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Research Article

AN EXPLORATORY STUDY OF SUSTAINABILITY INFORMATION ORIENTATION AND NON-PRICE SUSTAINABLE TRAVEL INTENTIONS AMONG ROMANIAN SURVEY RESPONDENTS

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Abstract

Travelers *may endorse sustainable tourism yet hesitate when their choices require clear information, additional effort, or acceptable comfort. This exploratory cross-sectional study examines how sustainability information orientation and general pro-sustainability orientation are associated with stated non-price sustainable travel intentions among 163 Romanian residents with recent tourism experience. Recruitment began through student groups and continued via participant-led link sharing, producing a young, highly educated non-probability sample that was not limited to students. Three descriptive, content-based indices were formed from questionnaire items and are not treated as validated scales. In a blockwise multiple linear regression, sustainability information orientation was positively associated with the intention index after adjustment for gender, age group, education, and general pro-sustainability orientation (B = .626, HC3 SE = .103, p < .001). Because certification-related wording appeared in both the information and intention domains, a sensitivity analysis removed the certified-accommodation item from the outcome. The association remained positive for the two-item outcome covering lower-impact mobility and community-supporting activities (B = .457, HC3 SE = .156, p = .004). The association is therefore not explained solely by the shared certification wording. Content overlap, common-method covariance, cross-sectional measurement, and non-probability recruitment nevertheless limit interpretation. The findings are specific to this sample and are not statistically generalizable to Romanian* travelers.

Keywords: sustainability information, eco-certification, sustainable travel intentions, tourism decision-making, stated intentions

JEL Classification: D12, Q56, Z32

1. Introduction

Travelers encounter sustainability through concrete choices: where to stay, how to get around at a destination, whether to trust an environmental claim, and whether to support local activities. Survey research, however, may capture broad approval of sustainability, a stated intention to choose a particular option, or observed behavior. These are different forms of evidence. The present study examines general orientations and stated intentions; it does not observe what respondents later booked, purchased, or used during a trip.

Favorable views of sustainability do not guarantee a corresponding choice. Tourism decisions also reflect price, comfort, convenience, available alternatives, and trust in the information attached to them (Juvan & Dolnicar, 2014; Nieto-García et al., 2024). These constraints can create a gap between stated support and later behavior even when the expressed support is genuine.

Information is central to this distinction because many sustainability characteristics remain invisible when a booking is made. Travelers must rely on certifications, eco-labels, explanations provided by firms, and information displayed by booking platforms. These signals are useful only when they are visible, understandable, and credible. Earlier work has documented limited recognition of sustainable

product characteristics and uneven trust in sustainability communication (Font, 2002; Tölkes, 2018, 2020; Tkaczynski & McKercher, 2026). A traveler may therefore look actively for sustainability information and still find it difficult to identify or compare options.

Practical considerations create a second boundary. A lower-impact transport option may take longer, require advance planning, or be unavailable for part of a journey. Likewise, an offer presented as sustainable may cost more or provide a different level of convenience or comfort. Willingness to pay (WTP) captures one aspect of this trade-off, but a percentage selected in a questionnaire is not equivalent to payment in an actual booking situation (Murphy et al., 2005).

Romanian research has examined eco-certified accommodation, green hospitality products, sustainable tourist behavior, green tourist profiles, and willingness to pay, often within specific destinations, age groups, or market segments (Constantin et al., 2013; Oroian, 2014; Băltescu, 2017; Gökırmaklı et al., 2017; Ştefănică & Sandu, 2021; Puiu et al., 2022; Butnaru et al., 2022; Petrescu-Mag et al., 2025). Less attention has been paid to whether an orientation toward sustainability information is associated with intentions beyond the certification domain, such as lower-impact mobility and community-supporting activities, once broad pro-sustainability views are considered. In the present questionnaire, certification-related wording appeared in both the information and intention domains and could inflate their apparent relationship.

This study addresses that gap using a non-probability sample of Romanian residents with recent tourism experience. Recruitment began through student groups and extended through participant-led link sharing, yielding a sample weighted toward younger and tertiary-educated respondents. The study's specific contribution is to test whether the association between sustainability information orientation and stated non-price intentions persists after the certification-related accommodation item is removed from the outcome. The analysis also reports the empirical boundaries of three descriptive indices formed from the questionnaire's original thematic blocks.

Within this exploratory design, the study addresses two questions:

RQ1. How are general pro-sustainability orientation and sustainability information orientation related to stated non-price sustainable travel intentions?

RQ2. How are perceived information difficulty and price-and-comfort priority related to these orientations and intentions?

Before examining these relationships, the internal coherence and exploratory factor structure of the three content-based indices are assessed. These checks describe how the items behave in this sample; they do not validate the indices as independent latent constructs.

A single hypothetical WTP item is retained only as brief descriptive context and is reported in Appendix D. The remainder of the paper reviews the relevant literature, describes the survey and analytical strategy, presents the measurement and association results, and discusses their interpretive limits and implications for future research.

2. Literature review

2.1. General orientations and non-price travel intentions

Sustainable tourism choices are heterogeneous. Selecting certified accommodations, purchasing local products, using lower-impact transport, accepting a price premium, and participating in community-based activities involve different combinations of cost, effort, availability, and information. General approval of sustainable tourism therefore cannot be assumed to extend uniformly to every prospective choice.

Research on sustainable tourism intentions supports this distinction. Broader reviews of environmentally sustainable consumer behavior in tourism and hospitality also show that such behavior reflects multiple psychological and contextual drivers rather than a single favorable attitude (Han, 2021). Doran et al. (2017) found that value orientations, time perspective, and efficacy beliefs jointly explained variation in intentions to choose environmentally sustainable travel options. Their results

place attitudes within a wider configuration of temporal perspective and perceived capacity to act. A meta-analysis of 95 studies with 47,425 participants reached a similar conclusion: attitudes were important, while social interaction, previous behavior, awareness, and cultural context also contributed to sustainable tourism intentions (Hansen et al., 2024). General approval can therefore coexist with hesitation about a particular option when the choice involves unfamiliar information, extra planning, or constraints that are absent from an abstract statement.

The distance increases when stated intentions are compared with behavior. Juvan and Dolnicar (2014) showed how travelers with pro-environmental beliefs reconciled those beliefs with environmentally harmful holiday practices through situational explanations. Survey design can widen the apparent gap. Estimates change with the definition of sustainable tourist behavior and with the way questions are asked; prompted closed questions are especially susceptible to socially desirable responding (Juvan & Dolnicar, 2016). Nieto-García et al. (2024) further argue that conclusions about the intention–behavior gap become fragile when outcomes do not reproduce an actual decision setting. The present study consequently treats agreement with the questionnaire items as stated intention. It does not infer that respondents later booked certified accommodation, changed transport mode, or participated in community activity.

Taken together, this literature supports a distinction between intentions that explicitly accept a price premium and intentions concerning accommodation, mobility, or community activities without a specified monetary condition. It also suggests that apparent coherence among such responses should be examined rather than assumed.

2.2. Sustainability information, certification, and decision difficulty

Many environmental and social characteristics of a tourism service cannot be observed directly at the point of purchase. Energy and water practices, waste management, local sourcing, working conditions, and community involvement generally remain behind the service encounter. Travelers depend on information from businesses, intermediaries, and certification bodies, and the value of that information rests on its prominence, specificity, comparability, and credibility.

A review by Tölkes (2018) showed that communication channels and message characteristics shape responses to sustainability initiatives, although the mechanisms linking messages to consumer reactions remain complex. Experimental evidence indicates that communicating environmental performance can improve stated intentions, with responses also varying according to framing and the level of performance reported (Bhattacharyya et al., 2024). These findings draw attention to the form, timing, and evidential content of communication. Information provision involves more than the presence of a green claim; it concerns whether a traveler can understand the claim, compare it with an alternative, and use it while deciding.

Certification and eco-labels are intended to reduce this information problem by condensing standards into a recognizable signal. Their practical value depends on awareness, comprehension, and trust. Font (2002) warned that a proliferation of small or unfamiliar labels could confuse consumers and weaken attention to environmental messages. Recent evidence continues to show limited awareness and uncertainty about what eco-certification means to tourists (Tkaczynski & McKercher, 2026). The difficulty persists even after a choice has been made. Customers who purchased from certified tour operators often failed to recognize or understand the sustainability characteristics of the products selected (Tölkes, 2020). Certification may therefore exist at the organizational level without becoming meaningful information at the point of purchase.

Information orientation and perceived information difficulty should therefore be treated as related but distinct features of a decision. A traveler may actively seek sustainability claims, value certification, and desire greater transparency while still finding reliable evidence difficult to locate. Conversely, reported difficulty may partly indicate attention: respondents who rarely look for sustainability information have fewer opportunities to encounter its limitations. The empirical question is whether perceived difficulty is associated with stated intentions beyond a broader orientation toward sustainability information.

2.3. Price, comfort, and hypothetical willingness to pay

Tourism choices involve trade-offs among price, comfort, time, convenience, location, and service quality, with sustainability as one consideration within this broader decision. In a stated-choice experiment on holiday transport, Hergesell and Dickinger (2013) found that cost was the most influential product attribute among the students surveyed, followed by travel time, while convenience also contributed to mode choice. Support for environmental goals may therefore coexist with practical priorities that shape specific choices.

WTP offers a direct but limited way to assess acceptance of additional financial cost. Among hotel guests, Kang et al. (2012) found a positive relationship between environmental concern and willingness to pay for green initiatives, although responses varied across customer and hotel-use characteristics. Stated valuations can also exceed values obtained when payment is real, and the magnitude of this hypothetical bias depends on the elicitation method and decision context (Murphy et al., 2005).

Interpretation is further constrained because respondents selected a percentage band without a specified service, reference price, destination, or booking situation. Accordingly, the WTP item is treated as a descriptive indication of stated tolerance for additional cost rather than as an estimate of market value.

3. Methodology

3.1. Research design

The study used an exploratory, cross-sectional quantitative design based on a structured online questionnaire administered in Romania. The analysis included descriptive summaries, bivariate correlations, exploratory factor analyses, and blockwise multiple linear regressions. The order of variables in the regression models reflects an analytical sequence, not a causal ordering.

The study examines associations among self-reported orientations and stated intentions measured at the same time. The research questions guide an exploratory analysis and are not confirmatory hypotheses. No temporal sequence, intervention, or observed behavior is available from which to infer cause and effect.

3.2. Data collection and sample

The population defined for this analysis comprised adults residing in Romania who had taken at least one tourism trip during the previous 24 months. Data were collected through Google Forms between 24 February and 7 June 2026. The questionnaire link was initially distributed through WhatsApp groups of undergraduate and master's students taught by the author and by email. Recipients could share the link with other adults who met the eligibility criteria, so recruitment extended beyond the initial student groups. Reminders were sent during the collection period. Participation was voluntary, and no payment, course credit, or other incentive was offered. For students, participation or non-participation had no connection to grades, assessment, attendance, or any other academic decision.

The survey produced 179 responses. Residence and recent travel were measured by screening questions. Sixteen records did not meet both eligibility conditions and were excluded, leaving 163 respondents in the analytic sample. Because recruitment was open through shared links, no sampling frame or response rate was available.

Screening and range checks were completed before calculating the indices. One respondent reported 120 tourist nights over the 24-month reference period together with more than six international trips and hotel use. Although unusually high, the value was plausible as a two-year cumulative total and did not enter any index, correlation, or regression reported here; it was therefore retained.

Recruitment was non-probabilistic and combined convenience sampling with participant-led link sharing. The final sample was not limited to students: students formed 40.5% of the analytic sample, while 59.5% reported another principal occupational status. The recruitment process nevertheless contributed to the comparatively young and tertiary-educated profile reported in Section 4.1 and prevents statistical generalization to Romanian travelers.

3.3. Questionnaire and measures

The questionnaire covered recent travel characteristics, 15 sustainability-related statements, WTP, and sociodemographic characteristics. A brief definition of sustainable tourism was provided at the beginning. The 15 statements were rated from 1 (strongly disagree) to 5 (strongly agree) and were organized before data collection into three thematic blocks: general sustainability views (C), information and decision context (D), and stated travel intentions (E). The questionnaire drew on the literature reviewed in Section 2, but its items were not taken from complete validated scales.

For this analysis, three descriptive content-based indices were formed from items in the original thematic blocks. The groupings were not specified or validated as scales when the questionnaire was developed. They are used to reduce a set of related responses to transparent summary scores, not to claim three distinct latent constructs. Item allocation and wording are reported in Appendix A.

Non-price sustainable behavioral intentions (NPSBI) were represented by E1, preference for certified eco-friendly accommodation; E4, intention to use public transport, cycling, or walking instead of a car; and E5, intention to participate in activities that support local communities. E2 and E3 were excluded from this index because both explicitly condition the choice on a higher price.

Sustainability information orientation (SIO) combined D1, attention to sustainability information when booking; D2, perceived usefulness of certifications and eco-labels; and D5, demand for more transparent communication of sustainability practices. D3, difficulty identifying sustainability

information, and D4, the priority of price and comfort over sustainability, were retained as separate decision-context items because their content does not express the same orientation.

General pro-sustainability orientation (GPSO) comprised C1-C5: environmental concern, support for reducing tourism's environmental impact, preference for services that respect local culture and traditions, belief in the contribution of personal travel choices, and the appeal of sustainable destinations. The three indices were calculated as the mean of their component items, with higher scores indicating stronger endorsement. All component items were complete.

WTP was measured with one ordered-category question asking how much more the respondent would pay for tourism services described as clearly sustainable. The categories were 0%, up to 5%, 6-10%, 11-20%, and more than 20%. No service, baseline price, destination, or booking situation was specified.

3.4. Data analysis

All statistical analyses were conducted using JASP 0.98.1 (JASP Team, 2026). HC3-robust inference and residual diagnostic tests were performed in the JASP R Console. The condition index was recalculated after subtracting the sample mean from each continuous predictor. Sample characteristics and the single WTP item were summarized with frequencies and percentages. Item distributions were described using means, standard deviations, medians, interquartile ranges, and the proportion selecting categories 4 or 5. Internal consistency was examined with McDonald's omega, Cronbach's alpha, average interitem correlations, and item–rest diagnostics. For the two-item sensitivity outcome, the Spearman–Brown coefficient was reported (Eisinga et al., 2013).

Sampling adequacy was assessed with the Kaiser–Meyer–Olkin statistic (Kaiser, 1974) and Bartlett's test of sphericity (Bartlett, 1954). Exploratory factor analyses used polychoric correlations and minimum residual extraction. Parallel analysis guided factor retention (Horn, 1965); when more than one factor was examined, promax oblique rotation was used because related factors were expected (Fabrigar et al., 1999). Separately forced one-factor solutions described the coherence of each proposed summary index. The full 11-item analysis comprised C1–C5, D1, D2, D5, E1, E4, and E5. D3 and D4 were retained as individual context items, whereas E2 and E3 were excluded because they explicitly introduced a higher price. Parallel analysis favored four factors, but the corresponding four-factor solution produced a Heywood case and was treated as unstable. An additional three-factor solution was inspected only as a diagnostic comparison with the three content groupings. The complete pattern matrices, cross-loadings, factor correlations, uniqueness estimates, and parallel-analysis eigenvalues are reported in Appendix B.

Relations among the indices were estimated with Pearson correlations and checked with Spearman rank correlations. A blockwise ordinary least-squares regression used NPSBI as the outcome. Gender (male versus female), age (35 years or older versus 18-34), and tertiary education were entered in the first block; SIO and GPSO were added in the second. Age was grouped at 35 because 60.7% of the sample was aged 18-34 and separate coding of all remaining categories would create sparse tail groups (n = 12 for ages 55-64 and n = 3 for ages 65+). A sensitivity model retained all six original age categories. Blockwise entry separates the change in explained variance after adding the two orientations; it does not establish causal precedence.

Perceived information difficulty (D3) and price-and-comfort priority (D4) were added separately to the full model to examine whether either item supplied information beyond SIO and GPSO. Model checks included residual plots, the Shapiro-Wilk test, the Breusch-Pagan test, variance inflation factors, condition indices, leverage, and Cook's distance. Because the outcome was bounded and concentrated near the upper end, HC3 heteroscedasticity-consistent standard errors were used for the reported coefficient inference (Long & Ervin, 2000). To test certification overlap, E1 was removed and the regression was repeated with the mean of E4 and E5. All tests were two-sided, with alpha = .05. The models estimate conditional associations within the sample; cross-sectional regression alone cannot establish temporal order or causality.

3.5. Ethical considerations

The study used a voluntary, anonymous, non-interventional online questionnaire completed by adults.

Introductory information described the purpose, approximate completion time, voluntary participation, and scientific use of responses; submitting the questionnaire indicated consent. The initial recruitment groups included undergraduate, and master's students taught by the author, while participant-led link sharing extended the survey to other eligible adults. No incentives were offered, and participation had no connection to academic assessment, grades, attendance, or other academic decisions. Because the form collected no direct identifiers, the researcher could not determine which invited students had or had not participated.

No directly identifying or special-category personal data were collected, and results were analyzed in aggregate. Under the institutional rules in force, prior formal ethics review was not required for this type of voluntary, anonymous, non-interventional questionnaire. Accordingly, no ethics approval number was issued.

4. Results

4.1. Sample characteristics

The analytic sample comprised 163 Romanian residents with at least one tourism trip during the previous 24 months. Women represented 57.7% of respondents. The sample was comparatively young: 99 participants (60.7%) were aged 18-34. Tertiary education was reported by 120 respondents (73.6%). Students formed the largest occupational group (40.5%), followed by full-time employees (36.8%), although respondents who were not students represented 59.5% of the sample.

One or two trips were reported by 54.6% of respondents, while 38.7% reported three or four trips. Domestic travel was more frequent than international travel (64.4% versus 35.6%). Urban and mountain destinations were the most common, and hotels and guesthouses were the accommodation types selected most often (Table 1).

Table 1. Characteristics of the analytic sample

Variable	Category	n	%
Sociodemographic characteristics			
Age	18-24	67	41.1
	25-34	32	19.6
	35-44	23	14.1
	45-54	26	16.0
	55-64	12	7.4
	65+	3	1.8
Gender	Female	94	57.7
	Male	69	42.3
Education	Secondary	32	19.6
	Vocational/post-secondary	11	6.7
	Bachelor's degree	85	52.1
	Master's degree	24	14.7
	Doctoral degree	11	6.7
Occupation	Student	66	40.5
	Full-time employee	60	36.8
	Part-time employee	16	9.8
	Self-employed	14	8.6
	Retired	5	3.1
	Other	2	1.2
Monthly net income	Below RON 2,500	30	18.4
	RON 2,501-4,000	42	25.8
	RON 4,001-6,000	47	28.8
	RON 6,001-8,000	18	11.0
	Above RON 8,000	3	1.8
	Prefer not to answer	23	14.1
Reported travel characteristics			
Travel frequency	1-2 trips	89	54.6
	3-4 trips	63	38.7
	5-6 trips	8	4.9
	More than 6 trips	3	1.8
Trip type	Domestic	105	64.4
	International	58	35.6
Destination type	Urban	46	28.2
	Mountain	38	23.3
	Rural	30	18.4
	Coastal	30	18.4
	Wellness/spa	16	9.8
	Other or mixed	3	1.8
Accommodation	Hotel	56	34.4
	Guesthouse	38	23.3
	Friends or relatives	29	17.8
	Apartment/Airbnb	23	14.1
	Rural/agritourism	12	7.4
	Camping/caravan	4	2.5
	Other	1	0.6

Note. N = 163. Percentages may not total 100 because of rounding. The two isolated occupation responses were grouped as Other.
Source: Author's calculations

4.2. Measurement properties and descriptive statistics

Mean scores were high for all three descriptive indices: 4.28 for NPSBI, 4.42 for SIO, and 4.56 for GPSO. NPSBI showed acceptable internal consistency (McDonald's omega = .796; Cronbach's alpha = .790). Its one-factor solution accounted for 67.8% of variance, with loadings from .734 to .876. SIO showed more modest consistency (omega = .698; alpha = .695); its one-factor solution accounted for 60.4% of variance, with loadings from .708 to .820. Exact sampling-adequacy results are reported in Table 3: KMO = .721 and Bartlett chi-square (3) = 230.03 for NPSBI, and KMO = .711 and Bartlett chi-square (3) = 170.63 for SIO (both $p < .001$).

GPSO had the highest internal consistency (omega = .836; alpha = .832; KMO = .758; Bartlett chi-square (10) = 630.58, $p < .001$). A forced one-factor solution produced loadings from .738 to .926 but weak global fit (CFI = .858, TLI = .714, RMSEA = .329). Parallel analysis favored two factors, with the second defined mainly by opposite secondary loadings for C2 and C4. GPSO is therefore retained only as a descriptive content summary.

The full 11-item set had KMO = .839 and Bartlett chi-square (55) = 1591.06, $p < .001$. Parallel analysis retained four factors. The parallel-retained four-factor minimum-residual solution with promax rotation produced a Heywood case for E4 (uniqueness = -.002), correlated factors (r = .235-.730), and weak global fit (CFI = .923, TLI = .748, RMSEA = .206, SRMR = .027); it was therefore treated as unstable rather than interpreted substantively. The additional three-factor diagnostic solution also showed correlated factors (r = .521-.695), multiple cross-loadings, and unsatisfactory fit (CFI = .864, TLI = .698, RMSEA = .226, SRMR = .045). Appendix B reports both complete pattern matrices and the parallel-analysis results. These findings support use of the scores as transparent descriptive indices but not as validated, separable constructs.

Table 2. Descriptive statistics and reliability of the three indices

Index	Items	M	SD	Average interitem r	McDonald's ω [95% CI]	Cronbach's α [95% CI]
NPSBI	E1, E4, E5	4.282	.649	.556	.796 [.715, .873]	.790 [.697, .866]
SIO	D1, D2, D5	4.421	.560	.432	.698 [.572, .800]	.695 [.561, .793]
GPSO	C1-C5	4.563	.518	.498	.836 [.782, .883]	.832 [.773, .881]

Note. N = 163. NPSBI = non-price sustainable behavioral intentions; SIO = sustainability information orientation; GPSO = general pro-sustainability orientation.

Source: Author's calculations

Table 3. Exploratory assessment of factor structure

Index	KMO	Bartlett χ^2 (df)	p	Forced one-factor variance	Loading range	Parallel analysis
NPSBI	.721	230.03 (3)	< .001	67.8%	.734-.876	One factor
SIO	.711	170.63 (3)	< .001	60.4%	.708-.820	One factor
GPSO	.758	630.58 (10)	< .001	67.8%	.738-.926	Two factors

Note. Factor analyses used polychoric correlations and minimum-residual extraction. Parallel analysis guided factor retention: promax rotation was used for multifactor solutions. Forced one-factor results are shown only to describe each proposed summary index. GPSO parallel analysis favored two factors. Complete results for the full 11-item analysis appear in Appendix B.

Source: Author's calculations

4.3. Relations among the three indices

NPSBI was strongly related to SIO (Pearson r = .685) and moderately related to GPSO (r = .560). SIO and GPSO were also strongly correlated (r = .693). Spearman coefficients led to the same conclusion (Table 4). The pattern indicates substantial shared content and cautions against describing the indices as independent dimensions.

Table 4. Pairwise correlations among the three indices

Pair	Pearson r	95% CI	Spearman ρ	95% CI	p
NPSBI-SIO	.685	[.593, .758]	.660	[.564, .739]	< .001
NPSBI-GPSO	.560	[.445, .658]	.540	[.422, .641]	< .001
SIO-GPSO	.693	[.604, .766]	.698	[.610, .769]	< .001

Note. N = 163. All tests were two-sided.

Source: Author's calculations

4.4. Blockwise multiple regression of non-price intentions

The demographic block explained 8.9% of the variance in NPSBI, F (3, 159) = 5.16, p = .002. Tertiary education was associated with a higher score in this block (B = .395, HC3 p = .002), whereas gender and age group were not.

Adding SIO and GPSO increased explained variance by 40.5 percentage points, change F (2, 157) = 62.71, p < .001. The full model accounted for 49.3% of the variance (adjusted R-squared = .477), F (5, 157) = 30.58, p < .001. SIO had the larger adjusted association with NPSBI (B = .626, beta = .541, HC3 p < .001). GPSO retained a smaller association (B = .219, beta = .175, HC3 p = .049). The education coefficient fell from .395 to .059 and was no longer significant after the two orientation scores entered the model. This coefficient change is descriptive of the fitted models and does not identify a causal mechanism.

Table 5. Blockwise multiple regression of non-price sustainable travel intentions

Predictor	B	HC3 SE	β	95% CI	p
Block 1: demographic characteristics					
Gender: male	-.046	.102	—	[-.247, .155]	.651
Age: 35+ years	.076	.106	—	[-.133, .285]	.474
Education: tertiary	.395	.125	—	[.148, .642]	.002
Block 2: demographic characteristics and orientations					
Gender: male	-.002	.074	—	[-.148, .144]	.977
Age: 35+ years	.112	.079	—	[-.043, .267]	.157
Education: tertiary	.059	.099	—	[-.137, .254]	.555
SIO	.626	.103	.541	[.423, .829]	< .001
GPSO	.219	.110	.175	[.001, .437]	.049

Note. N = 163. Coefficient standard errors, confidence intervals, and p values use HC3 inference. Block 1: R-squared = .089, adjusted R-squared = .072, F (3, 159) = 5.16, p = .002. Block 2: R-squared = .493, adjusted R-squared = .477, F (5, 157) = 30.58, p < .001; change in R-squared = .405, change F (2, 157) = 62.71, p < .001. Reference categories were female, age 18-34 years, and non-tertiary education. B = unstandardized coefficient; HC3 SE = heteroscedasticity-consistent standard error; beta = standardized coefficient for continuous predictors.

Source: Author's calculations

The Breusch-Pagan test did not indicate heteroscedasticity, chi-square (5) = 2.76, p = .737. Residuals showed a mild departure from normality (Shapiro-Wilk W = .982, p = .031; skewness = -.388; excess kurtosis = .009). HC3 inference left the central result intact: SIO B = .626, HC3 SE = .103, 95% CI [.423, .829], p < .001; GPSO B = .219, HC3 SE = .110, 95% CI [.001, .437], p = .049. Variance inflation factors ranged from 1.04 to 2.11. The maximum condition index was 34.21 in the uncentered design matrix but fell to 4.96 after mean-centering SIO and GPSO; slopes, fitted values, and VIFs were unchanged, which indicates non-essential ill-conditioning from scale location rather than unstable slope estimates (Belsley et al., 1980). Retaining all six original age categories also produced similar estimates for SIO (B = .614, HC3 p < .001) and GPSO (B = .239, HC3 p = .037).

4.5. Sensitivity to certification-item overlap

The certification-related accommodation item (E1) was removed from NPSBI to test whether shared wording with the SIO certification item (D2) drove the main association; D2 and E1 correlated at r = .649 (p < .001). The resulting E4-E5 mean covered lower-impact mobility and community-supporting activities (M = 4.215, SD = .700). The two items correlated at r = .666, with a Spearman-Brown reliability estimate of .800. SIO remained correlated with this outcome (Pearson r = .539; Spearman rho = .534; both p < .001). At item level, SIO was also associated with E4 (r = .488) and E5 (r = .497), both p < .001.

In the adjusted sensitivity model, SIO remained positively associated with the E4-E5 outcome (B = .457, HC3 SE = .156, 95% CI [.148, .765], p = .004), as did GPSO (B = .292, HC3 SE = .145, 95% CI [.005, .579], p = .046). The model explained 31.9% of the variance (adjusted R-squared = .298). The Breusch-Pagan test was not significant, chi-square (5) = 9.52, p = .090, while residuals departed from normality (Shapiro-Wilk W = .976, p = .006). HC3 inference was retained to avoid relying exclusively on conventional OLS standard errors. The continued SIO association after E1 was excluded shows that the central result is not solely a certification-wording artifact.

Table 6. Sensitivity regression excluding E1 from the outcome

Predictor	B	HC3 SE	95% CI	p
Intercept	.768	.403	[-.028, 1.563]	.058
Gender: male	.016	.092	[-.166, .198]	.864
Age: 35+ years	.026	.100	[-.172, .224]	.793
Education: tertiary	.108	.124	[-.138, .354]	.388
Sustainability information orientation (SIO)	.457	.156	[.148, .765]	.004
General pro-sustainability orientation (GPSO)	.292	.145	[.005, .579]	.046

Note. N = 163. The outcome is the mean of E4 (lower-impact mobility) and E5 (community-supporting activities). R-squared = .319; adjusted R-squared = .298; F (5, 157) = 14.74, p < .001. Reference categories were female, age 18-34 years, and non-tertiary education.

Source: Author's calculations

4.6. Information difficulty and price-and-comfort priority

Perceived information difficulty (D3) was common: 143 respondents (87.7%) selected category 4 or 5. It was positively associated with NPSBI in the bivariate analysis (Spearman rho = .428, 95% CI [.293, .546], p < .001), as well as with SIO (rho = .570) and GPSO (rho = .485). When D3 was added to the full multiple regression, its conditional coefficient was not significant (B = .047, HC3 SE = .071, 95% CI [-.093, .186], p = .509), while the SIO and GPSO coefficients changed little.

Price-and-comfort priority (D4) showed the opposite bivariate pattern. Sixty percent disagreed that price and comfort influenced their decisions more than sustainability, 27.6% selected the midpoint, and 12.3% agreed. Higher D4 scores were associated with lower NPSBI scores (Spearman rho = -.542, 95% CI [-.642, -.424], p < .001), lower SIO (rho = -.662), and lower GPSO (rho = -.591). After D4 was added to the full multiple regression, its coefficient was not significant (B = -.102, HC3 SE = .053, 95% CI [-.207, .004], p = .058), and the SIO and GPSO coefficients remained positive.

Thus, both decision-context items were associated with the intention index when examined in pairs, but neither showed a distinct conditional association after the two broader orientation indices were included. This pattern should not be interpreted as proof that information difficulty or price and comfort are unimportant in actual travel decisions.

4.7. Brief descriptive WTP result

For completeness, six respondents (3.7%) selected no premium, 147 (90.2%) selected a positive premium up to 10%, and ten (6.1%) selected more than 10%. The full distribution is reported in Appendix D. Because no service, reference price, destination, or booking situation was specified, this item is not used in the research questions or inferential analysis.

5. Discussion

5.1. Information orientation and non-price intentions

Sustainability information orientation had the strongest adjusted association with stated non-price travel intentions. In the sensitivity analysis, the certification-related accommodation item was removed from the outcome. The association therefore remained for the combined outcome comprising lower-impact mobility and community-supporting intentions. This finding indicates that the result was not explained solely by the semantic proximity between certification items D2 and E1. This is the study's main empirical contribution, although the reduced coefficient and remaining content overlap warrant caution.

The result is consistent with work showing that sustainability information is difficult to act on when claims are hard to recognize, compare, or trust (Font, 2002; Tölkes, 2018, 2020; Bhattacharyya et al., 2024). In this sample, respondents who reported attending to sustainability information also reported stronger intentions regarding transport and community activities. The cross-sectional design cannot determine whether information orientation precedes those intentions, whether the intentions motivate information seeking, or whether both reflect a broader response tendency.

The contrast between high endorsement of certified accommodation and community activities and greater dispersion in lower-impact mobility is descriptive rather than a separate causal finding. It aligns with research showing that sustainable travel intentions vary with efficacy beliefs, time, price, and convenience (Doran et al., 2017; Hergesell & Dickinger, 2013; Hansen et al., 2024). A future stated-choice or field design is needed to determine how information changes specific decisions under those constraints.

GPSO retained a smaller adjusted association in both the original and reduced-outcome models. Broad environmental and cultural support was therefore related to stated intentions, but it did not absorb the information-orientation association. This is consistent with literature that distinguishes general values from decision-proximal beliefs and constraints (Doran et al., 2017; Juvan & Dolnicar, 2014; Hansen et al., 2024). Because GPSO was multidimensional in the exploratory analysis, the comparison remains provisional.

5.2. Measurement boundaries

The indices reduce a set of related questionnaire responses to three transparent summaries; they do not constitute validated scales. NPSBI and SIO each showed a plausible one-factor pattern within their small item sets, but SIO reliability was modest. GPSO showed signs of more than one dimension. The E4-E5 sensitivity score was internally coherent for a two-item summary, yet it should likewise be interpreted by its item content rather than as a newly validated construct.

The full 11-item analysis made the boundary clearer. Parallel analysis favored four factors, but the corresponding solution contained a Heywood case and was not a stable basis for substantive interpretation. The diagnostic three-factor solution contained cross-loadings and strongly correlated factors. The complete matrices in Appendix B show where the domains overlap, especially around information, certification, and stated intentions. Accordingly, the regression coefficients compare overlapping content summaries and should not be described as effects among independent latent constructs.

That distinction matters for future instrument development. New studies should begin with a larger item pool, cognitive interviews, and a sample designed for scale development. A confirmatory analysis in an independent sample would then be needed before the domains could support stronger measurement claims.

5.3. Information difficulty and practical priorities

The descriptive results show tension between engagement and difficulty. Almost nine in ten respondents reported that sustainability information was difficult to identify, yet higher perceived difficulty was positively associated with SIO, GPSO, and NPSBI in the bivariate analyses. One plausible interpretation is that people who seek such information encounter its limitations more often; another is that a general pro-sustainability response tendency influences all four ratings. The present design cannot distinguish between these explanations.

Perceived information difficulty did not retain a separate conditional association after SIO and GPSO were included. This means only that, within this specification, it explained little remaining variation beyond the two broader indices. It does not show that difficulty has no practical effect. Experimental work indicating that consumers may fail to recognize sustainability characteristics, including after encountering certified products, provides a reason to test that mechanism directly (Tölkes, 2020).

Price-and-comfort priority was negatively associated with non-price intentions in the bivariate analysis, but its conditional coefficient was small and non-significant after SIO and GPSO were included. This is consistent with evidence that price, time, and convenience can constrain sustainable travel choices (Hergesell & Dickinger, 2013), but the single D4 item cannot identify a causal barrier or quantify an actual trade-off.

5.4. Practical implications as testable design hypotheses

The practical implications are best treated as hypotheses for design and field testing. The present study did not manipulate information, compare message formats, or observe bookings. Its associations, read alongside prior experimental and communication research, suggest questions that tourism firms and platforms could test rather than interventions shown here to be effective.

One testable proposition is that a claim naming a concrete practice, using comparable terms, and showing who verified it will be easier to use than a general sustainability statement (Font, 2002; Tölkes, 2018; Bhattacharyya et al., 2024). Another is that placing this information beside price, location, and transport details at the point of choice will increase its salience. These propositions require A/B tests, stated-choice experiments, or booking data before managerial recommendations can be made with confidence.

A second hypothesis concerns feasibility: transparent transport connections, options at several price points, and clear descriptions of comfort may reduce the practical burden of a lower-impact choice. A third concerns community benefit: travelers may respond more strongly when local guides, producers, or cultural initiatives are visibly linked to the offer. Neither proposition is tested by the present questionnaire; both follow from the observed patterns and earlier evidence on price, convenience, and sustainability communication.

5.5. Limitations and future research

The first limitation is sampling. Recruitment was voluntary and non-probabilistic, beginning in student groups and continuing through participant-led link sharing. This process produced a sample weighted toward younger and tertiary-educated respondents and may have introduced self-selection and clustering within social networks. People already interested in sustainability may have been more likely to participate. The results describe these 163 respondents and cannot be statistically generalized to Romanian travelers. For the subgroup recruited from classes taught by the author, a potential power asymmetry remained, although no incentives were offered, participation was anonymous, and it had no connection to academic assessment.

The study measured orientations and intentions at one point in time. No booking, purchase, transport choice, or destination behavior was observed. Prompted statements may invite socially desirable responses, and common questionnaire wording can create response consistency. The high scores and strong correlations may partly reflect these features. Cross-sectional regression does not establish temporal order or causality.

The measurement evidence is exploratory. SIO had modest reliability, GPSO showed signs of more than one dimension, and the 11 items did not produce sharply distinct domains. D3 and D4 were single items. Their content may be useful, but they cannot capture the full range of information barriers, price sensitivity, or comfort preferences. The WTP question was likewise general and hypothetical.

All association variables came from the same questionnaire, creating scope for common-method covariance and response consistency. Content proximity was clearest between D2 and E1. The reduced-outcome sensitivity analysis showed that SIO remained associated with the combined E4–E5 outcome after E1 was removed, but it did not eliminate overlap elsewhere in the item set or establish a directional relationship.

Future research should separate instrument development from hypothesis testing. Cognitive interviews could establish how travelers understand certification, transparency, mobility, and community benefit. Larger and more diverse probability-based or quota-based samples could test measurement structure and heterogeneity. Stated-choice experiments, platform A/B tests, and longitudinal or booking data could then examine whether specific information changes decisions under real price, comfort, and time constraints.

Conclusions

In this exploratory non-probability sample of Romanian respondents with recent travel experience, sustainability information orientation was positively associated with stated non-price sustainable travel intentions. The association remained for the combined outcome comprising lower-impact mobility and community-supporting intentions after the certification-related accommodation item was removed. The finding therefore extends beyond matching certification language, although its size decreased and no causal direction can be inferred.

The study offers a limited theoretical contribution: information orientation appears related to stated non-price intentions even when direct certification overlap is reduced, while the factor results show that the questionnaire domains are neither independent nor validated scales. For practice, concrete, credible, and decision-proximal information should be treated as a testable design hypothesis, not as an effect demonstrated here. Future studies should develop stronger measures and test information formats against observed choices in more diverse samples.

Authorship contribution: The author was responsible for conceptualization, methodology, investigation, data curation, formal analysis, and writing.

Data Availability Statement: The supplementary materials provide access to the JASP file containing the complete statistical analysis, including the anonymized dataset and saved outputs, together with an anonymized reproduction of the questionnaire.

Compliance with ethical standards: The study used a voluntary, anonymous, non-interventional online questionnaire. Initial recruitment included undergraduate and master's students taught by the author, after which participant-led link sharing extended participation to other eligible adults. No incentive was offered, and participation had no connection to grades, assessment, attendance, or other academic decisions. No directly identifying or special-category personal data were collected, and results were analyzed in aggregate. Under the institutional rules in force, prior formal ethics review was not required for this type of questionnaire. Accordingly, no ethics approval number was issued.

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Abbreviations: CFI, comparative fit index; GPSO, general pro-sustainability orientation; HC3, heteroscedasticity-consistent covariance estimator 3; KMO, Kaiser-Meyer-Olkin; NPSBI, non-price sustainable behavioral intentions; OLS, ordinary least squares; RMSEA, root mean square error of approximation; SIO, sustainability information orientation; SRMR, standardized root mean square residual; TLI, Tucker-Lewis index; VIF, variance inflation factor; WTP, willingness to pay.

Appendix A. Item-level descriptive statistics

Table A1 lists the items from the questionnaire's three original thematic blocks. GPSO (general pro-sustainability orientation) comprises C1-C5; SIO (sustainability information orientation) comprises D1, D2, and D5; and NPSBI (non-price sustainable behavioral intentions) comprises E1, E4, and E5. D3 and D4 remain individual decision-context items. E2 and E3 were excluded from NPSBI because their wording explicitly introduced a higher price.

Table A1. Item-level descriptive statistics

Item	Short description	M	SD	Median	Q1-Q3	4-5, n (%)
General pro-sustainability orientation (GPSO)						
C1	Environmental concern	4.656	.679	5	4-5	156 (95.7)
C2	Tourism should reduce environmental	4.718	.527	5	5-5	157 (96.3)

	impact					
C3	Respect for local culture and traditions	4.699	.534	5	4-5	157 (96.3)
C4	Personal choices can support protection	4.325	.831	5	4-5	130 (79.8)
C5	Appeal of sustainable destinations	4.417	.752	5	4-5	139 (85.3)
Information and decision context						
D1	Attention to sustainability information	4.049	.830	4	3-5	115 (70.6)
D2	Usefulness of certifications/eco-labels	4.509	.732	5	4-5	147 (90.2)
D3	Difficulty identifying information	4.331	.762	4	4-5	143 (87.7)
D4	Price/comfort priority over sustainability	2.190	1.086	2	1-3	20 (12.3)
D5	Need for transparent communication	4.706	.566	5	5-5	156 (95.7)
Stated travel intentions						
E1	Certified eco-friendly accommodation	4.417	.784	5	4-5	142 (87.1)
E2	Pay more for sustainable accommodation	4.074	.966	4	4-5	127 (77.9)
E3	Local products despite higher price	4.178	.793	4	4-5	128 (78.5)
E4	Lower-impact mobility	4.147	.818	4	4-5	128 (78.5)
E5	Activities supporting local communities	4.282	.716	4	4-5	142 (87.1)

Note. N = 163. Responses ranged from 1 (strongly disagree) to 5 (strongly agree). D4 is oriented in the opposite substantive direction; higher scores indicate greater priority for price and comfort.
Source: Author's calculations

Appendix B. Full 11-item exploratory factor diagnostics

Parallel analysis of the full 11-item polychoric correlation matrix favored four factors. The corresponding four-factor minimum-residual solution with promax rotation was inspected first, but it produced a Heywood case for E4, with a small negative uniqueness estimate. It is therefore reported as an unstable exploratory solution rather than interpreted as a valid measurement model. A separate three-factor solution was then examined as a diagnostic comparison with the three proposed content groupings. Tables B1 and B2 report both complete pattern matrices without suppressing small coefficients; Table B3 reports the parallel-analysis comparison.

Table B1. Complete pattern matrix for the parallel-retained four-factor solution

Item	Factor 1	Factor 2	Factor 3	Factor 4	u^2
C1	-.010	.026	.103	.916	.088
C2	.359	.170	-.055	.435	.346
C3	.499	.358	-.156	.202	.253
C4	.832	-.189	.145	.128	.278
C5	.981	-.128	.014	.139	.039
D1	.701	.381	-.041	-.279	.267
D2	.033	.776	-.107	.164	.279
D5	-.100	.716	.177	.119	.330
E1	-.051	.903	.174	-.083	.134
E4	-.088	.044	.971	.162	-.002
E5	.337	.134	.551	-.134	.330

Note. N = 163. Polychoric correlations; minimum-residual extraction; promax rotation. Factor correlations ranged from .235 to .730. Model fit: chi-square (17) = 134.51, p < .001; CFI = .923; TLI = .748; RMSEA = .206, 90% CI [.175, .240]; SRMR = .027. E4 produced a Heywood case (uniqueness = -.002), so the solution is reported for transparency and is not interpreted substantively. F1-F4 denote the extracted factors, and u^2 denotes uniqueness. Loadings and uniqueness estimates are shown in full.
Source: Author's calculations

Table B2. Complete pattern matrix for the diagnostic three-factor solution

Item	Factor 1	Factor 2	Factor 3
C1	.440	.437	-.146
C2	.568	.365	-.121
C3	.594	.399	-.092
C4	.837	-.152	.201
C5	.988	-.092	.102
D1	.461	.146	.271
D2	.123	.785	-.039
D5	-.082	.710	.267

E1	-.102	.696	.395
E4	-.034	.169	.729
E5	.157	-.079	.850

Note. N = 163. Polychoric correlations; minimum-residual extraction; promax rotation. Factor correlations were r12 = .695, r13 = .521, and r23 = .562. Model fit: chi-square (25) = 233.26, p < .001; CFI = .864; TLI = .698; RMSEA = .226, 90% CI [.201, .254]; SRMR = .045. Loadings are shown in full to make cross-loadings visible.
Source: Author's calculations

Table B3. Parallel analysis for the full 11-item set

Factor	Observed eigenvalue	Simulated eigenvalue	Retain
1	6.324	.704	Yes
2	.670	.323	Yes
3	.402	.240	Yes
4	.235	.163	Yes
5	.079	.099	No

Note. A factor was retained when its observed eigenvalue exceeded the corresponding simulated eigenvalue. The first five comparisons are shown because the fifth is the first not retained.
Source: Author's calculations

Appendix C. Individual-item reliability diagnostics

Table C1. Individual-item reliability diagnostics

Index/item	Item-rest correlation	Alpha if item removed
NPSBI		
E1	.550	.800
E4	.685	.650
E5	.661	.684
SIO		
D1	.473	.652
D2	.536	.557
D5	.511	.598
GPSO		
C1	.519	.827
C2	.593	.806
C3	.628	.798
C4	.662	.796
C5	.767	.763

Note. The diagnostics are presented to make the exploratory construction of the indices transparent. They should not be interpreted as external validation.
Source: Author's calculations

Appendix D. Descriptive willingness-to-pay result

Table D1. Distribution of stated willingness to pay

Additional price premium	n	%
0%	6	3.7
Up to 5%	72	44.2
6-10%	75	46.0
11-20%	8	4.9
More than 20%	2	1.2
Total	163	100.0

Note. N = 163. The question referred generally to tourism services described as clearly sustainable. It did not specify a service, baseline price, destination, or booking situation. The distribution should not be read as actual expenditure, demand, or price elasticity. Positive premiums up to 10% were selected by 147 respondents (90.2%); including the 0% category, 153 respondents (93.9%) selected no more than 10%.
Source: Author's calculations

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