic design impact to prospective employees' emotional/cognitive outcomes
Wang et al. (2025)	Rural tourism in China	Attention Restoration Theory (ART), Place Attachment	Survey; 452 rural tourists in Hongcun	Identifies positive & negative emotional outcomes of restoration & attachment

Meaningfulness experienced in a biophilic café positively influences visitors' happiness.

Meaningfulness refers to the degree to which an experience aligns with visitors' personal values, identity, and sense of purpose. In hospitality, meaningful environments foster emotional connections and self-congruence, making experiences more fulfilling. Biophilic cafés, which integrate natural elements into their

design, can enhance visitors' sense of meaningfulness by connecting them symbolically to nature and to deeper aspects of self. According to Attention Restoration Theory (Kaplan & Kaplan, 1989), meaningful natural environments facilitate psychological restoration and improve mood, as visitors feel "away" from daily stress and more focused on what matters to them. Place Attachment Theory (Altman & Low, 1992) also posits that people form emotional bonds

with meaningful places, increasing well-being.

Empirical evidence confirms this pathway. Song et al. (2022) showed that self-congruity – a form of meaningfulness – in biophilic hotel lobbies enhanced delight and subjective well-being. Dong and Qu (2023) demonstrated that perceived restoration and meaning increased subjective well-being in a biophilic tourism context. Chen et al. (2023) found that memorable and meaningful rural tourism experiences fostered emotional uplift. Hung (2025) similarly highlighted that meaningful café environments enhance happiness. These findings are consistent with Maneethai et al. (2025), Wang et al. (2025), and Di Giuseppe et al. (2024), who all reported positive emotional outcomes of meaningful, biophilic environments. Therefore:

H1: Meaningfulness experienced in a biophilic café positively influences visitors' happiness.

Environmental awareness experienced in a biophilic café positively influences visitors' happiness.

Environmental awareness describes a psychological sense of belonging to the natural world, reflecting one's emotional and cognitive bond with nature. Biophilic cafés facilitate this connection by integrating greenery, natural light, and organic materials. According to ART, such environments restore cognitive resources and generate positive emotions, while PAT suggests that feeling connected to a place, especially through its natural features, increases well-being.

This relationship is empirically supported across hospitality and tourism studies. Wang et al. (2025)

found that connection to natural environment mediate the effects of restorative rural experiences on happiness. Chen et al. (2023) highlighted that awareness to nature enhanced psychological outcomes and well-being. Dong and Qu (2023) reported that restorative, nature-connected experiences improved subjective well-being and attachment. Hung (2025) noted that closeness to nature café elements predicts visitors' happiness. Additionally, Kuldna et al. (2020) observed that visitors who felt more connected to urban green spaces reported higher satisfaction and positive emotions. Earlier research by Joye & van den Berg (2011) and Hartig et al. also supports this, showing that connection to nature reduces stress and improves mood. Maneethai et al. (2025) and Di Giuseppe et al. (2024) confirm that connectedness in biophilic workplaces or service settings enhances emotional outcomes.

H2: environmental awareness experienced in a biophilic café positively influences visitors' happiness.

Happiness experienced in a biophilic café positively influences visitors' revisit intention.

Happiness is a positive emotional state of joy, contentment, and satisfaction that crucial predictor of customer loyalty and revisit intention. Visitors who feel happy in a hospitality environment tend to evaluate it more favorably, recommend it to others, and return in the future. ART and PAT both imply that happiness, derived from restorative and meaningful experiences, strengthens visitors' behavioral engagement with space.

Empirical findings strongly support this pathway. Song et al. (2022)

showed that delight and well-being from biophilic hotel lobbies enhanced loyalty intentions. Wang et al. (2025) confirmed that happiness mediated the relationship between restorative experiences and revisit intention in rural tourism. Maneethai et al. (2025) demonstrated that happiness and pride, induced by biophilic workplace cues, increased behavioral commitment. Hung (2025) similarly found that café visitors' happiness predicted stronger revisit intentions. Di Giuseppe et al. (2024) also noted that well-being in biophilic service settings encouraged behavioral loyalty. Additional studies by Han & Hyun (2019) and Ramkissoon et al. (2013) showed that happiness and positive emotions foster attachment and revisit intentions in hospitality. Thus, visitors who feel happy in biophilic cafés are more likely to return.

H3: Happiness experienced in a biophilic café positively influences visitors' revisit intention.

Meaningfulness experienced in a biophilic café positively influences visitors' revisit intention

Meaningfulness does not only contribute to visitors' happiness but also to their intention to return. When a hospitality environment is perceived as meaningful, aligning with visitors' values and identity, it fosters emotional bonds and loyalty. PAT asserts that such attachment motivates repeated visits, while ART suggests that meaningful restoration strengthens engagement.

Studies support this proposition. Dong and Qu (2023) reported that meaningful, restorative experiences in tourism settings increased attachment and revisit intentions. Chen et al. (2023) observed that meaningful rural experiences promoted sustainable behaviors and loyalty. Song et al. (2022)

showed that self-congruity, representing meaningfulness, mediated the relationship between biophilic design and loyalty intentions. Hung (2025) demonstrated that café visitors who perceived their environment as meaningful were more likely to revisit. Wang et al. (2025), Maneethai et al. (2025), and Di Giuseppe et al. (2024) also found that meaningful engagement in biophilic or restorative spaces strengthened attachment and loyalty. Earlier studies (Ramkissoon et al., 2013; Han & Hyun, 2019) confirm that meaning-driven attachment predicts revisit behavior.

H4: Meaningfulness experienced in a biophilic café positively influences visitors' revisit intention.

Environmental Awareness in a biophilic café positively influences visitors' revisit intention.

Environmental awareness thinking strengthens emotional attachment to a place where adopt green environment, increasing visitors' intention to return. PAT suggests that visitors who feel connected to a place's natural elements are more likely to revisit, as the space fulfills their psychological and emotional needs.

Research supports this relationship. Wang et al. (2025) demonstrated that connection to nature in a developed restorative environments will evoke environmental awareness feeling then enhanced revisit intentions. Chen et al. (2023) found that connectedness promoted loyalty and environmentally responsible behaviors. Dong and Qu (2023) noted that connectedness, fostered through restoration, strengthened attachment and loyalty. Hung (2025) showed that visitors reporting stronger connection to natural café elements expressed higher

revisit intentions. Kuldna et al. (2020) observed that awareness to urban green spaces increased satisfaction and repeated use. Maneethai et al. (2025) and Di Giuseppe et al. (2024) further confirmed that connectedness to biophilic environments in workplace and service contexts predicted loyalty behaviors. These findings are consistent with Joye & van den Berg (2011), who highlighted the role of nature awareness in emotional satisfaction and commitment.

H5: environmental awareness in a biophilic café experience positively influences visitors' revisit intention.

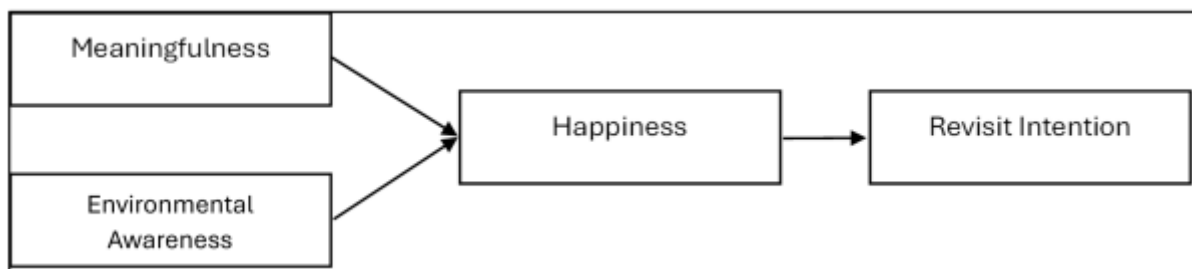
Happiness as a Mediator

Happiness is expected to mediate the relationship between visitors' meaningful and natural awareness experiences and their revisit intentions. ART and PAT argue that meaningfulness and awareness foster emotional restoration and attachment, which then lead to happiness, strengthening loyalty.

Empirical studies demonstrate this mediating role. Song et al. (2022) reported that happiness mediated the relationship between biophilic design and loyalty. Wang et al. (2025) observed that happiness explained the effect of restoration on revisit intention. Hung (2025) confirmed that happiness mediated the impact of meaningful and nature-awareness café experiences on loyalty. Maneethai et al. (2025) found that happiness mediated the effect of biophilic workplaces on behavioral commitment, while Di Giuseppe et al. (2024) noted similar findings in service contexts. Chen et al. (2023), Dong and Qu (2023), and earlier work by Han & Hyun (2019) also support happiness as a key mediator of emotional experiences and loyalty outcomes.

H6: Happiness mediates the relationship between meaningfulness and revisit intention in biophilic cafés.

H7: Happiness mediates the relationship between environmental awareness and revisit intention in biophilic cafés.



Picture 1. Conceptual Framework

METHOD

Measurement and questionnaire design

All constructions in this study were measured using validated scales adapted from prior literature and adjusted to the context of biophilic cafés. A seven-point Likert scale (1 = strongly disagree, 7 = strongly agree) was used throughout. The antecedents, meaningfulness and environmental

awareness were measured with three and seven items, respectively, adapted from Chen et al. (2023). The mediator, happiness, was assessed with three items (Song et al., 2022), while the outcome variable, revisit intention, was measured with three items (Wang et al., 2025). Demographic variables including gender, age, education, marital status, and annual household income were also collected as control variables.

The questionnaire began with a screening video depicting a biophilic café, followed by a comprehension question asking respondents to describe what people were doing in the café. Only those who correctly identified the activity were allowed to proceed. The questionnaire was reviewed by academic experts to ensure content validity and pretested with 20 respondents to check for clarity, wording, and bias. Minor revisions were made based on feedback before final deployment.

Environmental setting, sampling, and data collection

Data were collected from UK residents, given the growing prevalence of biophilic cafés in urban centers like London and Manchester. Respondents were recruited using Prolific, an online survey platform known for high-quality, diverse panels. Purposive sampling was employed to target individuals who had previously visited cafés with visible biophilic design elements. To validate experience, respondents were asked to describe the specific café and its nature-related features. Those who failed this check were excluded.

An initial sample of 230 respondents was collected, and after

removing invalid responses, the final dataset comprised 219 valid cases. Demographic data showed a balanced representation of genders, ages, education levels, and income groups. Most participants were between 30–39 years old, with a majority holding university or postgraduate education. Data analysis was conducted using SmartPLS 4, a variance-based structural equation modeling (PLS-SEM) technique suitable for exploratory models with multiple constructs and moderate sample sizes.

RESULT

Demographic

A total of 219 respondents participated in the study, comprising 51.4% males and 48.6% females. The largest age groups were 30–39 and 50 years and above. Most respondents had completed university or postgraduate education. Marital status was fairly evenly distributed between married and unmarried, with a smaller proportion divorced, widowed, or other. The majority reported an annual household income of £25,000–49,999, followed by £50,000–74,999. Detailed demographic information is presented in Table 2.

Table 2. Demographic

Characteristic	Category	Percentage (%)
Gender	Male	51.4
	Female	48.6
Age	50 and up	38.2
	30 - 39	27.3
	18 - 29	19.1
	40 - 49	15.5
Education	College or University	52.3
	Postgraduate Studies	25.5
	Senior High School	20.9
	Junior High School	1.4
Marital Status	Married	43.6

	Unmarried	42.7
	Divorced	9.1
	Other	3.2
	Widow/Widower	0.9
	Separated	0.5
Annual Household Income	£25,000–49,999	40
	£50,000–74,999	21.8
	Less than £25,000	19.1
	£100,000 or more	10
	£75,000–99,999	7.7
	Under \$1250	0.9
	\$4200 - \$6250	0.5

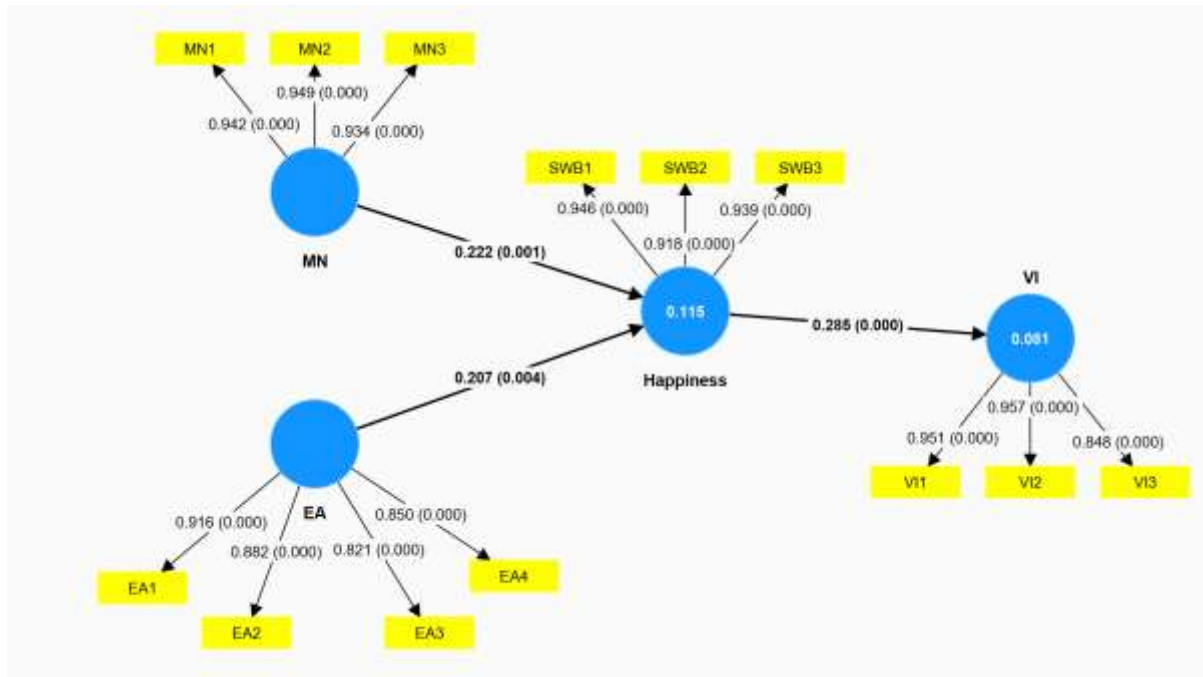
Reliability and validity of the measurement model

The reliability and validity of the measurement model were assessed through several indicators. Cronbach's α values for all constructs exceeded the recommended threshold of 0.70, ranging from 0.910 (VI) to 0.936 (MN), indicating excellent internal consistency. Composite reliability (CR) values were above 0.90 for all constructs, and the average variance extracted (AVE) ranged from 0.753 (CTN) to 0.886 (MN), confirming convergent validity. Discriminant validity was established as the heterotrait-monotrait ratios (HTMT) for all construct pairs were below 0.85, and the square roots of the AVEs exceeded inter-construct correlations (Fornell-Larcker criterion). Collinearity was assessed through VIF values, all of which were well below the threshold of 5 (highest VIF = 1.066), indicating no multicollinearity issues.

Factor loadings were all significant, with most above 0.80, further supporting the measurement quality of the model.

Structural model and hypothesis testing

Path analysis analyzed using Smart PLS 4, revealed that environmental awareness (EA) positively influenced subjective well-being (SWB) ($\beta = 0.207$, $p = 0.004$), and meaningfulness (MN) also positively influenced SWB ($\beta = 0.222$, $p = 0.001$). In turn, SWB positively influenced revisit intention (VI) ($\beta = 0.285$, $p < 0.001$). Indirect effects of EA and MN on VI through SWB were both significant ($p = 0.049$ and $p = 0.029$, respectively), indicating mediation effect. The confidence intervals of all paths excluded zero, confirming significance. These results support all proposed hypotheses.



Picture 2 Result

CONCLUSSION

Based on Attention Restoration Theory (ART) and Place Attachment Theory (PAT), this study investigated how meaningfulness and connectedness to nature in biophilic café environments influence visitors' happiness and revisit intention. The findings demonstrate that biophilic cafés, as urban hospitality spaces, evoke positive emotional responses and foster psychological restoration through their integration of natural elements (Kaplan & Kaplan, 1989; Chen et al., 2023). Specifically, the results indicate that meaningfulness and visitor environmental awareness to nature significantly enhance Happiness, which in turn positively impacts revisit intention. This suggests that biophilic cafés can restore emotional resources and strengthen visitors' bonds with the space by providing a sense of relevance, calmness, and connection, aligning with ART's notion of cognitive and emotional restoration (Fu & Xue, 2023) and PAT's emphasis on emotional

attachment to meaningful places (Altman & Low, 1992; Ramkissoon et al., 2013).

The results also highlight that biophilic cafés may serve as more than just aesthetically pleasing spaces; they are experiential environments where symbolic meaning and emotional engagement coexist, fostering loyalty and return visits (Song et al., 2022; Hung, 2025). This adds nuance to previous research, showing that the psychological mechanisms of meaningfulness and connectedness to nature are not only present but central in driving well-being and behavioral intention in hospitality contexts (Dong & Qu, 2023; Maneethai et al., 2025).

Although this study contributes to both theory and practice, some limitations should be acknowledged. The sample was recruited online during a time of heightened health and mobility restrictions, which may limit the generalizability of the findings across broader demographics and contexts. Furthermore, the study

focused primarily on self-reported emotional and cognitive outcomes, without incorporating physiological or multisensory measures (Fu & Xue, 2023). Future research could broaden the scope by employing more diverse participant groups, integrating technologies such as VR and AR to simulate multisensory biophilic

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