

Research Article

Environmental Concern, Green Trust and Perceived Risk as Predictors of Electric Vehicle Purchase Intention among Prospective Buyers in Delhi-NCR

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Abstract: Purpose: To demonstrate how environmental concern, green trust and perceived risk would be examined as correlates of Electric Vehicle (EV) purchase intention among prospective buyers of electric two-wheelers and electric cars in Delhi-NCR and whether green trust carries part of the association between concern and intention. **Design:** A cross-sectional survey design, demonstrated on simulated data after standard screening. Four multi-item constructs were measured on five-point scales. The workflow comprises exploratory factor analysis and confirmatory factor analysis on separate random halves, reliability and validity assessment, correlation, hierarchical regression and a bootstrapped indirect effect with 5,000 resamples. **Findings:** Not applicable to real consumers. In the simulated records, the analysis ran as designed and returned associations in the proposed directions, which is expected because the records were generated from a specified correlation structure. **Originality:** The model combines constructs that appear less often together in the Indian EV literature. Novelty is not claimed pending a systematic database search. **Limitations.** Simulated data; for a real study, a cross-sectional design, self-reported intention, non-probability sampling and a single metropolitan region.

Keywords: Electric Vehicles, Purchase Intention, Green Trust, Perceived Risk, Environmental Concern, Delhi-NCR, Simulated Data Delhi-NCR

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INTRODUCTION

Electric vehicles are at the core of the sustainable transportation debate in India, where government initiatives seek to incentivise consumer adoption. Selling is not simply about motivation and green benefits. The prospective buyer is faced with a costly, durable and technologically uncertain decision. For a still-evolving industry, they have to weigh battery life, charging options, travel range, maintenance costs and resale value.

Two features are unique to the Indian market. Electric two-wheelers and electric vehicles are both marketed under a common sustainability narrative, but they cater to different price segments, usage patterns and household preferences. It is frequently said that concern for the environment is a principle, but it is a poor measure of a costly procurement. This difference has been linked with mentality in previous Indian studies. Khurana *et al.* [1] defined attitude as an intermediary element in the uptake of electric vehicles by existing car owners. Mukesh and Narwal [2] used a comparable framework but highlighted environmental awareness and price perception as antecedents.

This document uses a different methodology. It investigates whether environmentally conscious consumers trust electric car manufacturers' claims about their ecological effectiveness (green trust) and whether ownership-related uncertainties (perceived risk) undermine their intentions irrespective of that trust. This change of emphasis is indicated by the term "beyond green attitudes". The statement is a framing device, not an appraisal of views about EVs, because there is no assessment of attitudes toward EVs. A more accurate title like "...among Potential Purchasers in Delhi-NCR" will improve accuracy and the scope needs to be precisely defined in every submission.

The proposed contribution is modest and empirical: It offers evidence of the interaction of three psychological traits related to electric vehicle purchasing intentions in a specific metropolitan area, with clear validation of the measurement and a carefully bootstrapped indirect effect.

Research Problem

The central problem is the possible disconnect between environmental concern and EV purchase intention. Three questions follow. Do consumers with higher concern report stronger intention? Is trust in EV brands' environmental claims positively associated with intention and does it carry part of the effect of concern? Does perceived risk lower intention even when concern and trust are high?

Research Gap

The literature identified for the present study indicates that Indian EV research has frequently examined consumer attitudes and extended versions of the Theory of Planned Behaviour [1,2]. Perceived risk has also been investigated as a potential barrier to electric two-wheeler purchase intention, with findings varying across risk dimensions [3]. Meanwhile, green trust has been examined extensively in the broader green-product and green-brand literature [4-6].

The available literature demonstrates that there is a scarcity of studies examining the interaction of environmental concern, green trust and perceived risk within an integrated framework that explains the intents to purchase electric vehicles among potential consumers in India. The research aims to analyse green trust as a possible mediator in the link between environmental concern and the desire to buy electric vehicles, in addition to assessing perceived risk as a direct influencer of purchase intention.

This inequality must be considered with circumspection. It corresponds with the literature acknowledged to date and does not contend that earlier study has overlooked the same or a related strategy. The definitive claim will thus hinge on a systematic search approach, covering the databases analysed, terminology used, dates of search and criteria for research inclusion, as specified in Section 4.5.

Research Objectives:

- To investigate the associations between environmental awareness, green trust and perceived risk with the intention to acquire Electric Vehicles (EVs) among potential consumers in Delhi-NCR
- To investigate the correlation between environmental worry and green trust and to evaluate the mediating effect of green trust on the connection between environmental concern and the desire to acquire electric vehicles
- To evaluate the measuring characteristics of the study constructs by exploratory factor analysis and the assessment of reliability and validity
- To analyse the associations among the study constructs using correlation analysis and evaluate their predictive relationships with EV purchase intention using hierarchical regression analysis
- To develop practical recommendations for relevant stakeholders based on the study findings

Theoretical Background

Core Framework: Theory of perceived risk. Consumers are motivated to alleviate uncertainty over outcomes and their consequences [7]. Perceived risk has been further categorised into several dimensions of risk such as financial, performance, physical, social and temporal risk [8]. This reasoning goes nicely with procuring an electric car: It is expensive but things like battery degradation, resale value and charging availability are still unknown for a long time, coupled with technological progress. The concept is chosen as it accounts for the reluctance of an optimistic consumer, as it gives a role to trust to reduce uncertainty about claims and effectiveness and it resonates with the focus on risk and trust identified in the title.

Complementary Framework

Signalling Theory. Signalling theory addresses information asymmetry between a sender who knows quality and a receiver who does not [9]. It is used for one relationship only, EC to GT: Consumers who care about environmental outcomes are more likely to attend to environmental signals such as disclosures, certifications and warranties and to credit them.

The foundational significance of the Theory of Planned Behaviour. The Theory of Planned Behaviour considers intention as the immediate predictor of behaviour [10], hence validating the outcome variable. The study does not assess attitude, subjective norm and perceived behavioural control, thereby failing to evaluate the Theory of Planned Behaviour.

Contribution and Boundary

The contribution is to clarify, in an emerging-market durable-goods setting, whether trust in green claims is a conduit between a values-type disposition and intention and how much perceived risk offsets it. No new theory is proposed and inference is limited to statistical association because the design is cross-sectional.

Critical Literature Review

Environmental Concern and EV Intention in India: Environmental concern is usually treated as a general orientation toward environmental problems. Evidence that it translates into EV intention is mixed and often indirect. Mukesh and Narwal [2] report that environmental concern, together with price perception and government support, significantly influenced attitude toward electric cars and that attitude mediated the link between environmental concern and purchase intention in a Haryana sample; relative product advantage and range anxiety did not significantly influence attitude. Khurana *et al.* [1], working with existing car owners and structural equation modelling, found attitude to be a strong mediator of adoption. Bhat and Verma [3] included environmental enthusiasm among latent factors in a study of 1,375 potential electric two-wheeler buyers in Bengaluru.

Two cautions follow. These studies differ in vehicle category, sample and operationalisation, so effects are not directly comparable. And the common finding that concern works through attitude implies that a direct concern-to-intention effect may be weak, which is the disconnect this study probes with a different mediator.

Green Trust

Green trust denotes the readiness to depend on a product or brand due to assurance in its ecological authenticity and efficacy. Chen [4] is the standard reference for the concept and its assessment in the green-brand discourse. Chen and Chang [6] demonstrate that the perceived risk associated with green products adversely affects green trust, while green satisfaction serves as a partial mediator between perceived quality, perceived risk and trust. Chen and Chang [5] investigate green perceived value, green perceived risk and green trust as factors influencing green purchasing intention.

Green trust therefore has a plausible position as a proximal predictor of intention. And because risk is treated as an antecedent of trust in this literature, a PR to GT path is carried as a pre-specified sensitivity check.

Perceived Risk

Bhat and Verma [3] discovered that perceived costs and perceived dangers impede the adoption of electric two-wheelers, although insufficient infrastructural preparedness had no direct impact. A repository record of an extended-TPB study of electric cars reports that, among risk dimensions, only psycho-social risk had a significant negative effect. Perceived risk therefore appears relevant, but the dimension that matters differs by vehicle category and sample. This supports measuring risk across financial, performance, battery and infrastructure facets and checking by EFA whether the items form one factor or several.

Synthesis

Read together, the Table 1 shows that the verified evidence supports plausible directions for every path but rests on different mediators, vehicle categories and samples. Only the PR to PI path has direct Indian EV evidence and even there the significant risk dimension varies. The EC to GT path and the GT mediation have no direct verified Indian EV support at all, which is why they are framed as theoretically motivated hypotheses and not as expectations drawn from prior findings. A real submission should state this asymmetry plainly, because it tells reviewers where the study adds evidence and where it only extends reasoning from adjacent literatures.

Literature Search Protocol (to Complete before Submission)

The review rests on a limited verified base and must be extended. Search Scopus and Web of Science for combinations of “electric vehicle”, “electric two-wheeler”, “purchase intention”, “green trust”, “perceived risk”, “environmental concern” and “India”, limited to peer-reviewed English-language articles. Record the date, databases, search strings, inclusion criteria and counts in a flow table. Every author, year, title, journal, volume, pages and DOI against the publisher record and mark anything unconfirmed as.

Table 1: Summary of Empirical Evidence on Key Determinants and Mediating Pathways of Electric Vehicle Purchase Intention

Relationship	Consistent evidence	Contradictory or limiting evidence
EC to PI	EC influences attitude and, through it, intention [2]	Effect mostly indirect; designs differ
EC to GT	Not directly tested in the verified Indian EV studies	Theoretical inference only
GT to PI	Green trust treated as a driver of green purchase intention [5]	Evidence largely from non-EV, non-Indian settings
PR to PI	Risk hinders two-wheeler intention [3]	Only some risk dimensions significant elsewhere
GT as mediator	Attitude and satisfaction are established mediators	GT mediation for EV intention untested in verified sources

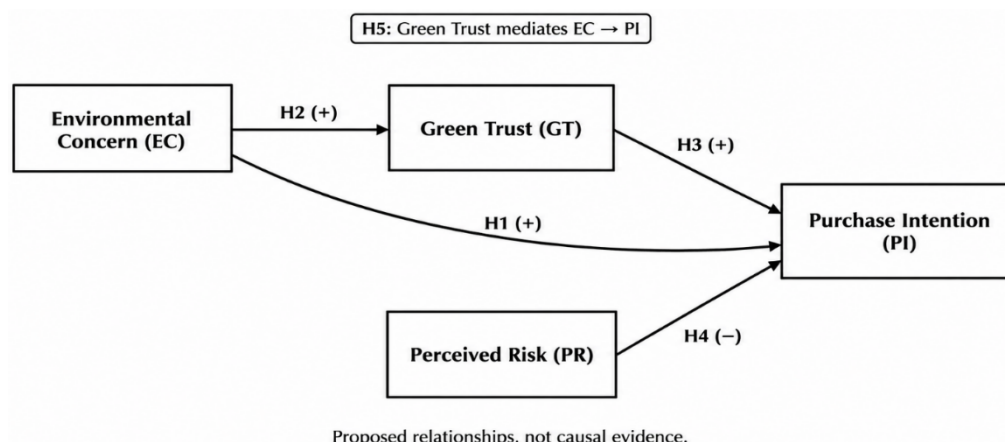


Figure 1: Proposed Conceptual Model and Hypothesised Relationships

Source: Authors’ own conceptual synthesis, informed by Jain *et al.* and Su and Wan [12]. The specific paths and mediation hypothesis shown here are proposed for the present study; the figure is not reproduced from either source

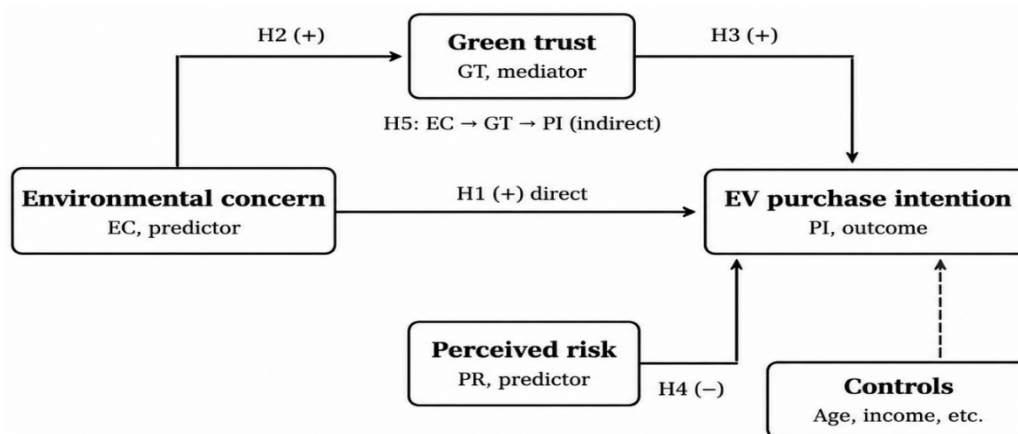


Figure 1: Conceptual Model

Table 2: Operational Definitions and Measurement Items for Environmental Concern, Green Trust, Perceived Risk and Electric Vehicle Purchase Intention

Construct	Operational definition	Items
EC	Concern about environmental problems and the environmental consequences of consumption choices	4
GT	Confidence in the environmental claims, commitments and performance of EV brands or products	4
PR	Perceived uncertainty about financial, performance, battery and charging-infrastructure aspects of EV ownership	5
PI	Stated willingness to purchase an EV within the next 12 months	4

Conceptual Framework

Framework Source and Rationale: The proposed framework is developed by the authors by integrating research on electric-vehicle purchase intention and green consumer behaviour. Prior EV research has examined environmental concern and trust as predictors of purchase intention [11], while research on new-energy vehicles has examined green trust, perceived risk and purchase intention [12]. The present model adapts these related ideas to prospective buyers of electric two-wheelers and cars in Delhi-NCR and proposes green trust as a mediator between environmental concern and purchase intention. This is an author-developed conceptual synthesis, not a reproduction of one published model. All figures’ sources: Figure 1 is an author-developed conceptual synthesis based on prior literature; Figures 2 and 3 are original plots generated from the study workbook using statistical/plotting software. Because the workbook contains synthetic records, Figures 2 and 3 must be labelled as illustrative.

A pre-specified sensitivity path from PR to GT is tested but is not a hypothesis. No further constructs are added. Perceived value would be a defensible extension, but it would add complexity without a theoretical gap that the primary framework requires (Table 2).

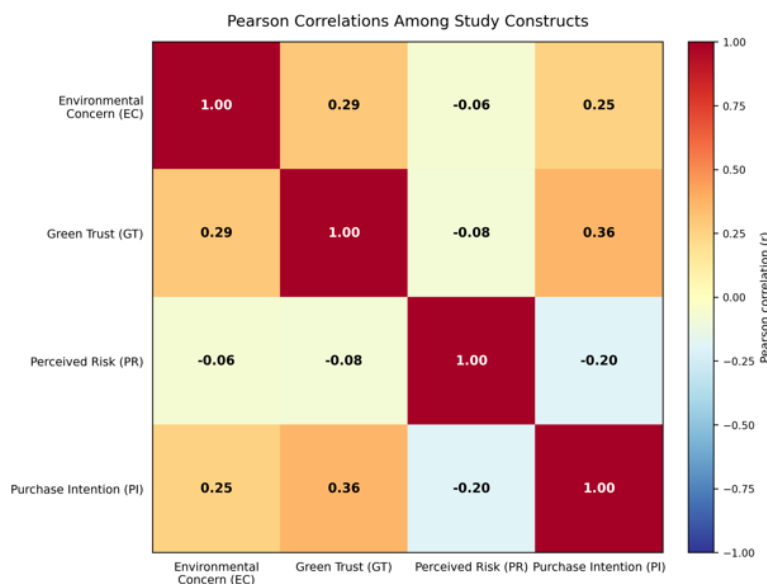


Figure 3: Pearson Correlation Matrix for the Four Study Constructs (Simulated Data)

Source: Authors' calculations from the cleaned synthetic dataset (n = 423). Values are illustrative and are not based on real respondents

Hypothesis Development:

- **H1:** Concerns regarding the environment are positively linked to the propensity to acquire electric vehicles. Concern influences selections that lessen environmental impact, with an electric vehicle serving as a prominent low-emission choice. Indian research primarily relies on indirect measures, where concern is expressed through attitudes [2], indicating a slight direct influence. Assessment: the EC coefficient in the complete regression model
- **H2:** Environmental awareness is favourably linked to sustainable trust. Worrying consumers pay attention to ecological indicators and are more open to reliable ones (signalling theory). There is no validated Indian electric vehicle study that investigates this avenue, leaving it grounded in theory and wary buyers can similarly harbour greater doubt over green claims. Assessment: straightforward regression of GT concerning EC (pathway a)
- **H3:** Green trust is linked favourably to the aim of acquiring electric vehicles. Assurance alleviates doubt over statements and effectiveness, facilitating the feasibility of purchasing. Green trust has been perceived as a motivator for environmentally conscious purchasing behavior [5], primarily beyond the domains of electric vehicles and India. Assessment: GT coefficient within the regression and path b
- **H4:** Perceived risk is inversely correlated with EV buying intention. Elevated unpredictability concerning costs, battery life and charging options reduces the inclination to commit. According to Bhat and Verma [3], perceived dangers obstruct the uptake of electric two-wheelers, however only a few risk characteristics were relevant in previous research. Assessment: the PR coefficient in the context of regression
- **H5:** Green trust acts as an intermediary in the interaction between environmental awareness and the intention to buy electric vehicles. Worries bolster trust in trustworthy sustainable options, while trust increases motivation. GT mediation concerning EV intention is not validated in reliable sources and a cross-sectional design does not show a temporal sequence. Evaluation: The bootstrapped indirect effect $a \times b$ with PR as a covariate, assessed based on its confidence interval instead of individual significant routes, with no obligation for a significant overall impact

MATERIALS AND METHODS

Design, Population and Sampling (Plan for a Real Study)

The design is a quantitative, cross-sectional online survey. The unit of analysis is an individual consumer in Delhi-NCR (Delhi, Gurugram, Noida, Greater Noida, Ghaziabad, Faridabad) aged 18 or over who is a prospective purchaser of an electric two-wheeler or an electric car and does not currently own an EV. Current owners are excluded from the primary analysis because their intention refers to a repeat purchase and is not comparable with a prospect's.

Because the two categories differ in price, charging routine and decision-making, respondents name the category they would most likely buy first, all items refer to “the EV you would most likely buy”, vehicle category enters every regression as a control and the main models are re-estimated within each category as a robustness check.

Table 3: Measurement Items for Environmental Concern, Green Trust, Perceived Risk and Electric Vehicle Purchase Intention

Code	Draft item
EC1	I am seriously concerned about air pollution caused by road vehicles.
EC2	I worry about the environmental damage caused by fuel-based transport.
EC3	Consumers should consider environmental impact when they choose products.
EC4	Protecting the environment matters to me when I make expensive purchases.
GT1	EV brands I know are honest about the environmental benefits of their vehicles.
GT2	I can rely on the environmental claims made by EV manufacturers.
GT3	EV brands I know keep their environmental promises.
GT4	I trust the environmental performance of the EVs on sale in India.
PR1	I worry that an EV would cost more to own over its lifetime than I expect.
PR2	I am concerned that the battery might need an expensive replacement early.
PR3	I am unsure how far an EV would really travel on a charge in daily use.
PR4	I am concerned that I could not find convenient charging when needed.
PR5	I worry that an EV would lose its resale value quickly.
PI1	I intend to buy an EV within the next 12 months.
PI2	It is likely that I will buy an EV within the next 12 months.
PI3	I have decided to choose an EV over a petrol vehicle for my next purchase.
PI4	I am prepared to start the buying process for an EV within the next 12 months.

Sampling is non-probability (purposive, with quotas for age group, gender and category), recruited through online channels, resident welfare associations, workplaces, universities and, with permission, dealerships. A target of about 500 valid responses is planned. About 400 cases give 80 percent power at the 0.05 level for a small incremental effect (f^2 of about 0.02) for a single predictor and a random split into two halves of about 250 allows separate EFA and CFA. Bootstrapped small-by-small indirect effects need roughly 450 or more cases [13]. The sample is not representative of Delhi-NCR or of India and weighting is not applied.

Questionnaire

Section A compiles information regarding age demographics, gender (including self-identification and opt-out options), educational qualifications, occupation, monthly household income and the NCR region. Section B collects data regarding electric car awareness, ownership status, areas of interest, prior electric vehicle experience and expected purchase timeline. Sections C to F utilise five-point agreement scales (1 = Strongly Disagree, 5 = Strongly Agree). The subsequent content is initial phrasing developed for this method, not derived from any formal document. It must align with and be credited to recognized metrics (e.g., [4,8,14]) before evaluation (Table 3).

All PR items are worded in the risk direction, so higher scores mean higher perceived risk and no reverse-coding is needed. The instrument is reviewed by experts, cognitively pretested and piloted with 60 to 100 respondents. Ethics approval, informed consent, anonymity and secure storage are required.

Data Status and Version Control

Dataset used for this revision: workbook:

[EV_Delhi_NCR_SYNTHETIC_DataSheet_Cleaned_with_Composites.xlsx;

Raw Data n = 523; Cleaned_Data n = 423

The workbook's README identifies the records as simulated/dummy data. The Screening_Log documents removal of 3 duplicate submissions, 37 current EV owners, 36 attention-check failures, 11 speeders and 13 straight-lined records, leaving 423 records. Composite means are provided in Cleaned_Data and are based on available item responses under the workbook's 75% completion rule.

The analysis uses a simulated workbook of 523 records generated from a specified correlation structure and seeded with deliberate data-quality problems (duplicates, straight-liners, speeders, random missing values, attention-check failures and current owners) so that screening can be rehearsed. Nothing in it comes from a person.

Analysis Plan

Data are screened first: Duplicates, ineligible respondents, failed attention checks, implausibly fast completions, straight-lined patterns and missing values, with each exclusion and its rule documented in advance. Composite scores use the mean of available items when at least 75 percent are answered. The sample is split at random into two halves. The first half is used for exploratory factor analysis with a common-factor extraction method, oblique rotation and parallel analysis to decide the number of factors, with item removal governed by pre-set loading and cross-loading thresholds.

The second half is used for confirmatory factor analysis, with fit assessed by chi-square, CFI, TLI, RMSEA and SRMR and with composite reliability, average variance extracted and heterotrait-monotrait ratios reported for validity.

Correlations are Pearson, with Spearman as a check. Hierarchical regression enters controls, then environmental concern and perceived risk, then green trust and reports unstandardised and standardised coefficients, confidence intervals, variance inflation factors and residual and influence diagnostics. Mediation uses the bootstrapped indirect effect of environmental concern on intention through green trust, with perceived risk as a covariate. Subgroup models by vehicle category are reported as robustness checks. The analysis follows the master prompt’s rules that data are never altered to obtain favourable results and that a cross-sectional design supports only statistical, not causal, mediation claims.

RESULTS

Illustrative Data Analysis and Results

DATA SOURCE CHECK: All analysis records in this version are drawn from the supplied workbook (Raw_Data n = 523; Cleaned_Data n = 423). Because the workbook labels all rows as synthetic/dummy, the results below are illustrative only. All numbers in this section were computed on simulated records. They are not empirical findings.

Screening and Analytical Sample

Screening removed, in sequence, 3 duplicate submissions, 37 current EV owners, 36 records failing an attention check, 11 speeders (completion under 120 seconds, against a median of 396 seconds) and 13 straight-lined records, leaving n = 423 from 523. Of the 423, 89 item cells (about 1.2 percent) were missing across 85 records. Composite scores were computed as the mean of available items under a 75 percent completion rule, which every record met and the EFA and CFA used the 338 records with complete item data, split at random into halves of 169 (seed 2026). Item distributions were close to symmetric, so composites are treated as continuous. No exclusion was made to improve results and each step is reported (Table 4).

The Table 5 shows the layout for a real sample description. A real paper must also state that recruitment was non-probability.

All composites sit near the scale midpoint with near-symmetric distributions, supporting Pearson correlation and OLS regression (Table 6).

Exploratory Factor Analysis (half A, n = 169)

The matrix is suitable for factoring and parallel analysis supports four factors, in line with the four constructs. The eigenvalue-greater-than-one rule agrees but is not relied on alone (Table 7).

Table 4: Profile of the Simulated Analytical Sample, n = 423 (SIMULATED)

Variable	Category (n, %)
Age group	18-24: 84 (19.9); 25-34: 166 (39.2); 35-44: 87 (20.6); 45-54: 57 (13.5); 55+: 29 (6.9)
Gender	Man: 228 (53.9); Woman: 169 (40.0); Prefer not to say: 17 (4.0); Non-binary/self-describe: 9 (2.1)
Education	School/diploma: 30 (7.1); Undergraduate: 150 (35.5); Postgraduate: 200 (47.3); Doctoral/professional: 43 (10.2)
Monthly household income	Below ₹30,000: 61 (14.4); ₹30,000-59,999: 118 (27.9); ₹60,000-99,999: 130 (30.7); ₹1,00,000+: 114 (27.0)
NCR locality	Delhi: 172 (40.7); Gurugram: 73 (17.3); Noida: 73 (17.3); Ghaziabad: 40 (9.5); Greater Noida: 39 (9.2); Faridabad: 26 (6.1)
Vehicle category of interest	Electric car: 237 (56.0); Electric two-wheeler: 186 (44.0)
EV awareness	Low: 53 (12.5); Moderate: 195 (46.1); High: 175 (41.4)

Table 5: Descriptive Statistics of Composites, n = 423 (SIMULATED)

Construct	M	SD	Skewness	Kurtosis	Min	Max
EC	3.31	0.78	0.01	-0.49	1.25	5.00
GT	3.35	0.76	-0.09	-0.34	1.00	5.00
PR	3.38	0.70	-0.24	-0.18	1.20	5.00
PI	3.36	0.74	-0.15	-0.44	1.50	5.00

Table 6: Factorability and Retention (SIMULATED)

Check	Result
KMO	0.807 (lowest item MSA 0.770)
Bartlett’s test	χ^2 (136) = 932.8, p<0.001
Observed eigenvalues	4.26, 2.68, 1.82, 1.60, 0.82
95th-percentile random eigenvalues	1.71, 1.56, 1.44, 1.35, 1.27
Factors retained (parallel analysis)	4

Table 7: Pattern Matrix (Minimum-Residual Extraction, Promax Rotation) and Communalities (SIMULATED)

Item	EC	GT	PR	PI	h ²
EC1	0.79	0.01	0.10	-0.04	0.63
EC2	0.78	-0.07	0.03	-0.04	0.62
EC3	0.65	0.05	0.04	0.06	0.43
EC4	0.54	0.04	-0.13	0.01	0.31
GT1	0.00	0.62	-0.04	-0.11	0.39
GT2	-0.02	0.68	0.06	0.05	0.47
GT3	-0.01	0.76	0.06	0.09	0.58
GT4	0.07	0.70	-0.07	0.04	0.50
PR1	0.04	0.06	0.73	-0.01	0.53
PR2	0.00	-0.01	0.71	0.01	0.51
PR3	0.02	-0.09	0.65	0.01	0.42
PR4	0.05	-0.06	0.81	0.08	0.66
PR5	-0.06	0.10	0.59	-0.10	0.38
PI1	0.04	0.00	0.00	0.64	0.41
PI2	-0.03	0.00	0.04	0.83	0.69
PI3	0.09	-0.07	-0.02	0.65	0.43
PI4	-0.11	0.08	-0.01	0.64	0.43

Table 8: Reliability and Validity (SIMULATED)

Construct	Items	Cronbach's α (n = 338)	Std. loadings	CR	AVE
EC	4	0.800	0.67-0.80	0.816	0.527
GT	4	0.809	0.67-0.83	0.832	0.555
PR	5	0.821	0.58-0.77	0.821	0.480
PI	4	0.771	0.53-0.76	0.766	0.455

Table 9: Pearson Correlations with 95% CIs, n = 423 (SIMULATED)

Pair	r	95% CI	p	Spearman ρ
EC-GT	0.292	[0.202, 0.377]	<0.001	0.276
EC-PR	-0.064	[-0.158, 0.031]	0.189	-0.050
EC-PI	0.252	[0.160, 0.339]	<0.001	0.256
GT-PR	-0.079	[-0.173, 0.016]	0.103	-0.057
GT-PI	0.364	[0.279, 0.444]	<0.001	0.340
PR-PI	-0.200	[-0.289, -0.106]	<0.001	-0.190

Every item loads from 0.54 to 0.83 on its intended factor and the largest cross-loading is - 0.13. Communalities range from 0.31 to 0.69 and the four factors extract about 49 percent of total variance (sum of communalities 8.40 of 17). No item met the pre-set removal rule (primary loading below 0.40 or cross-loading above 0.30). EC4 has the lowest communality (0.31) and would be reviewed for wording in a real pilot. Perceived risk loaded on one factor, so facet-level analysis is not warranted here.

Reliability and Validity (CFA on half B, n = 169)

The four-factor CFA gave χ^2 (113) = 101.6, p = 0.771, with CFI and TLI at about 1.00 and RMSEA at about 0.000. Fit this close to perfect is typical of generated data and would itself invite suspicion in a real dataset (Table 8).

All alphas and composite reliabilities exceed .76 and deleting any item would lower alpha. Convergent validity is adequate for EC and GT but borderline for PR (AVE. 480) and PI (AVE. 455), which fall below .50 even though composite reliability exceeds .70; a real paper would report this openly and could cite composite reliability as supporting evidence. Heterotrait-monotrait ratios were all below .42 (highest GT-PI at .412), supporting discriminant validity.

Correlation Analysis

Correlations with PI have the proposed signs and small to moderate magnitudes. EC and GT are not significantly related to PR. Spearman values track Pearson values closely. Correlation shows association only; it does not establish mediation or rule out collinearity, which is checked next (Table 9).

Hierarchical Regression

PI was regressed on controls (age group, income and education as ordinal codes; vehicle category as a dummy with two-wheeler as reference) in Block 1, then EC and PR in Block 2, then GT in Block 3 (Table 10).

In the simulated data the controls explain almost nothing, while EC, PR and GT each carry an independent coefficient of the expected sign and GT adds 8.2 percentage points of explained variance beyond EC and PR. A one-point rise in GT on the five-point scale goes with about 0.29 points higher PI, roughly twice the size of the EC coefficient in standardised terms. This illustrates how to read the table and is not a finding (Table 11).

Table 10: Model Summary (SIMULATED)

Model	Added	R ²	Adj000.R ²	ΔR ²	F change
1	Controls	0.011	0.002	n/a	F(4, 418) = 10.16, p = 000.327
2	EC, PR	0.106	0.093	0.095	F(2, 416) = 22.16, p<000.001
3	GT	00.188	0.175	0.082	F(1, 415) = 42.05, p<000.001

Overall model 3: F (7, 415) = 13.77, p<0.001

Table 11: Model 3 Coefficients and Collinearity (SIMULATED)

Predictor	B	SE	β	t	p	95% CI	VIF	Tol.
Constant	20.237	0.291	n/a	70.70	<0.001	[10.665, 20.808]	n/a	n/a
Age group	0.020	0.029	0.031	00.70	0.482	[-0.036, 0.076]	10.01	0.990
Income band	0.039	0.033	0.053	10.18	0.240	[-0.026, 0.104]	10.05	0.954
Education	0.038	0.043	0.039	00.88	0.380	[-0.047, 0.123]	10.02	0.982
Category: car	0.033	0.067	0.022	00.50	0.619	[-0.098, 0.164]	10.02	0.983
EC	0.140	0.044	0.147	30.17	0.002	[0.053, 0.227]	10.10	0.906
PR	-0.179	0.047	-0.170	-30.80	<0.001	[-0.271, -0.086]	10.02	0.982
GT	0.294	0.045	0.302	60.49	<0.001	[0.205, 0.384]	10.11	0.900

Table 12: Mediation Results, n = 423 (SIMULATED)

Effect	Estimate	SE	95% CI	p
Path a: EC → GT	0.282	0.046	n/a	<0.001
Path b: GT → PI (controlling EC, PR)	0.299	0.045	n/a	<0.001
Direct effect c': EC → PI	0.144	0.044	n/a	0.001
Total effect c: EC → PI	0.228	0.044	n/a	<0.001
Indirect effect a×b	0.084	0.018 (bootstrap)	[0.051,0.123]	n/a
Standardised indirect effect	0.088	n/a	[0.053,0.128]	n/a

Table 13: Hypothesis Summary (SIMULATED; no Evidential Value)

Hypothesis	Test	Output on simulated data
H1 EC → PI (+)	Regression, Model 3	Positive coefficient
H2 EC → GT (+)	Path a	Positive coefficient
H3 GT → PI (+)	Regression, path b	Positive coefficient
H4 PR → PI (-)	Regression, Model 3	Negative coefficient
H5 GT mediates	Bootstrapped a×b	CI excludes zero

Diagnostics

All VIFs were at or below 1.11, so multicollinearity is not a concern. The Durbin-Watson statistic was 2.15, the Breusch-Pagan test was non-significant (p = 0.267) and residuals were close to normal (Shapiro-Wilk p = 0.123; skew -0.15, kurtosis -0.30). Maximum Cook's D was 0.020 and maximum leverage 0.043, so no case is influential. HC3-robust standard errors left every conclusion unchanged.

Mediation with Bootstrapping

The model is EC → GT → PI with PR as a covariate, using 5,000 bootstrap resamples and percentile intervals [4,15,16] (Table 12).

The bootstrap interval excludes zero and the indirect effect is about 37 percent of the total effect, with a direct effect remaining. In a real analysis this would be worded as a statistical indirect association consistent with partial mediation, never as causal mediation. Sensitivity checks: the PR → GT path with controls was b = -0.076, p = 0.134; models within category gave similar coefficients for electric cars (n = 237) and two-wheelers (n = 186).

Hypothesis Summary and Common-Method Check

The agreement with all five hypotheses is expected by construction, because the records were generated from a specified correlation structure and it cannot be read as support for the hypotheses (Table 13).

On common-method bias, the first unrotated factor explained 24.6 percent of variance and full-collinearity VIFs ranged from 1.04 to 1.22. A real study would add a CFA comparison against a single-factor model and, where a marker variable exists, a marker-adjusted check, because Harman's test alone is insufficient [17].

Reporting Checklist for the Real-Data Version

The results section should be reorganised as follows when true responses replace the falsified records. Track the recruitment timelines, channels used and number of initial applications and then describe each assessment stage and its associated number, finishing with the final analytical group. Describe the sample in terms of geographic region, vehicle type and demographic characteristics without implying that it is representative. Report sample sizes for EFA and

CFA, decisions on retention and each omitted item with statistical and theoretical justification. Reliability and validity statistics for each construct, including those that do not meet established thresholds, together with an honest analysis of the consequences for interpretation. Then the three regression components are presented followed by the mediation table with the bootstrap interval and finally the summary of the hypotheses. Finally, determine which hypotheses were supported, which were not and which results need to be carefully examined based on the study's methodology. None of the simulated values in this text should carry over into that iteration.

DISCUSSION

This discussion shows how results would be interpreted and does not report findings about consumers:

- Concern for the environment. The simulated results show that EC has a positive but smaller coefficient than GT and its overall impact is larger than its direct effect. If a real dataset shows this pattern, it would be consistent with the Indian studies that demonstrated that the apprehension worked mostly through a mediating variable [2] and green trust has been suggested as a possible mediating variable. Given the differences across the studies in mediator, category and sample, a credible publication should report this as a comparison of patterns, rather than validation.
- Trust in green. GT provides the largest increase in clarified variance. A more honest discussion would connect this to the green-trust literature [4-6] and acknowledge that such studies are mostly done outside the EV and Indian context. One possible theory to consider if H2 failed is that anxious consumers are more cynical about environmental claims
- Perceived risk Public Relations has a negative relationship with Purchase Intention controlling for Emotional Connection and Generational Trends. Such a tangible outcome would be compared to data showing perceived hazards as barriers to two-wheeler intentions [3]. The dimensional framework and category-specific coefficients would demonstrate the positioning of the risk
- Negotiation. Mediation. The interval for the indirect effect does not include zero. There is still a direct effect. The actual argument has to be that design cannot determine temporal sequence and that trust can be as much a product of intention. Such a result would imply that risk and trust are not highly correlated for this group, which is inconsistent with the results of Chen and Chang [6] if PR is less sensitive to GT
- Unsupported hypotheses the report would be presented in a simple way with speculative comments clearly identified and no statement would be universal to all Indian customers

Theoretical Implications

The data supported the model, the contribution is expected to be limited: it shows that belief in eco-friendly claims functions as a mediating variable between concern and intention in high-risk durable goods acquisitions, while perceived risk retains a separate negative correlation. Otherwise the contribution would be evidence of the disconnect between concern and intention not explained by trust. Both findings contribute to the perceived-risk theory in an emerging-market context and no new theory is claimed.

Managerial and Policy Implications

Every suggestion is conditional on a finding that must first be supported by actual data. If GT is a strong signal, manufacturers should make detailed, substantiated environmental claims (lifecycle data, recycling commitments) and avoid vague claims. If public relations is a major indicator, expand and communicate battery warranties clearly, offer guarantyd resale or buyback options and present clear total-cost-of-ownership analyses at the point of sale. Should the risks of battery or infrastructure win out, charging providers and legislators will need to reveal reliable charger availability and operational uptime and dealers will need to demonstrate actual range capabilities. If the indirect impact is real, education efforts should link apprehension to credible evidence, not to slogans. If categories are different, messages need to be customised only when subgroup outcomes suggest a need for it. Unconfirmed suggestions lack support for a relationship.

Limitations and Future Research

The main limitation here is that the data is synthetic, so no meaningful inference can be made. In a real study: the design is cross-sectional, thus associations are non-causal and mediation is only statistical; purchase intention is self-reported and differs from actual purchase; non-probability sampling and a Delhi-NCR emphasis limit generalisability; merging of two vehicle categories introduces heterogeneity that controls and subgroup analyses only partially address; single-source self-reports have common-method bias; and factor analysis, correlation and regression do not establish causation. Future research could include longitudinal surveys to track the transition from intention to purchase, experiments varying the credibility of green claims or risk information, probability sampling, studies targeting specific categories and empirical purchase data.

CONCLUSION

This manuscript presents a brief theory-driven study of the relationship between environmental concern, green trust and perceived risk in relation to electric vehicle purchase intention among the potential consumers of Delhi NCR, demonstrating the elaborate analytical process from screening to bootstrapped mediation using simulated data. The exhibition shows the analysis of the strategy and the tables and reporting criteria are established. It says nothing about consumers. An article suitable for submission must have authentic responses, a comprehensive literature review and valid citations.

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