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Residents' Life Satisfaction as a Catalyst for Community Attachment, Tourism Support, and Pro-Environmental Behavior in the UAE

Iva BULATOVIC,
Faculty of Business, Higher Colleges of Technology, Abu Dhabi, UAE,
Email, ibulatovic@hct.ac.ae

Gamal S. A. KHALIFA
Faculty of Business, Higher Colleges of Technology, Abu Dhabi, UAE.
Email, gkhalifa@hct.ac.ae
Corresponding Author

Marisse ARANAS
Faculty of Business, Higher Colleges of Technology, Abu Dhabi, UAE,
Email, maranas@hct.ac.ae

Mohammed EL-DIEF
Faculty of Business, Higher Colleges of Technology, Abu Dhabi, UAE,
Email, meldief@hct.ac.ae

Abstract

This study examines how residents' life satisfaction shapes community attachment, perceptions of tourism impacts, and pro-environmental behavior within the United Arab Emirates (UAE). Grounded in bottom-up spillover theory, life satisfaction is positioned as a key psychological determinant influencing residents' engagement with tourism development and sustainability. A structured online survey of 233 residents across all seven Emirates, including nationals and expatriates, provided data analyzed through Partial Least Squares Structural Equation Modeling (PLS-SEM). Results reveal that higher life satisfaction enhances community attachment and fosters pro-environmental behavior. Moreover, community attachment strengthens positive attitudes toward tourism impacts, which in turn mediates the link between attachment and pro-environmental behavior. The findings highlight the significance of integrating well-being metrics into sustainable tourism planning. By connecting tourism science, well-being research, and environmental psychology, this study offers actionable insights for policymakers to encourage resident participation in sustainability initiatives and to support the UAE's long-term sustainable development goals.

Keywords: Residents' life satisfaction; tourism development; sustainable development; sustainable tourism; pro-environmental behavior; UAE

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Introduction

Tourism plays a vital role in the United Arab Emirates' (UAE) economy, making a strong contribution to national development and enhancing the country's global competitiveness. As nations across the Middle East and the Gulf Cooperation Council (GCC) transition away from oil-dependent economies, tourism is emerging as a key driver of sustainable growth. In this context, sustainable practices are no longer optional; they have become essential for ensuring long-term progress (Dutt et al., 2023; Herzallah et al., 2025). Globally, there is increasing attention on sustainability across all sectors, particularly tourism, due to its profound impacts on both communities and the environment (Khalifa, 2020; Gherbi et al., 2024a, 2024b). In the UAE, tourism plays a central role in balancing economic growth, environmental protection, and residents' well-being (Dutt et al., 2023). Although a substantial body of research has examined residents' perceptions of tourism impacts, community attachment, life satisfaction, and pro-environmental behavior, many studies have explored these dimensions in isolation. Moreover, much of the existing literature adopts a descriptive or narrowly focused approach, frequently employing top-down models that primarily assess how tourism impacts influence life satisfaction. By contrast, this study proposes a more integrative framework by examining these interconnected elements within a single model. Guided by bottom-up spillover theory (Sirgy, 2002), the study posits that residents' life satisfaction shapes their community attachment, attitudes toward sustainable tourism impacts, and pro-environmental behavior. Importantly, this theoretical perspective has seen limited application within the tourism field, particularly in rapidly developing regions such as the UAE (Mannaa, 2020; Hammad et al., 2019). This research specifically investigates how life satisfaction and community attachment influence residents' positive attitudes toward sustainable tourism impacts and their pro-environmental actions. Prior studies in the UAE and GCC region have predominantly relied on descriptive analyses, often overlooking psychological factors that shape residents' attitudes toward tourism development (Gautam, 2022; Khan et al., 2024). Our proposed model, rooted in bottom-up spillover theory, is both novel and underexplored in tourism research, particularly in the UAE context. The study adopts a multidisciplinary approach, effectively integrating insights from tourism studies, community psychology, and sociology. The key objectives of the study are to:

- Examine the relationships between residents' life satisfaction, community attachment, and pro-environmental behavior in the context of tourism impacts.
- Provide actionable insights for policymakers and planners to foster sustainable tourism practices.
- Strengthen community attachment and pro-environmental behavior among residents, thereby advancing sustainability in tourism.

By addressing the identified research gap, this study offers a pioneering framework that integrates residents' life satisfaction, community attachment, attitudes toward sustainable tourism development impacts, and pro-environmental behavior into a single comprehensive model. This constitutes a significant theoretical contribution, as such an integrated approach has not previously been examined in this context. Furthermore, the study provides practical, evidence-based strategies to support

policymakers in prioritizing residents' well-being and environmental sustainability, thereby advancing the UAE's vision for sustainable economic development in tourism.

Literature review

Research on residents' attitudes toward sustainable tourism development highlights the strong connection between sustainability and community dynamics. Sustainable tourism can generate positive outcomes such as economic growth, improved infrastructure, and cultural enrichment; however, these are often counterbalanced by negative consequences, including environmental degradation, rising living costs, and cultural commodification (Pai et al., 2023; Zaki et al., 2025). Residents' perceptions are influenced by factors such as socio-demographic characteristics and the developmental stage of the destination life cycle (Pai et al., 2023; Khalifa, Derbali et al., 2025). Community attachment emerges as a key determinant shaping residents' attitude. Individuals with strong emotional and social ties to their community typically demonstrate greater support for tourism, perceiving it as a contributor to cohesion and identity (Blackie et al., 2023). Conversely, weak community attachment or unequal distribution of tourism benefits can foster negative perceptions (Blackie et al., 2023). Economic benefits are particularly influential, as equitable gains strengthen attachment, while inequitable ones may erode it (Cossengue et al., 2025). These relationships are well explained by Social Exchange Theory (SET) and Community Attachment Theory (CAT). SET emphasizes rational evaluations of costs and benefits (Andereck et al., 2005), while CAT underscores the role of social bonds in fostering positive attitudes. Yet, both are somewhat static and overlook dynamic processes such as residents' wellbeing and happiness. Bottom-up Spillover Theory provides a more comprehensive perspective, suggesting that satisfaction across life domains enhances overall life satisfaction, thereby shaping attitudes and behaviors (Sirgy, 2002). In tourism, satisfaction with community facilities and perceived positive impacts can strengthen attachment and encourage pro-environmental behavior (Han et al., 2023; Khalifa et al., 2024).

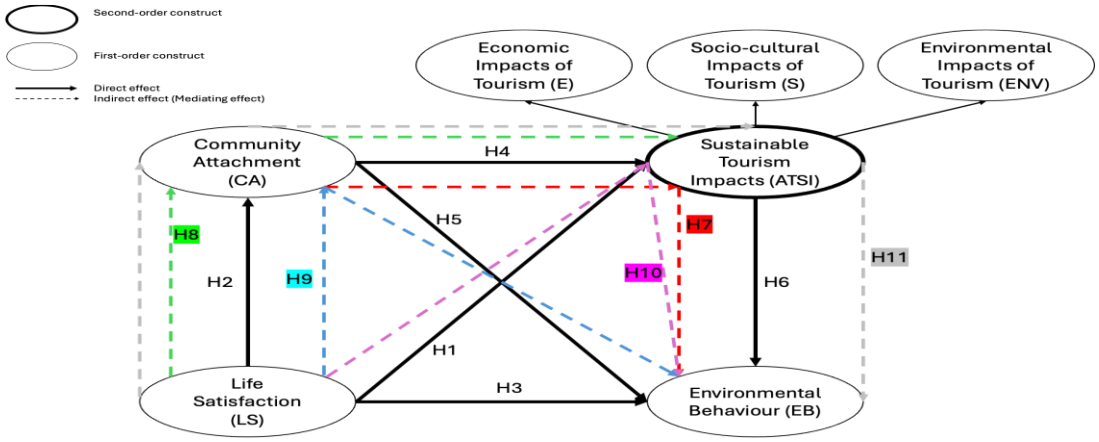

Figure 1: Theoretical framework

Hypothesis development

Life Satisfaction, community attachment, and pro-environmental behavior

Life satisfaction, a concept frequently used in psychology and philosophy, refers to an individual's overall assessment of their quality of life (Andereck et al., 2005). While Wang et al. (2021) distinguishes between happiness and life satisfaction, scholars generally link residents' life satisfaction to their well-being and satisfaction with material and social conditions (Beltramo et al., 2024). Life satisfaction, as a central component of subjective well-being, has been widely examined in relation to individuals' emotional and psychological connections to their living environment. However, most existing studies primarily focus on the effects of tourism impacts on residents' quality of life, with life satisfaction often mentioned only indirectly (Wang et al., 2021). To the best of the authors' knowledge, limited research explores how life satisfaction directly shapes residents' attitudes toward positive tourism development impacts across socio-cultural, economic, and environmental dimensions. Based on this gap, we propose:

H1: Residents' high life satisfaction positively influences their attitudes toward tourism development

When residents experience higher levels of life satisfaction, they tend to perceive their communities more positively, which enhances their sense of belonging and place attachment (Khalifa et al., 2023). Life satisfaction is shaped by diverse factors such as economic stability, social relationships, and environmental quality, all of which affect residents' evaluations of their living conditions (Alrawadıeh & Dinçer, 2021; Herzallah et al., 2025). The concept of place identity further explains this association, suggesting that individuals integrate aspects of their self-concept into the places they inhabit (Proshansky et al., 2014). Greater life satisfaction reinforces this identity, deepening emotional connections to the community. Residents with stronger life satisfaction are also more likely to engage in local events and activities, strengthening their social ties (Alrawadıeh & Dinçer, 2021). In the UAE, factors such as rapid urban development, quality of life, and job security play crucial roles in shaping life satisfaction, particularly in cities like Dubai and Abu Dhabi. Social Exchange Theory suggests that residents evaluate tourism

by balancing perceived benefits (e.g., economic opportunities) against potential costs (e.g., cultural disruption). Higher life satisfaction amplifies positive evaluations, reinforcing community attachment (Beltramo et al., 2024). Thus, life satisfaction acts as a critical precursor to place attachment in tourism-driven societies such as the UAE.

H2: Higher residents' life satisfaction enhances community attachment

In addition, life satisfaction has been found to influence pro-environmental behavior (PEB). Research indicates that individuals with higher life satisfaction are more inclined to engage in environmentally responsible practices such as recycling, energy conservation, and sustainable consumption (Schmitt et al., 2018). Furthermore, life satisfaction fosters PEB by nurturing a sense of responsibility and collective well-being (Rajani et al., 2019). Accordingly, we hypothesize:

H3: Higher residents' life satisfaction enhances their pro-environmental behavior

Community attachment and attitudes toward tourism development impacts

Community attachment refers to the emotional and cognitive bond individuals develop with their hometown, a factor that significantly shapes their perceptions of tourism development and its impacts (Ramkissoon et al., 2013). Empirical evidence consistently demonstrates a positive association between community attachment and favorable attitudes toward tourism. Residents who feel deeply connected to their communities are more likely to perceive tourism as a contributor to cultural vitality and economic prosperity, and thus express stronger support for tourism-related initiatives (Ramkissoon, 2020; Gursoy & Rutherford, 2004). Moreover, place attachment fosters openness to cultural exchange, as residents often regard tourism as an opportunity for interaction and learning (Elshaer et al., 2024). In the UAE, where tourism is a cornerstone of economic growth, Emirati nationals and long-term expatriates with strong place attachment generally display supportive attitudes toward tourism. Nonetheless, concerns regarding over-tourism, environmental degradation, and cultural site erosion temper this support (Zaidan & Kovacs, 2017). For instance, evidence from Dubai shows that residents view tourism as a growth engine but expect balanced development (Zaidan & Kovacs, 2017). Similarly, in Abu Dhabi, support is strongest for projects that combine economic benefits with cultural preservation (Hammad et al., 2019; Elnagar et al., 2025). These findings highlight the importance of community attachment as a driver of positive tourism attitudes, while also underscoring the need for sustainable planning to mitigate cultural and environmental concerns (Mannaa, 2020).

H4: Residents with greater community attachment are more likely to have a positive attitude toward tourism development impacts (economic, environmental, socio-cultural)

Beyond shaping tourism attitudes, community attachment also promotes pro-environmental behavior (PEB), defined as actions that protect and enhance environmental quality. Numerous studies confirm a positive relationship between place attachment and environmentally responsible behavior. For example, Kyle et al. (2004) found that residents with stronger community involvement were more active in environmental causes, while Schultz et al. (2016) linked attachment with eco-friendly practices such as recycling and water conservation. Ramkissoon et al. (2013) further validated place attachment as a predictor of pro-sustainability behaviors. This relationship is particularly relevant in the UAE, where rapid urbanization contributes to high levels of waste generation, carbon emissions, and water consumption (Zraki & Al-Sari, 2017). Recent research also emphasizes the eco-awareness of younger generations, who demonstrate greater engagement in sustainability and climate action (Pradeep & Pradeep, 2023). Accordingly, we hypothesize:

H5: Community attachment among residents in the UAE enhances their pro-environmental behavior

Life satisfaction, defined as an individual's overall assessment of quality of life (Diener, 1984), also interacts with community attachment in shaping residents' attitudes toward tourism. Research suggests that individuals with higher life satisfaction develop stronger emotional bonds with their communities, which in turn influences their tourism-related attitudes. Gursoy et al. (2010) observed that when residents perceive economic benefits of tourism, community attachment mediates the relationship between well-being and pro-tourism attitudes. Similarly, Hernández-Mogollón et al. (2019) found that residents with strong community attachment were more supportive of tourism, especially in contexts where economic and cultural well-being could be enhanced. In the UAE, where social stability, quality of life, and economic opportunity shape residents' satisfaction, community attachment serves as a critical mechanism in forming tourism attitudes.

H8: Community attachment plays a mediating role in the relationship between residents' life satisfaction and their attitudes toward tourism impacts

Likewise, the relationship between life satisfaction and PEB may be moderated by community attachment. Evidence shows that residents with high life satisfaction are more likely to engage in environmental sustainability behaviors when they report strong community identity or belonging (Zhang et al., 2021). The Theory of Planned Behavior emphasizes well-being as a driver of pro-social action, while Place Attachment Theory posits that individuals with strong emotional ties to their communities are more likely to contribute to sustainability efforts. High life satisfaction can enhance a sense of responsibility

for community environmental health, motivating participation in conservation activities (Gannon et al., 2020; Khalifa, Alkheyi, et al., 2025).

H9: Community attachment plays a mediating role in the relationship between residents' life satisfaction and their pro-environmental behavior

Residents' attitudes toward tourism impacts and pro-environmental behavior

The relationship between residents' attitudes toward the economic, environmental, and socio-cultural impacts of tourism and their propensity to engage in pro-environmental behavior (PEB) reveals a complex dynamic. Chung et al. (2023), in their study on Jeju Island, found that negative perceptions of environmental degradation increased residents' intentions to engage in PEB. Conversely, positive attitudes toward economic benefits sometimes reduced such behaviors, suggesting an overemphasis on financial gain over ecological concern. This indicates that economic optimism alone does not necessarily promote environmentally responsible actions unless embedded within a broader sustainability framework. In contrast, Liu et al. (2011) reported that in community-based ecotourism settings, perceptions of both economic and non-economic benefits enhanced PEB by fostering favorable attitudes toward tourism. Similarly, Sathish & Thiruchelvi (2024) observed that residents with environmentally positive attitudes were more likely to support responsible tourism, which inherently involves pro-environmental actions. Peters et al. (2018) also found that in Austria's Murtal region, socio-cultural perceptions of tourism were correlated with support for PEB, though often in more passive forms. Guo et al. (2006) further demonstrated that in the early stages of tourism development in Wuzhen, perceptions of diverse tourism benefits led to greater community endorsement of sustainability.

H6: Residents with positive attitudes toward the economic, environmental, and socio-cultural impacts of tourism are more likely to engage in pro-environmental behavior

Community attachment has long been recognized as a crucial predictor of civic participation and environmental stewardship. However, recent research suggests that this relationship may be indirect, with attitudes toward tourism impacts acting as a mediator. Chung et al. (2023) found that while community attachment alone did not predict tourism support or PEB, its effect was strengthened when combined with local involvement, thereby significantly increasing such behaviors. Similarly, Şahin and Akova (2019) reported that long-term residents in Artvin, who were likely more attached to their community, exhibited greater environmental sensitivity, particularly when tourism negatively affected the environment. Zhang et al. (2020) also demonstrated that a pro-environmental destination image contributes to PEB through environmental identity and attitudes, indirectly reflecting community sentiments. Peters et al. (2018) highlighted that socio-cultural impacts influence residents' attitudes, though the direct link between community attachment and PEB remains less explicit.

H7: Residents' attitudes toward tourism impacts play a significant mediating role in the relationship between community attachment and pro-environmental behavior

Life satisfaction, understood as an individual's overall evaluation of their quality of life (Diener, 1984), is often shaped by the economic and non-economic benefits of tourism, such as improved quality of life, recreational opportunities, and enhanced local amenities. Liu et al. (2011) found that when residents perceive tourism as enhancing their quality of life, their attitudes toward tourism impacts improve, which subsequently promotes PEB. This suggests a mediating pathway in which life satisfaction influences attitudes, which in turn shape behavior. Zhang et al. (2020) reinforced this finding by showing how destination image and satisfaction influence PEB through pro-environmental attitudes and identity. Similarly, Lança et al. (2024) highlighted the role of emotional solidarity with tourists in fostering support for tourism and indirectly promoting PEB. Guo et al. (2006) also noted that in the early stages of tourism development, life satisfaction stemming from improved services and cultural appreciation contributed to positive attitudes that encouraged environmentally responsible behavior.

H10: Residents' attitudes toward tourism impacts play a significant mediating role in the relationship between life satisfaction and pro-environmental behavior

A more holistic perspective on the drivers of PEB considers the interaction between life satisfaction and community attachment, both mediated by residents' attitudes toward tourism. Chung et al. (2023) observed that community attachment reinforced by active involvement, when combined with life satisfaction, significantly shaped residents' attitudes and strengthened PEB intentions. Liu et al. (2011) showed that life satisfaction derived from non-economic tourism benefits, coupled with community participation, enhanced positive perceptions of tourism impacts, which in turn promoted PEB. Zhang et al. (2020) further confirmed that identity and environmental attitudes mediated PEB in satisfied residents. Şahin and Akova (2019) emphasized that environmental sensitivity, driven by strong community ties and favorable living conditions, fostered environmentally responsible behavior through residents' attitudes toward tourism.

H11: Residents' attitudes toward tourism impacts, together with their community attachment, play a significant mediating role in the relationship between life satisfaction and pro-environmental behavior

Methodology

This study employed a quantitative research design underpinned by a positivist philosophical stance, which is well-suited for testing hypothesized relationships through structured statistical techniques. The research aimed to empirically examine the interrelationships among residents' life satisfaction, community attachment, attitudes toward tourism development impacts, and pro-environmental behavior (PEB) within the UAE context. The conceptual model was grounded in bottom-up spillover theory. Given the complexity of the constructs and proposed relationships, Partial Least Squares Structural Equation Modeling (PLS-SEM) was selected as the analytical method, as it is robust in handling complex models and suitable for small to medium sample sizes (Hair et al., 2017). The study targeted adult residents across urban areas in the UAE, encompassing both Emirati nationals and expatriates with varying exposure to tourism activities. A non-probability convenience sampling method was used, and the survey was distributed via popular social media platforms, leveraging the country's high digital connectivity. This cost-effective approach enabled wide coverage across diverse demographic groups. A total of 233 valid responses were collected and included in the analysis. The survey instrument employed established measurement scales adapted to the UAE context. Life satisfaction items were drawn from Han et al. (2023), community attachment from Yang and Li (2023), attitudes toward tourism impacts from Hsu et al. (2020), and pro-environmental behavior from Chiu et al. (2014), all measured using a five-point Likert scale.

Results

Profile of the respondents

In total, 233 respondents fully completed the questionnaire. With respect to gender, 70% of participants were male and 30% were female. The majority of respondents were between 36 and 45 years old (63.5%), followed by those aged 46–55 years (28.8%), while 4.3% were women under 35 years and 3.4% were aged 55 years and above. In terms of education, most participants held a bachelor's degree (39.9%), followed by a diploma (29.6%), a master's degree (14.2%), and a high school qualification (13.3%); a small proportion (3%) held a PhD. Regarding employment status, 67.8% of respondents were employed and 32.2% were unemployed. Among those employed, 67.7% worked in the tourism sector, while 32.3% were engaged in other industries. Residence distribution revealed that 32.6% of respondents lived in Dubai, 24% in Abu Dhabi, 11.6% in Al Ain, 11.2% in Sharjah, 8.6% in Ras Al Khaimah (RAK), 7.7% in Umm Al Quwain (UAQ), and 4.3% in Fujairah. Finally, regarding residency status, the majority of participants were Emirati nationals (60.5%), while 39.5% were expatriates. (See Table 1).

Table 1: Sample characteristics

		Percent
Gender	Female	30
	Male	70
	Total	100
Age	18-35	4.3
	36-45	63.5
	46-55	28.8
	Above 55	3.4
	Total	100
Education	High School	13.3
	Diploma Degree	29.6
	Bachelor's degree	39.9
	Mater Degree	14.2
	PhD	3
	Total	100
Status	Employed	67.8
	Unemployed	32.2
	Total	100
Employment Sector	Work in tourism sector	67.7
	Other	32.3
	Total	
Residence	Abu Dhabi	24
	Al Ain	11.6
	Dubai	32.6
	Sharjah	11.2
	UAQ	7.7
	RAK	8.6
	Fujairah	4.3
	Total	100
Residency Status	Local	60.5
	Expat	39.5
	Total	100

The measurement model

To evaluate the reliability and validity of the constructs, the measurement model was assessed using a two-step approach. First, indicator reliability and internal consistency were examined. As shown in Table 3, all factor loadings exceeded the minimum threshold of 0.70, indicating acceptable indicator reliability (Hair et al., 2017). Composite reliability values for all constructs ranged from 0.865 to 0.930, surpassing the recommended threshold of 0.70 and confirming strong internal consistency. Next, convergent validity was evaluated using the average variance extracted (AVE). All AVE values were above the recommended threshold of 0.50, ranging from 0.617 to 0.769, thereby satisfying the criteria for convergent validity. These results indicate that each construct explains more than half of the variance of its respective indicators (see Table 2).

Table 2: Construct reliability and validity

Construct	Code	Loading	α	CR	AVE
Attitudes toward economic impacts of tourism (AEI)	AEI1	0.759	0.782	0.860	0.606
	AEI2	0.809			
	AEI3	0.831			
	AEI4	0.710			
Attitudes toward socio-economic impacts of tourism (ASI)	ASE1	0.819	0.835	0.890	0.668
	ASE2	0.808			
	ASE3	0.843			
	ASE4	0.800			
Community Attachment (CA)	CA1	0.780	0.762	0.849	0.585
	CA2	0.795			
	CA3	0.788			
	CA4	0.692			
Pro-environmental behavior of residents (EB)	EB1	0.770	0.766	0.851	0.589
	EB2	0.774			
	EB3	0.813			
	EB4	0.708			
Attitudes toward environmental impacts of tourism (ENV)	ENV1	0.803	0.837	0.891	0.671
	ENV2	0.821			
	ENV3	0.839			
	ENV4	0.814			
Life Satisfaction (LS)	LS1	0.848	0.839	0.903	0.756
	LS2	0.899			
	LS3	0.861			

Discriminant validity was assessed using cross-loadings, the Fornell-Larcker criterion, and the HTMT ratio (Hair et al., 2017). First, cross-loadings were examined to evaluate differences in indicator loadings across constructs, and the results met the required criteria (Hair et al., 2017). As presented in Table 3, both the Fornell-Larcker criterion and HTMT ratio confirmed discriminant validity. Specifically, according to the Fornell-Larcker criterion, the square root of the AVE for each construct was greater than its correlations with other constructs, demonstrating adequate discriminant validity. Additionally, all construct combinations yielded HTMT ratios below the threshold of 0.90, further supporting the discriminant validity of the model and reinforcing the robustness of the measurement model (see Table 3).

Table 3: Discriminant validity results

	Fornell-Larcker criterion						HTMT Ratio					
	AEI	ASE	CA	EB	ENV	LS	AEI	ASE	CA	EB	ENV	LS
AEI	**0.779**											
ASE	0.735	**0.818**					0.809					
CA	0.666	0.576	**0.765**				0.863	0.724				
EB	0.560	0.621	0.531	**0.767**			0.723	0.774	0.694			
ENV	0.733	0.757	0.582	0.528	**0.819**		0.807	0.805	0.731	0.660		
LS	0.409	0.369	0.511	0.453	0.397	**0.869**	0.504	0.437	0.632	0.560	0.471	

Hypotheses testing

Direct hypotheses results

Table 4 presents the results of the bootstrapping technique with 5,000 iterations, used to assess the significance of the path coefficients and test the hypothesized relationships in the proposed model. The findings revealed that H1 (LS → ATSI) was not supported (β = 0.120, t = 1.736, p = 0.083), indicating that life satisfaction (LS) does not have a significant direct effect on attitudes toward tourism sustainability (ATSI). In contrast, the LS → CA relationship was strongly supported (β = 0.511, t = 9.020, p = 0.000), confirming a significant positive effect of LS on community attachment (CA), thereby validating H2. For H3 (LS → EB), the relationship was supported (β = 0.190, t = 2.382, p = 0.017), suggesting that higher LS significantly contributes to residents' pro-environmental behavior (EB). The CA → ATSI relationship was also strongly validated (β = 0.605, t = 11.063, p = 0.000), demonstrating that CA plays a pivotal role in shaping ATSI. However, the CA → EB path was not supported (β = 0.126, t = 1.306, p = 0.191), suggesting that CA alone does not significantly enhance EB. Finally, H6 (ATSI → EB) was strongly supported (β = 0.462, t = 5.587, p = 0.000), confirming that positive attitudes toward tourism sustainability impacts significantly enhance residents' pro-environmental behavior.

Table 4: Direct and indirect hypotheses results

H	Relationship	β	T-Value	P-value	R^2	F^2	Q^2	VIF
H1	LS->ATSI	0.120	1.736	0.083	0.455	0.020		1.836
H2	LS->CA	0.511	9.020	0.000	0.261	0.353	0.147	1.353
H3	LS->EB	0.190	2.382	0.017	0.443	0.047		2.026
H4	CA->ATSI	0.605	11.063	0.000		0.497	0.239	1.353
H5	CA->EB	0.126	1.306	0.191		0.014		1.000
H6	ATSI->EB	0.462	5.587	0.000		0.209	0.255	1.380
H7	CA->ATSI->EB	0.280	4.933	0.000				
H8	LS->CA->ATSI	0.309	5.994	0.000				
H9	LS->CA->EB	0.064	1.297	0.195				
H10	LS->ATSI->EB	0.056	1.645	0.100				
H11	LS->CA->ATSI->EB	0.143	3.752	0.000				

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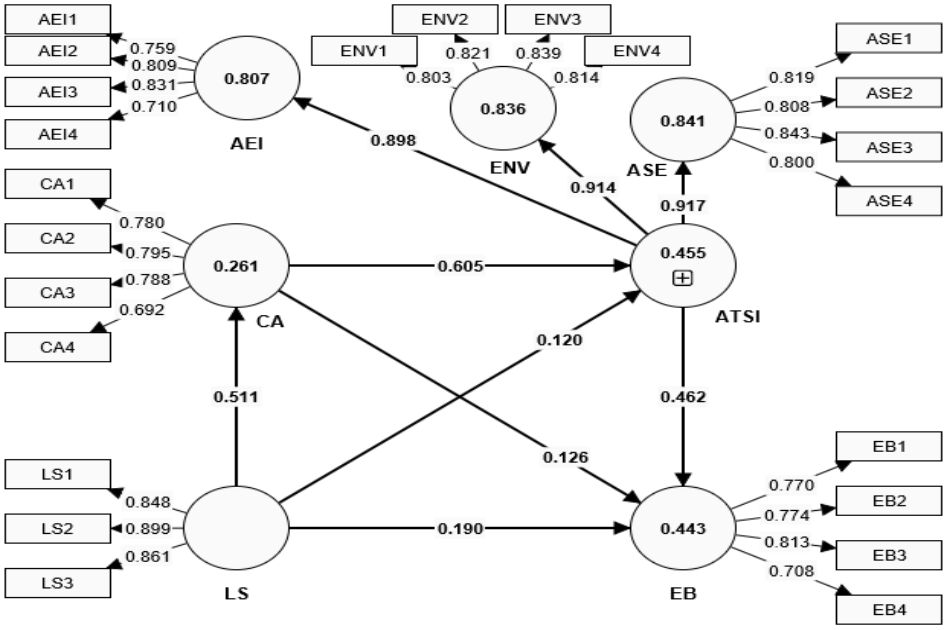

Figure 2: PLS model results

For the respondents, life satisfaction (LS) explained 26.1% of the variance in community attachment (CA), while attitudes toward tourism sustainability impacts (ATSI), LS, and CA collectively explained 44.3% of the variance in pro-environmental behavior (EB). Similarly, LS and CA together accounted for 45.5% of the variance in ATSI. These R^2 values demonstrate a significant model with adequate explanatory power (Cohen, 2013). Effect sizes (f^2) were also assessed to evaluate the impact of exogenous latent constructs on endogenous constructs, with threshold values of 0.35 indicating large effects, 0.15 medium effects, and 0.02 small effects (Hair et al., 2017). The results revealed two relationships with large effects, one with a medium effect, and two with small effects (see Table 4). Predictive relevance (Q^2) was examined using the blindfolding procedure, applied to endogenous constructs with reflective indicators. A Q^2 value greater than zero confirms predictive validity (Hair et al., 2017). The findings indicated that all endogenous constructs demonstrated medium predictive relevance, as shown in Table 4. Finally, multicollinearity was tested using variance inflation factors (VIF). All VIF values ranged from 1.000 to 1.836, well below the critical threshold, indicating no issues of multicollinearity and suggesting that the explanatory contributions of the exogenous constructs were distinct and non-overlapping.

Indirect hypotheses results

Using Preacher & Hayes' (2008) bootstrapping method, several mediation hypotheses were tested to examine the indirect effects within the model. The results, summarized in Table 4, provide important insights into the mediating roles of the constructs. The findings indicate a significant positive mediation effect of ATSI on the relationship between CA and EB (β = 0.280, t = 4.933, p = 0.000), demonstrating that ATSI plays a pivotal role in linking community attachment (CA) to pro-environmental behavior (EB). The mediation effect of CA in the relationship between LS and ATSI was also strongly supported (β = 0.309, t = 5.995, p = 0.000), confirming that CA is a key mechanism through which life satisfaction (LS) influences ATSI, thereby supporting H8. However, the mediation role of CA in the relationship between LS and EB was not supported (β = 0.064, t = 1.297, p = 0.195), leading to the rejection of H9. Similarly, H10 was not supported (β = 0.056, t = 1.645, p = 0.100), indicating that ATSI does not mediate the relationship between LS and EB. Finally, the sequential mediation role of CA and ATSI in the relationship between LS and EB was supported (β = 0.143, t = 3.752, p = 0.000). This result highlights the complex yet significant mediating pathway through which LS influences EB via both CA and ATSI.

Discussion

This study provides empirical evidence supporting a multidimensional framework for understanding the relationships among life satisfaction, community attachment, attitudes toward tourism impacts, and pro-environmental behavior (PEB) within the UAE context. Grounded in bottom-up spillover theory, the findings confirm that life satisfaction significantly enhances both community attachment and pro-environmental behavior. These results align with prior studies suggesting that individuals who are satisfied with their lives are more likely to engage in prosocial and environmentally conscious behaviors (Hassan et al., 2022; Hossain et al., 2024; Khalifa et al., 2023). Interestingly, no significant direct relationship was found between life satisfaction and attitudes toward tourism impacts. This contrasts with some earlier research and may reflect the complex socio-cultural dynamics of emerging tourism markets such as the UAE. Nonetheless, life satisfaction indirectly influenced PEB through both community attachment and attitudes, supporting H11. Moreover, attitudes toward tourism impacts were found to mediate the relationship between community attachment and PEB (H7), reinforcing the role of perceptual filters in translating emotional bonds into sustainable behavior (Ramkissoon, 2020; Zhang et al., 2020; Elshaer et al., 2023). Community attachment also significantly shaped attitudes toward tourism impacts (H4), consistent with literature demonstrating that emotional bonds

with place foster favorable perceptions of tourism (Gursoy & Rutherford, 2004). However, the direct path from community attachment to PEB was not significant (H5), suggesting that attachment alone does not necessarily result in environmentally responsible behavior (Kundan et al., 2022; Bimonte & D'Agostino, 2021). By contrast, the direct relationship between residents' positive attitudes toward the economic, sociocultural, and environmental impacts of tourism and their engagement in PEB (H6) was confirmed, echoing findings by Sathish and Thiruchelvi (2024). On the other hand, the mediating role of attitudes in the relationship between life satisfaction and PEB (H10) was not supported. This implies that life satisfaction alone may not lead to behavioral change unless reinforced by strong attitudinal or emotional drivers (Gursoy et al., 2019; Elshaer et al., 2024; Alharthi et al., 2019). Overall, the results highlight the complex and often indirect nature of how life satisfaction translates into sustainable behaviors. The findings underscore the importance of attitudes and community attachment in shaping PEB and contribute to a refined understanding of the pathways through which personal well-being supports tourism sustainability (Ramkissoon et al., 2013; Khalifa et al., 2022; Alkathiri et al., 2019).

Implications

This study contributes to the literature by extending the application of bottom-up spillover theory to sustainable tourism, demonstrating that life satisfaction influences pro-environmental behavior (PEB) primarily through mediating variables rather than direct effects. This provides a more nuanced understanding of the association between well-being and environmental behavior, supporting calls for dynamic, multivariable frameworks in tourism research (Ramkissoon, 2020). Additionally, the study advances the understanding of social exchange theory and community attachment theory by showing that while emotional bonds to place and perceived benefits from tourism are important, their influence on behavior occurs largely through attitudes. These findings highlight the need for scholars to move beyond static models and consider the interactive roles of community engagement, emotional well-being, and perceptions in shaping sustainability-oriented actions (Zhang et al., 2020; Khalifa et al., 2023). From a practical perspective, the results underscore the importance for tourism policymakers of promoting life satisfaction through improved public services, infrastructure, and inclusive tourism planning. Policies that enhance residents' quality of life can indirectly encourage pro-environmental behaviors by fostering community cohesion and positive perceptions of tourism. Furthermore, raising awareness among residents about the economic, cultural, and environmental contributions of tourism is crucial. Targeted communication strategies and participatory initiatives can strengthen community support for sustainable tourism practices. Encouraging local involvement through community-based tourism programs, in particular, can deepen emotional connections and foster environmentally responsible behavior. The model proposed in this study provides valuable guidance for tourism development in the UAE and other rapidly growing destinations. It emphasizes the need to understand how subjective well-being, place-based attachment, and tourism-related perceptions interact to promote sustainable development.

Limitations and future studies

While this study provides valuable insights, several limitations should be acknowledged. First, it relies on cross-sectional data, which restricts the ability to infer causality. Future research should employ longitudinal or experimental designs to examine how these relationships evolve over time. Second, the study is context-specific, focusing exclusively on UAE residents. Cultural, political, and economic differences may influence perceptions and behaviors in other regions. Therefore, testing the model in diverse cultural and national contexts would strengthen its generalizability. Third, the non-significant relationship between life satisfaction and attitudes toward tourism impacts raises questions about the influence of other moderating factors. Future studies should investigate variables such as environmental concern, cultural values, or trust in tourism institutions, which may shape this relationship. Additionally, while community attachment and attitudes were found to play important roles, the model did not account for potential individual-level moderators such as education, age, or length of residence. Incorporating these variables could help identify subgroup differences and provide deeper insights. Finally, future research should explore the role of digital technologies and social media in shaping tourism perceptions and promoting PEB. As the tourism industry becomes increasingly digitalized, residents' interactions with tourism-related content may present new opportunities for influencing attitudes and behaviors toward sustainability.

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