A Systems Approach to Attitude-Intention Relations in Cosmetic Medical Tourism

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Abstract

Background: Cosmetic medical tourism is a high-uncertainty service context in which favourable evaluations do not always translate into repeated usage. This study addresses the need to explain when and why attitudes convert into intentions to reuse cross-border cosmetic services in the Kvarner micro-region. **Objectives:** This study aimed to examine the attitude–intention relationship in cosmetic medical tourism. This study tested whether perceived benefits and perceived risks moderate this relationship. **Methods/Approach:** Data were collected in 2025 using a structured questionnaire (physical and online), yielding 373 valid responses. Exploratory factor analysis was used for construct validation, and moderation was tested using the Hayes PROCESS macro (Model 2). **Results:** Attitudes did not have a statistically significant direct effect on the intention to reuse services, and perceived benefits did not moderate the relationship. Perceived risk significantly moderated the attitude–intention relationship, with the relationship higher when perceived risk was lower. **Conclusions:** The findings suggest that in cross-border cosmetic medical tourism, risk perception functions as a key boundary condition for converting positive attitudes into reuse intentions. Managerial efforts should prioritise systematic risk reduction (e.g., accreditation, transparent safety protocols, and continuity of care) to strengthen reuse intentions.

Keywords: medical tourism; reuse intention; attitudes; perceived risk; perceived benefit; moderation analysis; theory of systems approach; Kvarner

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Introduction

Medical tourism has rapidly evolved into a global industry that intertwines healthcare and travel, with cosmetic procedures forming a particularly dynamic segment because of cost advantages, shorter waiting times, privacy, and the ability to combine treatment with leisure experiences (McCartney et al., 2025; Zhong et al., 2021). Enabled by globalisation, procedural standardisation, and the digitalisation of health systems, emerging and mid-market destinations now compete credibly with traditional hubs on quality and value, while cross-sector coordination between healthcare and hospitality further accelerates this integration (Heung et al., 2011; Wong et al., 2024; World Health Organization, 2025). In Europe, for example, supportive e-health infrastructure and private-sector growth have reinforced these trends, expanding patient choice sets and intensifying competition in transparency, accreditation, and aftercare (Bruthans & Jiráková, 2023; European Commission, 2022, 2025).

Despite this growth, our theoretical understanding of how consumer evaluations translate into behaviour in cosmetic medical tourism is incomplete. The Theory of Planned Behaviour (TPB) predicts that attitudes, subjective norms, and perceived behavioural control jointly shape intentions. However, in high-uncertainty services such as cosmetic surgery, the attitude–intention link can be unstable because clinical risk, legal safeguards, data security, and continuity of care complicate decision-making processes (Ajzen, 1991; Heung et al., 2011). Research on medical tourism and health services indicates that perceived risk can dampen or even override positive attitudes, whereas perceived benefits/value—including perceived quality and price reasonableness—can amplify the conversion of favourable attitudes into intentions and, ultimately, reuse (Boguszewicz-Kreft et al., 2022; Han & Hyun, 2015). Beyond individual cognitions, post-pandemic public health concerns and socially mediated cues (e.g. testimonials and clinician credentials) further shape trust, satisfaction, and loyalty, underscoring the need to embed attitude–intention relations in their organisational and institutional contexts (Han et al., 2021; Zeithaml et al., 1996).

This study advances a systems approach to understanding attitude–intention relations in cosmetic medical tourism by modelling perceived benefit and perceived risk as moderators that condition how attitudes translate into intentions within a complex service ecosystem. A systems lens recognises multilevel interdependencies—patients, clinicians, intermediaries, hotels, insurers, and regulators—and feedback loops created by service quality, accreditation, information flows, and aftercare pathways, all of which can shift the elasticity of intentions with respect to attitudes (McCartney et al., 2025; Heung et al., 2011). It also integrates established risk theory and service value perspectives, acknowledging that consumers compute trade-offs across financial, functional, psychological, and social risk domains while assessing benefits, such as quality signals, affordability, and convenience (Han & Hyun, 2015; Jacoby & Kaplan, 1972; Zeithaml, 1988). In cosmetic contexts, where norms and expectations vary across cultures and demographics, these trade-offs are particularly salient, reinforcing the need for models that go beyond linear TPB paths (Alotaibi, 2021; Zhong et al., 2021).

Guided by this perspective, we pose the following central question: *How do perceived benefits and risks moderate the relationship between attitudes towards cosmetic medical tourism and the intention to reuse such services?*

We pursue four objectives: to verify the direct attitude–intention link in this context; to test whether perceived benefit strengthens and perceived risk weakens this link; and to extend TPB by embedding these moderators within a system of service quality, trust, and satisfaction mechanisms (Ajzen, 1991; Zeithaml et al., 1996). We aim to

deliver two contributions. Theoretically, we refine behavioural prediction in high-uncertainty services by replacing a purely linear specification with a moderated system that better aligns with the realities of cross-border aesthetic care (Boguszewicz-Kreft et al., 2022; Han & Hyun, 2015). Managerially, we outline complementary levers—risk reduction through accreditation, transparent perioperative protocols, secure data and telemedicine-enabled continuity, and benefit amplification through price transparency, demonstrable clinical quality, and credible social proof—that can shift the system towards higher reuse intention without sacrificing safety (Han & Hyun, 2015; Han et al., 2021).

Although the empirical model in this study focuses on attitudes, risk, benefit, and intention, systems framing provides the conceptual fundamentals for understanding why moderation effects emerge in a multilevel service ecosystem.

After the introduction, the article presents a comprehensive literature review and develops hypotheses. The next section outlines a methodology suitable for moderation testing (e.g. hierarchical regression or structural equation modelling with interaction terms). The results section presents the empirical findings. The subsequent discussion interprets these findings in light of the theoretical framework and practical implications. The final section concludes by summarising the main results, acknowledging limitations, and proposing directions for future research, including cross-cultural comparisons, longitudinal designs, and integrating clinical outcomes and medico-legal variables into behavioural models.

Literature review

Medical tourism decision-making is often analysed through the Theory of Planned Behaviour (TPB), which posits that intentions depend on attitudes towards behaviour, subjective norms, and perceived behavioural control, with intention preceding behaviour (Ajzen, 1991).

However, in cosmetic medical tourism, choices are made under uncertainty, information asymmetry, and multi-stakeholder interactions across clinics, brokers, accommodation providers, and regulators. Under these conditions, the attitude–intention link is rarely linear or uniformly elastic because systemic factors—service quality, trust, regulation, and aftercare—structure and condition the translation of evaluations into action (McCartney et al., 2025; Zeithaml et al., 1996).

Empirical reviews of medical health tourism show that motivational elements (cost savings, accessibility), organisational coordination (healthcare–tourism integration), and institutional features (accreditation, e-health) intertwine at the market level and are pivotal for moving from positive attitudes to actual reuse of services (Zhong et al., 2021; Heung et al., 2011).

Within service marketing and medical tourism, perceived benefit—encompassing value for money, quality, comfort, and price reasonableness—consistently predicts reuse intention. Quality, satisfaction, and trust foster intentions to revisit clinics and destinations, while price reasonableness can moderate these pathways, strengthening the conversion of favourable attitudes into behavioural intentions (Han & Hyun, 2015).

Broader bibliometric syntheses indicate that perceived value and credible quality signals, such as international accreditations, clinic reputation, and demonstrable clinician competence, systematically enhance attitude–intention translation (Zhong et al., 2021; Zeithaml et al., 1996). In European contexts, digitalisation (e-health) and transparent price communication further elevate perceived benefits and reduce transaction costs, thereby easing cross-border treatment decisions (McCartney et al.,

2025). In hospitality, perceived trust has also been associated with guests' adoption of AI-enabled services (Čuić Tanković et al., 2025).

Conversely, perceived risk in consumer behaviour—traditionally spanning physical/clinical, financial, functional, psychological, and social dimensions—can attenuate or derail the attitude–intention link (Mitchell, 1999). In medical tourism, risk is accentuated by divergent legal frameworks, uncertainty regarding continuity of care, and persistent information asymmetries. Multinational TPB evidence shows that risk correlates strongly with attitude and, under certain conditions, weakens or overrides positive evaluations when intentions are formed (Boguszewicz-Kreft et al., 2022; Kim, 2022).

In cosmetic surgery specifically, individuals with high acceptance of such procedures often display lower loss aversion and greater risk-taking, which helps explain heterogeneous attitude–intention responses across segments; nonetheless, where perceived risk is high, positive attitudes tend to convert less readily into intention (Boguszewicz-Kreft et al., 2022; Jenkinson et al., 2024). Post-pandemic dynamics have further recalibrated risk perceptions: tourists assign greater salience to safety protocols, hygiene standards, public health safeguards, and destination trustworthiness (Han et al., 2021; Heung et al., 2011).

A systems approach brings these strands together by recognising multiple levels—patient, clinic, intermediary, hotel, insurer, and regulator—and feedback loops (quality → satisfaction/trust → intention → recommendations → reputation) that jointly influence the elasticity of the attitude–intention relationship (Wong et al., 2024; Zhong et al., 2021). Within this architecture, perceived benefits and perceived risks should be modelled as simultaneous moderators that condition how strongly positive attitudes translate into reuse intentions (Han & Hyun, 2015). Evidence from recent tourism service research further supports the core elements of these loops, showing that customer satisfaction mediates downstream loyalty-related outcomes and that experience/value processes are tied to referrals and loyalty in service settings (Shoukat & Ramkissoon, 2022).

Empirical models in medical tourism and e-health already employ interaction terms for moderators such as price reasonableness, self-efficacy, and data disclosure intention, thereby increasing the explained variance of intentions and loyalty (Han & Hyun, 2015). At the destination level, interventions such as international accreditations, transparent clinical and pricing information, and telemedicine-enabled monitoring and continuity can reduce perceived risk and increase perceived benefit, shifting the attitude–intention relationship in a favourable direction (Han et al., 2021; Heung et al., 2011).

Drawing on the theory of planned behaviour (TPB), the systemic framework adopted in this study, and the preceding literature review, we propose four hypotheses concerning consumers' intention to reuse cosmetic medical tourism services.

The TPB identifies attitude toward a behaviour as an antecedent of the intention to perform it (Ajzen, 1991). Research in service marketing also links favourable evaluations of a service to intentions to continue using it (Zeithaml et al., 1996). In cosmetic medical tourism, consumers who evaluate the services more favourably are therefore expected to report stronger intentions to use them again. Based on this reasoning, we propose the first hypothesis.

- H1. A more favourable attitude toward cosmetic medical tourism services is associated with a stronger intention to reuse them.

Research on medical tourism identifies perceived service quality and value for money as relevant to consumers' decisions to return to a provider or destination (Han & Hyun, 2015; Zhong et al., 2021). When consumers anticipate substantial benefits from

using these services again, a favourable attitude may be more closely associated with their intention to return. Based on this reasoning, we propose the second hypothesis.

- H2. Perceived benefit moderates the relationship between attitude toward cosmetic medical tourism services and intention to reuse them, such that the positive relationship is stronger at higher levels of perceived benefit.

Studies of medical tourism suggest that uncertainty about clinical outcomes and the reliability of available information can discourage consumers from seeking treatment abroad (Boguszewicz-Kreft et al., 2022; Kim, 2022). These concerns may weaken the relationship between a favourable attitude and the intention to reuse cosmetic medical tourism services. Based on this reasoning, we propose the third hypothesis.

- H3. Perceived risk moderates the relationship between attitude toward cosmetic medical tourism services and intention to reuse them, such that the positive relationship is weaker at higher levels of perceived risk.

The systemic framework provides a rationale for considering perceived benefit and perceived risk simultaneously (Zhou et al., 2024). Consumers may weigh anticipated benefits and potential risks when deciding whether to use the services again. Including both moderation terms allows us to assess whether they jointly explain additional variance in reuse intention. Based on this reasoning, we propose the fourth hypothesis.

- H4. The interaction terms between attitude and perceived benefit and between attitude and perceived risk jointly explain a significant increase in variance in intention to reuse cosmetic medical tourism services, relative to a model that includes the main effects of attitude, perceived benefit, and perceived risk.

We also provide conceptual and contextual remarks on the Kvarner micro-regional tourism setting in Croatia, which constitutes the empirical locus of this study. As the historical nucleus of health tourism, Kvarner exemplifies integrated cluster coordination between healthcare and hospitality, underpinned by a nationally embedded e-health infrastructure and a progressively expanding private sector (Heung et al., 2011). Within the cosmetic surgery domain, these structural configurations permit the destination to mobilise benefit levers—stringent and externally auditable quality standards, demonstrable value for money, and integrated peri- and post-operative recovery packages—alongside risk-mitigation levers—international accreditation, transparent and codified safety protocols, telemedicine-enabled continuity of care, and explicit medico-legal clarity. Taken together, and ceteris paribus, such mechanisms are expected to enhance the responsiveness of intention to attitude inputs (i.e. the elasticity of the attitude–intention relationship) in favour of the repeated utilisation of cosmetic medical services.

Methodology

The methodology operationalises the conceptual framework outlined in the introduction by targeting individuals with prior experience or interest in cross-border cosmetic medical services, particularly from source markets relevant to Kvarner's medical tourism sector. Attitudes toward cosmetic medical tourism, intention to reuse services, and perceptions of benefits and risks were measured using validated TPB-based scales and structured questionnaires to ensure alignment with the theoretical constructs (Ajzen, 1991; Martin et al., 2011). Exploratory Factor Analysis (EFA) confirmed the dimensionality and reliability of these constructs, providing a sound basis for hypothesis testing (Hair et al., 2019). Moderation analysis using Hayes' PROCESS macro (Model 2) directly tested the hypothesised effects of perceived benefits and risks on the attitude–intention relationship (Hayes, 2022). By combining rigorous measurement

with moderation modelling, the methodology ensures that the study's empirical approach is fully consistent with its theoretical aims and objectives.

Data Source and Sample

Purposive sampling was used. Purposive sampling was employed to target individuals with prior experience or interest in cross-border cosmetic medical services, particularly in markets that represent the predominant source countries for Kvarner's medical tourism. Data were collected in 2025. The questionnaire was distributed both in person and online via Google Docs. In total, 373 valid responses were collected (Table 1).

Table 1
Sample Description

Characteristic	Frequency	%
Gender		
Female	250	67.0
Male	122	32.7
I prefer not to say	1	.3
Total	373	100.0
Age		
Age category: 18-24	3	.8
Age category: 25-34	36	9.7
Age category: 35-44	182	48.8
Age category: 45-64	145	38.9
Age category: 65+	7	1.9
Total	373	100.0
Marital status		
Married	191	51.2
Separated/Divorced	73	19.6
Unmarried/single	109	29.2
Total	373	100.0
Education		
Graduate and above	311	83.4
Technical secondary school	1	.3
Undergraduate	61	16.4
Total	373	100.0
Household income (in Euros)		
500,00 to 1,000	1	.3
1,001 to 1,500	2	.5
1,501 to 2,000	22	5.9
2,001 to 2,500	129	34.6
2,501 to 3,000	160	42.9
3,001 to 3,500	45	12.1
3,501 +	14	3.8
Total	373	100.0
Employment status		
Employee	202	54.2
Retired	4	1.1
Self-employed	165	44.2
Student	2	.5
Total	373	100.0

Source: Author's work

Most respondents were from Germany (28.4%), Italy (24.1%), and Slovenia (20.1%), followed by respondents from Austria (16.4%), Serbia (5.6%), Croatia (3.2%), Bosnia and Herzegovina (1.6%), North Macedonia (0.3%), and Spain (0.3%).

Variables and methods

We collected data using a structured questionnaire divided into several sections. The first section addressed TPB constructs in the context of medical tourism, as suggested in the MEDTOUR scale (Martin et al., 2011) and later extended by Liang et al. (2019). The second section assessed respondents' intention to reuse cosmetic surgery services in Kvarner. The final section captured the socioeconomic characteristics.

We conducted Exploratory Factor Analysis (EFA) to examine the dimensionality of the measurement items and identify coherent latent constructs, ensuring conceptual clarity and psychometric reliability. EFA was used rather than Confirmatory Factor Analysis (CFA) because the primary goal was to explore the underlying factor structure of the items and create reliable composite scores for hypothesis testing rather than to confirm a pre-specified measurement model. Composite scores were then computed for subsequent moderation analyses.

Hayes' PROCESS macro (Model 2) was employed to examine the moderating roles of perceived benefit and perceived risk on the attitude–intention relationship. This approach allows testing whether key evaluative beliefs (benefits and risks) influence the extent to which attitudes translate into behavioural intentions. The regression model is specified as follows, with attitudes (ATT) as the independent variable, Intention to Reuse Cosmetic Surgery Services in Kvarner (INT_RE) as the dependent variable, and Perceived Benefits (BEN) and Perceived Risks (RISK) as moderators:

$$INT_RE = b_0 + b_1 ATT + b_2 BEN + b_3 RISK + b_4 (ATT \times BEN) + b_5 (ATT \times RISK) + \varepsilon \quad (1)$$

This methodological approach allows for the direct testing of the study's four hypotheses (H1-H4), operationalising both direct and interaction effects in line with the theoretical framework described in the introduction.

Results

Descriptive Statistics and Measurement Validation

Before conducting exploratory factor analysis (EFA), descriptive statistics were calculated for all 35 items to examine central tendency and dispersion. Respondents reported moderate social influence from family and friends regarding seeking cosmetic medical treatment abroad (M = 2.43-3.53; SD ≈ 1.43–1.49). Participants indicated high confidence in their ability to access quality care abroad (M = 4.52–4.75; SDs ≈ 0.43–0.65) and evaluated medical care in the Kvarner micro touristic region positively, particularly in terms of quality, competence, and trustworthiness (M = 4.61–4.83; SDs ≈ 0.37–0.54). Perceived risk of complications was generally low (M = 1.17–1.77; SDs ≈ 0.55–1.01). Overall, the descriptive findings suggest that respondents held favourable evaluations of cross-border cosmetic medical services, felt capable of obtaining such care abroad, and perceived Kvarner as a high-quality medical tourism destination.

An exploratory factor analysis was then conducted to assess the dimensionality of the measurement items and identify the underlying latent constructs. The Kaiser-Meyer-Olkin (KMO) measure exceeded the recommended threshold of 0.60, and Bartlett's test of sphericity was statistically significant ($\chi^2 = 9369.95$, $p < .05$), indicating that the data were suitable for factor analysis. Seven factors were extracted,

explaining 69.53% of the total variance, and were conceptually labelled as: (1) Subjective Norms; (2) Attitudes; (3) Perceived Benefit; (4) Perceived Risk; (5) Perceived Ability to Achieve a Successful Medical Outcome; (6) Perceived Ability to Obtain Medical Care Abroad; and (7) Perceived Benefit–Value of Kvarner Medical Care. The factor loadings exceeded 0.60, with minimal cross-loadings, supporting the intended structure.

Internal consistency was satisfactory for all factors (Cronbach's $\alpha > 0.70$), except for the perceived benefit-value of Kvarner Medical Care factor ($\alpha = 0.44$). This indicates low reliability and suggests that this construct should be interpreted with caution (e.g. treated as exploratory or excluded from core hypothesis testing).

In addition, descriptive statistics were computed for the 10 items measuring respondents' intention to reuse cosmetic surgery services in Kvarner. The mean values ranged from 3.18 to 4.56 (SD = 0.50–1.50), indicating generally positive reuse intentions with some variability across respondents. The reuse intention construct demonstrated acceptable internal consistency (Cronbach's $\alpha > 0.70$). Composite scores were subsequently computed for each construct and used in further analyses, including the moderation model, with the intention to reuse services as the dependent variable.

Moderated Regression Analysis Predicting Intention to Reuse Cosmetic Surgery Services

To test the proposed framework, moderated regression analysis was conducted using the Hayes PROCESS macro (Model 2). This model estimates the direct effect of attitudes toward cosmetic medical tourism (ATT) on the intention to reuse cosmetic surgery services in Kvarner (INTRE), while simultaneously testing whether perceived benefit (BEN) and perceived risk (RISK) condition (moderate) the strength of the attitude–intention relationship. In line with the study's systems framing, moderation is interpreted as evidence that the attitude–intention link is not universally stable but varies depending on key contextual evaluations, specifically, whether respondents primarily perceive the decision environment as beneficial or risky.

To facilitate the interpretation of the interaction terms and reduce multicollinearity, the predictors were mean-centred prior to estimating the model and computing the product terms (ATT×BEN and ATT×RISK). Table 2 presents the moderated regression results.

Table 2
Moderated Regression Results

Predictor	B	SE	t	p	95% CI (LLCI, ULCI)
Constant	9.4018	28.2372	0.33	.739	−46.13, 64.93
Attitude (ATT)	0.5830	0.8125	0.72	.474	−1.01, 2.18
Perceived Benefit (BEN)	−0.0330	1.3797	−0.02	.981	−2.75, 2.68
ATT × BEN	0.0080	0.0394	0.20	.840	−0.07, 0.09
Perceived Risk (RISK)	2.5237	1.1178	2.26	.025	0.33, 4.72
ATT × RISK	−0.0707	0.0314	−2.26	.025	−0.13, −0.01

Source: Authors' work

The overall model was statistically significant and explained 14.8% of the variance in the intention to reuse cosmetic surgery services in Kvarner ($R^2 = .148$, $F(5, 367) = 12.74$, $p < .001$), indicating that the included predictors jointly contributed to explaining reuse intention. However, the direct effect of attitude on reuse intention was not statistically significant ($B = 0.5830$, $SE = 0.8125$, $t = 0.72$, $p = .474$), suggesting that favourable

attitudes alone do not reliably translate into intention to reuse in this cross-border cosmetic medical tourism context. Perceived benefit (BEN) did not have a statistically significant main effect on reuse intention (B = −0.0330, SE = 1.3797, t = −0.02, p = .981). Moreover, the interaction between attitude and perceived benefit (ATT×BEN) was not statistically significant (B = 0.0080, SE = 0.0394, t = 0.20, p = .840), indicating that perceived benefit neither strengthened nor weakened the relationship between attitudes and reuse intention. These findings do not support Hypothesis 2.

In contrast, perceived risk (RISK) showed a statistically significant main effect (B = 2.5237, SE = 1.1178, t = 2.26, p = .025). More importantly, for the research question, the interaction between attitude and perceived risk (ATT×RISK) was statistically significant and negative (B = −0.0707, SE = 0.0314, t = −2.26, p = .025). This result supports Hypothesis 3 and indicates that perceived risk acts as a boundary condition: as perceived risk increases, the strength of the attitude–intention relationship decreases. In substantive terms, positive attitudes translate more strongly into intention to reuse when perceived risk is lower, whereas a higher perceived risk weakens the conversion of favourable evaluations into behavioural intention.

Consistent with this interaction, a simple-slope interpretation implies that the conditional effect (slope) of ATT on INTRE is steeper at low levels of perceived risk (e.g. −1 SD) and flatter at high levels of perceived risk (e.g. +1 SD), meaning that attitudes became a weaker predictor of reuse intention as perceived risk increased.

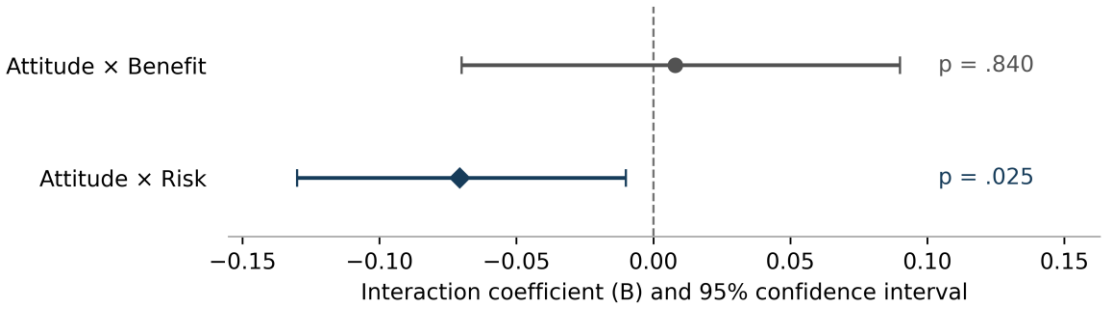
Table 3 reports the incremental variance explained by the interaction terms. The ATT×BEN interaction did not produce a meaningful improvement in explained variance (ΔR^2 = .0001, F(1, 367) = 0.041, p = .840), whereas the ATT×RISK interaction resulted in a statistically significant increase (ΔR^2 = .0118, F(1, 367) = 5.085, p = .025). When both interaction terms were considered jointly, their combined contribution was marginal (ΔR^2 = .0135, F(2, 367) = 2.917, p = .055), which does not meet the conventional 5% threshold; therefore, Hypothesis 4 is not supported at a = .05. Figure 1 shows that the 95% confidence interval for the attitude-by-risk interaction lies entirely below zero, while the interval for the attitude-by-benefit interaction includes zero.

Table 3
Interaction tests

Interaction	ΔR^2	F	df	p
ATT × Benefit	.0001	0.041	1, 367	.840
ATT × Risk	.0118	5.085	1, 367	.025
Both interactions	.0135	2.917	2, 367	.055

Source: Authors' work

Figure 1
Interaction Coefficients for Perceived Benefit and Perceived Risk



Source: Authors' work based on Table 2.

Taken together, the moderated regression results indicate that, within this sample and setting, perceived risk is the key conditioning factor that shapes whether favourable attitudes are translated into reuse intention. From a managerial perspective, these results imply that efforts to strengthen positive attitudes through value or benefit communication are unlikely to be sufficient on their own; instead, strategies that reduce perceived risk (e.g. credible safety assurances, transparent complication protocols, and continuity of care) are expected to be more effective in increasing reuse intention because they reinforce the attitude–intention relationship.

Discussion

This study examined whether attitudes toward cosmetic medical tourism translate into intention to reuse cross-border cosmetic services in the Kvarner micro-region and whether perceived benefit and perceived risk condition this relationship. The findings indicate that favourable attitudes alone do not reliably predict reuse intention, suggesting that behavioural prediction in high-uncertainty service settings is better explained through boundary conditions than through a simple linear attitude–intention path, as commonly implied in the Theory of Planned Behaviour (Ajzen, 1991). This pattern aligns with a systems view of medical tourism, where outcomes are shaped by interdependencies among multiple actors and institutions (e.g., clinics, intermediaries, hospitality providers, and regulators) rather than by isolated consumer evaluations (Heung et al., 2011; Wong, Vongvisitsin, Li, Pan & Ryan, 2024).

A core implication is that perceived risk acts as a system-level constraint that determines whether positive evaluations are behaviourally meaningful. In cross-border care, perceived risk is amplified by information asymmetry, fragmented accountability, discontinuities in aftercare, and variation in regulatory protections and redress mechanisms, which can suppress intentions even when attitudes are favourable (European Commission, 2025; Wismar et al., 2022). Recent medical tourism research also shows that risk-related constructs (e.g., risk awareness and risk aversion) can moderate classic TPB paths and help explain why the attitude–intention link is unstable in cross-border healthcare choices (Boguszewicz-Kreft, Kuczamer-Kłopotowska, & Kozłowski, 2022). Interpreted through a systems lens, the moderation pattern supports viewing perceived risk as a gatekeeping mechanism that conditions the conversion of favourable attitudes into reuse intention within the medical tourism ecosystem.

By contrast, perceived benefit did not condition the attitude–intention relationship in the tested model, implying that "value messaging" alone is unlikely to strengthen reuse intentions if perceived risk remains salient. This pattern is consistent with evidence that retention/loyalty in medical tourism depends on configurations of quality, satisfaction, trust, and perceived price fairness rather than value perceptions in isolation (Han & Hyun, 2015). From a systems perspective, benefits can be treated as upstream attractors, whereas risk reduction operates as a stabiliser that enables downstream conversion from attitude to reuse intention under uncertainty (Wong et al., 2024). Patient ratings and written comments can provide complementary evidence on how patients evaluate healthcare services (Lu et al., 2025).

Managerially, these findings suggest that destination stakeholders should prioritise structured risk-reduction interventions to improve repeat utilisation. In line with recent ecosystem-oriented reviews of medical tourism, such interventions should be coordinated across actors and include auditable accreditation signals, transparent complication/revision pathways, and continuity-of-care arrangements that reduce cross-border fragmentation (Wong et al., 2024). At the operational level, earlier medical tourism and cross-border care research underscores the importance of

institutional safeguards (e.g. clear responsibilities, information transparency, and redress pathways) for addressing perceived uncertainty (Heung et al., 2011; Lunt & Carrera, 2011), and recent evidence shows that risk-related constructs can shape intention formation in medical tourism contexts (Boguszewicz-Kreft et al., 2022). Evidence from Croatian healthcare institutions identifies multidisciplinary cooperation as a priority in management education (Ivković et al., 2025).

Such mechanisms are expected to increase reuse intention not by "creating" positive attitudes but by enabling existing positive attitudes to translate into intention when the perceived risk is lower. This logic is consistent with the moderation evidence in this study and with cross-border healthcare discussions that emphasise information gaps and coordination problems as key drivers of patient uncertainty (European Commission, 2025; Wismar et al., 2022). The design of digital follow-up services also raises questions about costs and outcomes (Srok & Došenović Bonča, 2025). When patients use online platforms to compare providers, transparency and perceived control offer avenues for research on trust in those platforms (Gombar et al., 2026).

This study has limitations that should be considered when interpreting the results and planning future replications. The research relied on purposive sampling and cross-sectional survey data, which constrained generalisability and prevented causal inference regarding the temporal formation of attitudes, risk perceptions, and reuse intentions. In addition, at least one benefit-related construct showed low internal consistency; therefore, benefit effects should be interpreted cautiously and re-tested with refined measurements.

Future research could strengthen the explanation and managerial usefulness by disaggregating perceived risk into clinical, legal, informational, financial, and social risk dimensions and testing whether distinct risk components moderate the attitude–intention link differently. Comparative designs across source markets and longitudinal designs would also help clarify when risk reduction produces lasting loyalty rather than a one-time decision, which aligns with recent calls to reframe medical tourism outcomes within destination-level and ecosystem governance logic (Wong et al., 2024). Finally, expanding the model with system variables (e.g., trust in regulators, aftercare coordination quality, and digital health support) may improve its predictive power and better reflect the multi-actor structure of cross-border cosmetic service ecosystems, as highlighted in recent critical reviews.

Conclusion

This study addressed how perceived benefits and perceived risks condition the relationship between attitudes toward cosmetic medical tourism and the intention to reuse services in the Kvarner micro-region. The findings show that attitudes do not directly predict reuse intention and that perceived benefit does not moderate the attitude–intention link, while perceived risk significantly moderates this relationship, such that positive attitudes translate into reuse intention more strongly when perceived risk is low. In other words, in a high-uncertainty service context, the conversion of favourable evaluations into behavioural intentions is primarily governed by perceived safety-related constraints rather than by perceived benefits alone.

This study contributes to research at the intersection of medical tourism and behavioural intention models by demonstrating that a linear attitude→intention assumption can be insufficient in cross-border aesthetic services. Conceptually, the results support a systems interpretation in which reuse intention emerges from a broader service ecosystem (clinic, intermediary/facilitator, destination/hospitality layer, and institutional/regulatory safeguards) and where perceived risk operates as a cross-cutting mechanism that shapes whether attitudes become behaviourally

meaningful. This explains why destinations may succeed in forming positive images and attitudes but still struggle to generate repeat utilisation when perceived uncertainty remains unresolved.

From a managerial perspective, the results imply that stakeholders in Kvarner should not rely primarily on benefit-focused communication (e.g. quality/value claims) to increase the reuse intention. Instead, the priority should be the systematic design and communication of risk-reduction mechanisms across the patient journey, including verifiable accreditation signals, transparent safety and complication management protocols, explicit postoperative procedures, and organised continuity of care (including follow-up and escalation pathways). These measures target the key boundary condition identified in the model and are therefore more likely to strengthen attitude–intention conversion than additional "value messaging" alone.

This study has some limitations that should be considered when interpreting its implications. The purposive sampling approach and cross-sectional design limit generalisability and do not allow causal claims about how attitudes and risk perceptions evolve over time or after service consumption. In addition, at least one benefit-related construct showed low reliability, which may partly explain the non-significant benefit moderation and calls for improved measurement in future studies.

Future research should employ longitudinal designs to capture shifts in perceived risk and intention across key stages (pre-trip expectations, peri-procedure experiences, and post-procedure outcomes). Comparative studies across source markets and cultural contexts are also needed to test whether the moderating role of risk remains stable across segments and in various regulatory environments. Finally, the explanatory power of the model can be improved by operationalising perceived risk in a more granular way (clinical, legal, informational, and financial risk) and by incorporating additional system variables, such as trust in regulators, perceived quality of aftercare coordination, and digital health support that enables continuity of care.

References

1. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T
2. Alotaibi, A. S. (2021). Demographic and cultural differences in the acceptance and pursuit of cosmetic surgery: A systematic literature review. *Plastic and Reconstructive Surgery – Global Open*, 9(3), Article e3501. https://doi.org/10.1097/GOX.0000000000003501
3. Boguszewicz-Kreft, M., Kuczamer-Kłopotowska, S., & Kozłowski, A. (2022). The role and importance of perceived risk in medical tourism. Applying the theory of planned behaviour. *PLOS ONE*, 17(1), Article e0262137. https://doi.org/10.1371/journal.pone.0262137
4. Bruthans, J., & Jiráková, K. (2023). The current state and usage of European electronic cross-border health services (eHDSI). *Journal of Medical Systems, 47*(1), Article 21. https://doi.org/10.1007/s10916-023-01920-9
5. Čuić Tanković, A., Perišić Prodan, M., & Mesaroš, M. (2025). Guests' perception of AI adoption in the hospitality industry. *ENTRENOVA – ENTerprise REsearch InNOVAtion Journal, 11*(1), 1–13. https://doi.org/10.54820/entrenova-2025-0056
6. European Commission. (2022). *Impact assessment report accompanying the proposal for a regulation on the European Health Data Space (SWD(2022) 131 final, Annex 4: eHealth)*. https://health.ec.europa.eu/system/files/2022-05/ehealth_ehds_2022ia_4_en.pdf
7. European Commission. (2025, September 22). *Trend report (Reference years 2021–2023): Member State data on cross-border patient healthcare following Directive 2011/24/EU*. https://health.ec.europa.eu/document/download/22520255-bb91-4896-8266-b150d749b900_en?filename=cbhc_2021-2023_trend-report_en.pdf

8. Gombar, M., Topalović, A., & Pejić Bach, M. (2026). Trust in algorithms in e-commerce recommender systems: A bibliometric mapping (2012–2025) and a managerial playbook for acceptability. *Journal of Theoretical and Applied Electronic Commerce Research, 21*(6), Article 166. https://doi.org/10.3390/jtaer21060166
9. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage.
10. Han, H., & Hyun, S. S. (2015). Customer retention in the medical tourism industry: Impact of quality, satisfaction, trust, and price reasonableness. *Tourism Management*, 46, 20–29. https://doi.org/10.1016/j.tourman.2014.06.003
11. Han, J., Zuo, Y., Law, R., Chen, S., & Zhang, M. (2021). Service quality in tourism public health: Trust, satisfaction, and loyalty. *Frontiers in Psychology*, 12, Article 731279. https://doi.org/10.3389/fpsyg.2021.731279
12. Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (3rd ed.). The Guilford Press.
13. Heung, V. C. S., Kucukusta, D., & Song, H. (2011). Medical tourism development in Hong Kong: An assessment of the barriers. *Tourism Management*, *32*(5), 995–1005. https://doi.org/10.1016/j.tourman.2010.08.012
14. Ivković, N., Pejić Bach, M., & Miloloža, I. (2025). Assessing management education practices and needs among health workers in Croatian medical institutions: A case study approach. *ENTRENOVA – ENTerprise REsearch InNOVAtion Journal, 11*(1), 1–13. https://doi.org/10.54820/entrenova-2025-0005
15. Jacoby, J., & Kaplan, L. B. (1972). The components of perceived risk. In M. Venkatesan (Ed.), *Proceedings of the 3rd Annual Conference of the Association for Consumer Research* (pp. 382–393). Association for Consumer Research.
16. Jenkinson, P. M., Panagiotopoulou, E., Koukoutsakis, A., & Fotopoulou, A. (2024). Greater risk taking in cosmetic surgery acceptance and history: An experimental and computational study. *Aesthetic Plastic Surgery*, 48(13), 2561–2572. https://doi.org/10.1007/s00266-024-03910-9
17. Kim, M. (2022). A multi-level approach to perceived risks of medical tourism service and purchase intention: An empirical study from Korea. *The Journal of Asian Finance, Economics and Business*, 9(1), 373–385. https://doi.org/10.13106/jafeb.2022.vol9.no1.0373
18. Liang, L. J., Choi, H. C., Joppe, M., & Lee, W. (2019). Examining medical tourists' intention to visit a tourist destination: Application of an extended MEDTOUR scale in a cosmetic tourism context. International Journal of Tourism Research, 21(6), 772–784. https://doi.org/10.1002/jtr.2303
19. Lu, L., Hu, Q., Walter, Z., Huo, D., & Zhang, H. (2025). Assessing patient satisfaction in healthcare: Integrating ratings of service attributes and BERT-based analysis of comments. *International Journal of Engineering Business Management, 17*, 1–17. https://doi.org/10.1177/18479790251384339
20. Lunt, N., & Carrera, P. (2011). Systematic review of web sites for prospective medical tourists. Tourism Review, 66(1/2), 57–67. https://doi.org/10.1108/16605371111127224
21. Martin, D. S., Ramamonjiarivelo, Z., & Martin, W. S. (2011). MEDTOUR: A scale for measuring medical tourism intentions. *Tourism Review*, 66(1/2), 45–56. https://doi.org/10.1108/16605371111127233
22. McCartney, G., Wang, C. F., & Peng, Y. (2025). Betting on traditional Chinese medicine (TCM) within medical tourism (MT) development: The case of Macao. *Tourism Recreation Research*, 50(7), 1845–1851. https://doi.org/10.1080/02508281.2024.2424985
23. Mitchell, V.-W. (1999). Consumer perceived risk: Conceptualisations and models. *European Journal of Marketing*, 33(1/2), 163–195. https://doi.org/10.1108/03090569910249229
24. Shoukat, M. H., & Ramkissoon, H. (2022). Customer delight, engagement, experience, value co-creation, place identity, and revisit intention: A new conceptual framework. *Journal of Hospitality Marketing & Management*, 31(6), 757–775. https://doi.org/10.1080/19368623.2022.2062692

25. Srok, A., & Došenović Bonča, P. (2025). Economic evaluations of digital health interventions: A bibliometric analysis and a review of methodological challenges. *Business Systems Research, 16*(1), 285–304. https://doi.org/10.2478/bsrj-2025-0014
26. Wismar, M., Touret, R., Clottes, J., Dubois, G., Damez-Fontaine, A., Rouvet, V., & van Ginneken, E. (2022). Crossing the border for health care: adding value for patients and health systems. *Eurohealth*, *28*(1), 51–56. https://eurohealthobservatory.who.int/publications/i/crossing-the-border-for-health-care
27. Wong, A. K. F., Vongvisitsin, T. B., Li, P., Pan, Y., & Ryan, C. (2024). Revisiting medical tourism research: Critical reviews and implications for destination management and marketing. *Journal of Destination Marketing & Management*, *33*, 100924. https://doi.org/10.1016/j.jdmm.2024.100924
28. World Health Organization. (2025). *Understanding the health and tourism nexus.* https://www.who.int/europe/publications/i/item/9789289062541
29. Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *Journal of Marketing*, *52*(3), 2–22. https://doi.org/10.1177/002224298805200302
30. Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing*, 60(2), 31–46. https://doi.org/10.1177/002224299606000203
31. Zhong, L., Deng, B., Morrison, A. M., Coca-Stefaniak, J. A., & Yang, L. (2021). Medical, health and wellness tourism research—A review of the literature (1970–2020) and research agenda. *International Journal of Environmental Research and Public Health*, 18(20), 10875. https://doi.org/10.3390/ijerph182010875
32. Zhou, K., Chen, L., & Li, M. (2024). The impact of medical risk perception on patient satisfaction: The moderating role of shared decision-making. *Risk Management and Healthcare Policy*, 17, 2981–2995. https://doi.org/10.2147/RMHP.S482908

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