

Role of Theory of Planned Behavior in Interpreting Sustainable Consumption Behavior : A Meta-Analysis

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Abstract

Purpose : This study consolidated the existing literature on the theory of planned behavior and investigated the factors that most significantly impacted the intention to sustain consumption behavior. The study also examined whether environmental concern and materialism could be regarded as valid direct predictors.

Methodology : Meta-analysis was conducted to evaluate and validate bivariate relationships between the theory of planned behavior antecedents and its relationship with the “intention to sustainable consumption.” Environmental knowledge, concern, and materialism were also examined as probable antecedents to the “intention to sustainable consumption behavior.”

Findings : All the variables significantly influenced the “intention to sustainable consumption behavior.” Environmental concern was found to be moderated by the product consumed. The study also identified the intention-behavior gap and recommended future research to explore the factors contributing to this gap.

Practical Implications : Marketers should direct their efforts toward building a positive consumer attitude toward sustainable products by focusing on long-term planning to establish the product in the green category. Initially, marketers should focus on consumers who are less materialistically driven.

Originality : We provided sufficient evidence that environmental concern and materialism should be considered direct indicators for predicting “intention to sustainable consumption behavior.”

Keywords : theory of planned behavior, sustainable consumption, collaborative consumption, intention to sustainable consumption

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Bins are loaded with at least 1.3 billion tons of food waste yearly (United Nations, 2022). Every year, approx. 80 pounds per American fashion waste is dumped in landfills, devastating the ecological balance (Brown, 2021). India emitted 7.02% of global emissions in 2020 and is the third largest greenhouse gas emitter (Ritchie et al., 2023). Consumers are aware of the problems of environmental degradation and ecological disturbances. Their willingness to purchase products considering environmental concerns is increasing. 60% of the world's GDP is contributed by the consumption of goods and services that are not always consumed sustainably. The current paper is significant in contemporary times as the alarming environmental degradation has awakened consumers. Yet, a paradigm shift is to be seen in their behavior to consume sustainably (Ghvanidze et al., 2019). Researchers have widely investigated the intention of sustainable consumption behavior through the

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lens of the Theory of Planned Behavior (TPB) (Ghose & Chandra, 2018). The study focuses on analyzing the literature on SCB to understand the role played by various determinants in determining intention to behave sustainably and the need to investigate more constructs that account for the behavioral change in a consumer. Sustainable consumption behavior (SCB) brings parity between the needs of the present generation and the resources available for future generations (Rizkalla & Erhan, 2020). In recent times, sustainable consumption has become a much-discussed topic. Conducted research focused on understanding how consumers form their intention to consume various sustainable products such as food (Alagarsamy et al., 2021), clothes (Khan & Rundle-Thiele, 2019), fashion (Kong et al., 2016) and apparel (Kang et al., 2013), using TPB. It has also been widely used to evaluate the consumers' intention to buy green products (Setyawan et al., 2018), invest in socially responsible investment (Mehta et al., 2020), prefer green hotels (Han et al., 2010) and energy conservation behavior (Du & Pan, 2021). A plethora of research has used the TPB model to explain consumer's intention to behave sustainably. However, as contested by Yuriev et al. (2020), very few studies have explored the intention-behavior relationship in the context of sustainable consumption behavior (Alagarsamy et al., 2021).

SCB has been examined through various theoretical frameworks, namely Value Belief Norm Theory (Hong et al., 2024; Karakaş, 2023), Norm Activation Model (Lee et al., 2023), Social Identity Theory (Elgammal et al., 2024), and many more. These frameworks have substantially contributed valuable insights to this domain, yet these theories have many limitations. To quote, the literature supported that these theories lack explanatory power which is essential for effective behavioral change (Awais et al., 2022; Han, 2015). These theories are relatively complex and difficult to quantify. Contrarily, TPB provided a more comprehensive framework by studying Attitude, Subjective Norm (SN) and Perceived Behavioral Control (PBC) that not only enhanced predictive accuracy by focusing on behavioral intention but also measured the intention-behavior gap (Elhoushy & Jang, 2023).

TPB implied that individual SCB was the byproduct of individual motivational factors (Setyawan et al., 2018). However, this argument was not exhaustive, as it did not fully account for the complexity of factors influencing SCB. The literature failed to adequately address the influence of additional factors, such as environmental concern, environmental knowledge, and materialism (Taneja & Kalra, 2024). Fragmented literature exploring SCB beyond TPB has highlighted these elements as potentially significant (Srivastava & Mahendar, 2018). Consequently, there is a need to synthesize the existing literature to identify the antecedents that drive an individual's intention to SCB. That is why the present study aims to consolidate the existing literature to investigate the research questions: Which predictor more significantly impacts the intention to SCB, and whether in relation to SCB, environmental knowledge, environmental concern, and materialism can be regarded as valid direct predictors or not?

The study aims to enhance the predictive capability of the TPB model in SCB. The paper is relevant from a theoretical as well as practical perspective. Theoretically, the study offers the direction for future studies on the intention-behavior gap, particularly investigating environmental concern and materialism in the context of SCB. In a practical context, the study provides implications for marketers to focus on building positive attitudes toward sustainable products and targeting non-materialistic consumers.

Theoretical Framework

Sustainable Consumption Behavior (SCB)

Sustainable consumption behavior regulates consumption patterns in the current scenario so that future generations will have enough resources to fulfill their needs (Aghaei et al., 2021). Sustainable consumption behavior is also referred to as pro-social behavior (Murillo et al., 2016), ecologically conscious behavior

(Eastman & Iyer, 2021), green consumption behavior (Gupta et al., 2022), collaborative consumption (Neerattiparambil & Belli, 2020), and mindful consumption (Li et al., 2021). The studies conducted so far relied upon only one aspect of sustainable consumption behavior. In contrast, it was admitted that sustainable consumption behavior can be evaluated using three dimensions, i.e., economic, social, and environmental (Buerke et al., 2017). The present study will consider all the dimensions of sustainable consumption behavior.

Theory of Planned Behavior (TPB)

The theory of planned behavior studied antecedents to intention formation, which led to a particular behavior outcome (Rausch & Kopplin, 2021). The theory studied the role of a person's attitude, SN, and PBC in framing the intention to buy or showcase a particular behavior (Roos & Hahn, 2019). However, certain intrinsic traits also motivate an individual to behave sustainably, which was not part of TPB (Jose & Koshy, 2018). A few literature exploring SCB without applying the theoretical framework of TPB found that environmental knowledge, environmental concern, and materialism significantly impact the intention to SCB (Dermody et al., 2015). Therefore, the current study synthesizes the extant literature on SCB in a meta-analytical study proposing to understand the integration of other factors with antecedents of TPB to study notable outcomes of intention to behave sustainably. The paper presents the integration of past research, including all synonyms of SCB, in a meta-analytic study.

Attitude

Consumers were found to have a positive attitude toward reducing overconsumption (Lang & Armstrong, 2018), sharing fashion (Becker-Leifhold, 2018; Kaur & Bhardwaj, 2021), collaborative consumption (Kumar et al., 2021; Oliveira et al., 2020) of apparel, clothing or fashion (Johnson et al., 2016), and shared rides (Prieto et al., 2019) in availing car-hailing services, especially Uber (Berndt et al., 2021; Huang et al., 2021). Therefore, we hypothesize that:

☞ **H1** : Attitude has a positive, significant impact on intention to SCB.

Subjective Norms (SN)

The person supposedly showcased the behavior acceptable to society rather than influenced by the attitude (Kang et al., 2013). SN is positively correlated with intention to sustainable consumption (Berndt et al., 2021; de Lenne & Vandenbosch, 2017; Huang et al., 2021). However, it has a low correlation with the intention to collaborate consumption of apparel (Johnson et al., 2016). The relationship between SN and the intention to buy sustainable clothing is found to be non-significant (Rausch & Kopplin, 2021). Therefore, to address the contradictory viewpoints found in the literature, the current study hypothesizes that:

☞ **H2** : SN has a positive, significant impact on intention to SCB.

Perceived Behavioral Control (PBC)

PBC is an added determinant to TRA in TPB, which explains the cause of deviation between intention and actual behavior (Ratilla et al., 2021). PBC is significantly and positively correlated with the intention for sustainable consumption (Berndt et al., 2021; Denyse & Bhagat, 2018; Huang et al., 2021). Therefore, we hypothesize that:

☞ **H3** : PBC has a positive significant impact on the intention to consume sustainably.

Environmental Concern

The SCB is largely explained as an onus of being aware of environmental problems and willingness to contribute to resolving them (Alzubaidi et al., 2021). Environmental concern positively correlates with intention to purchase sustainable clothing (Dermody et al., 2015; Rausch & Kopplin, 2021; Sharief & Panghal, 2023). Therefore, we hypothesize that:

✍ **H4** : Environmental concern is positively correlated with intention toward sustainable consumption.

Environmental Knowledge

The literature purported that consumers with higher environmental knowledge are more concerned about the environment and thus reflect green purchase behavior (Kang et al., 2013). Srivastava and Mahendar (2018) observed that higher environmental knowledge was more inclined toward sustainable consumption behavior, exhibiting energy conservation behavior. In comparison, some researchers found this relationship between environmental knowledge and sustainable consumption behavior insignificant (Upadhyaya & Sijoria, 2024). Therefore, to address the contradictory viewpoints found in literature, in the current study, we hypothesize that :

✍ **H5** : Environmental knowledge has a positive significant impact on the intention to consume sustainably.

Materialism

The literature asserted that materialism significantly impacted the attitudes and intentions of consumers (Taneja & Kalra, 2024). The relationship is more substantial in developing countries (Kilbourne & Pickett, 2008). Alzubaidi et al. (2021) observed that customers with high materialistic values were more likely to purchase on the grounds of social image and identity rather than focusing on sustainability, showcasing a negative impact on pro-environmental behavior. Therefore, we hypothesize that:

✍ **H6** : Materialism is negatively correlated with the intention to consume sustainably.

Intention-Behavior Gap

At times, the behavior is closely correlated to the intention, but, at times, a gap is witnessed between the two (Jaiswal & Singh, 2018). Purchase intention is found to be moderately correlated with purchase behavior in the case of sustainable clothing and collaborative consumption (Rausch & Kopplin, 2021; Roos & Hahn, 2019). Therefore, we hypothesize that:

✍ **H7** : Intention to consume sustainably is positively correlated with actual purchase behavior.

Research Methodology

Type of Research

Meta-analysis is a systematic and quantitative statistical research method used to synthesize and integrate the findings of existing literature to draw inferences and comprehensive conclusions about a single research problem.

Design of the Study

Meta-analysis is a systematic study that aims to infer significant conclusions from the literature by assessing the available literature results. The study design includes framing adequate research questions, collecting the desired literature, shortlisting relevant studies, coding them from the shortlisted papers, and recording and analyzing the needed data.

Data Collection and Study Identification

The secondary databases like Scopus, EBSCO, and Google Scholar were scanned using keywords like the theory of planned behavior, SCB, collaborative consumption, and mindful consumption to locate the numerous relevant studies in the field. A total of 314 studies were identified based on keyword search. In 2015, the UN proposed 12 Sustainable Development Goals. Research on sustainability started gaining momentum. Therefore, the decade (2012–2022) is chosen to study how the research was shaped.

Selection Criteria

PICO (Population, Intervention, Comparison, and Outcome) was developed. Studies showcasing the application of TPB to intention to SCB were shortlisted. Studies including the association between constructs of the theory and intention to SCB were included in the study's purview. Meta-analysis was conducted on seven bivariate relations mentioned while framing the hypothesis. Studies from across the globe published in English reporting correlations of the listed bivariate relations were included in the paper. However, studies where the above-listed constructs acted as mediators or moderators were not included in the research.

Data Extraction

The data was extracted for correlations and sample size from the selected studies. While extracting the data, the intention to SCB was coded based on using green products, electric vehicles, car share and hailing services, fashion renting, collaborative consumption, and mindful consumption. Further, the behavior was coded based on products, geographical areas, and methods for promoting sustainable consumption.

Tools Used for Analysis

All analyses were conducted using meta-essentials. The pooled effect mean size (r^+) was calculated using random effect meta-analysis. Heterogeneity was also tested using Q and I^2 .

Data Analysis and Results

The title and abstract screening were conducted, and 178 papers were shortlisted. The full-text screening was performed, and 25 were found to be directly associated with the theme of the paper. A detail of PRISMA presented in Figure 1 will provide better clarity on inclusion and exclusion criteria.

Table 1 presents the details of the shortlisted studies. The studies included in the paper are all cross-sectional. The articles that studied the SCB called it by various names, such as environmentally responsible consumption behavior (ERCB), collaborative consumption (CC), green consumption behavior (GCB), and recycling. The total sample size across the studies is 10,736. A total of 18 papers based on TPB were included to study attitude-

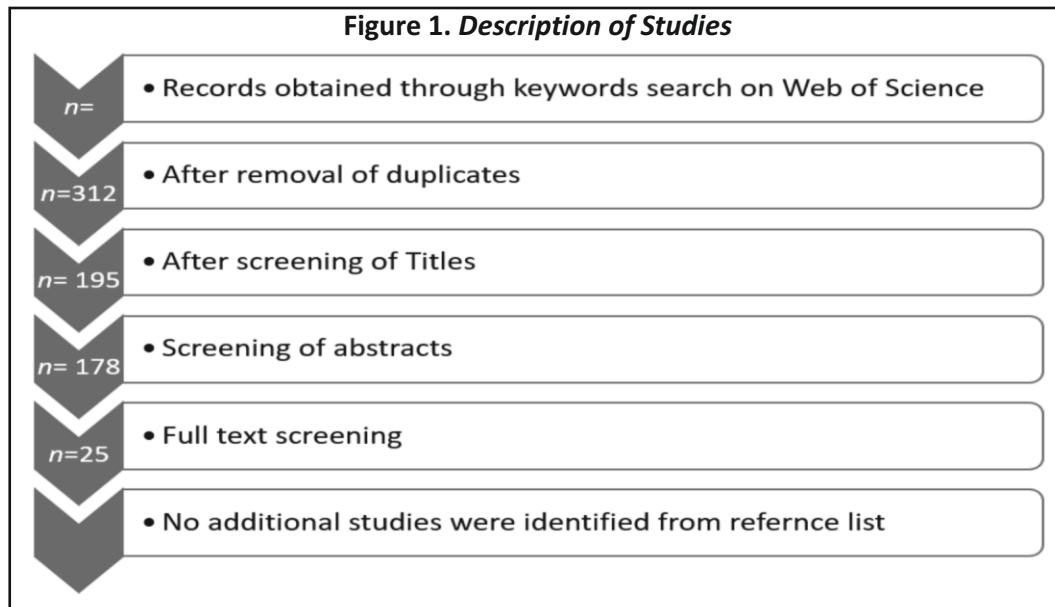


Table 1. Description of Studies

Sr. No.	Authors	N	Country	Gender	Age	Behavior Studied	Respondent Type	Product
1	Hosta & Zabkar (2021)	426	Europe	47.4/52.6	18–65	ERCB	Students	General
2	Rausch & Kopplin (2021)	464	German	29.53/70.26	19–50	SCB	Mixed	General
3	Kumar et al. (2021)	232	India	56/44	Young (29)		Mixed	General
4	Kang et al. (2013)	701	US, Korea, China	31.52/67.71	18–29	SCB	Students	Textile and Apparel
5	Alzubaidi et al. (2021)	611	Saudi Arabia	21.9/78.1	18–56			General
6	Alagarsamy et al. (2021)	284	India	58/42	18–35	GCB	Students	Food Logistics
7	Akbar et al. (2021)	300	Pakistan	52/48	20–60	SCB	Mixed	General
8	de Lenne & Vandenbosch (2017)	681	Netherlands	15.4/84.6	18–26	SCB	Students	Apparel
9	Joshi et al. (2019)	325	India	57.53/42.46	15–30	SCB	Students	General
10	Paul et al. (2016)	521	India	67/33	20–50	Green product consumption	Mixed	General
11	Zhao et al. (2019)	236	China	42.4/57.6	18–70	SCB	Mixed	Apparel
12	Jaiswal & Singh (2018)	410	India	55.6/44.4	18–34	SCB	Mixed	General
13	Kong et al. (2016)	245	South Korea	49.4/50.6	20–40	SCB	Mixed	Fashion
14	Park & Ha (2012)	363	US	47.4/52.6	18–88 (47)	Recycling	Mixed	General
15	Yarimoglu & Binboga (2019)	650	Turkey	62.9/37.1	18–66	SCB	Mixed	General
16	Khan & Rundle-Thiele (2019)	482	China	45/55	18–45	CC	Mixed	Clothes
17	Huang et al. (2021)	315	China	45.4/54.6	19–0	CC	Students	Car
18	Činjurević et al. (2019)	219	Sarajevo	31.1/68.9	22.2	CC	Students	General
19	Yin et al. (2018)	755	China	50.46/49.54	16–65	CC	Mixed	Bicycle
20	Berndt et al. (2021)	367	South Africa	56.7/41.4	25–55	CC	Mixed	Car
21	Kautish et al. (2019)	312	India	62.18/37.82	18–46	Recycling	Mixed	General
22	Becker-Leifhold (2018)	1009	Germany	Female			Mixed	General

23	Ratilla et al. (2021)	365	Philippines	70.7/23.3	24–41		Mixed	General
24	Kaur & Bhardwaj (2021)	237	India	41.4/58.6	18–35	CC	Students	Clothes
25	Roos & Hahn (2019)	224	Germany	48/52	18–78	CC	Mixed	General

intention relation, 13 papers to study the relation between SN and intention, 10 papers to study PBC and intention, seven papers to study intention behavior gap, and 11 papers to study environmental concern and intention. Materialism and intention were studied in only three papers, and knowledge and intention were studied in four studies. Most of the studies were conducted in continents of North America, Asia, Australia, and Europe. Age ranges were the basic consideration in each study. Therefore, subgroups were formed based on age range. Studies with TRA and TPB were only considered for the analysis.

Table 2 depicts the average weighted correlations computed. The correlation is highest (0.58) regarding attitude and intention to SCB. It is followed by the relationship between the intention to have SCB and the actual behavior of the consumer, with a value of r^+ being 0.56. PBC and SN are moderately correlated with the respective r^+ values of 0.47 and 0.46. This finding does not diminish the importance of SN and PBC. Rather, it emphasizes that these two still contribute profoundly, but attitude emerges as the key driver explaining the most substantial influence on consumer intentions toward sustainable practices (Huang et al., 2021; Johnson et al., 2016; Prieto et al., 2019). Environmental concern is also moderately correlated with intention to SCB, with r^+ amounting to 0.49. Knowledge is least correlated to SCB, with the value of r^+ being 0.22. Materialism is low and negatively correlated with intention to SCB, with an r^+ value of -0.06 .

The heterogeneity of all included studies is calculated using Q and I^2 tests. The values for Q and I^2 test at a 95% confidence level are significant, indicating a heterogeneous distribution among the studies. As a result, the need for constructing moderator analysis was realized. Table 3 showcases the results of hypothesis testing, stating all the hypotheses have been accepted.

Table 2. Random-Effects Average Correlation and Heterogeneity Statistics

Paths	Total Sample Size (N)	r^+	C. I. (95%)	Q	I^2	Fail Safe (N)	Egger's Test	Kendall's Tau
							p -value	
Attitude → Intention	7198	0.58	0.45–0.68	908.28	98.13%	364	0.51	–0.14
SN → Intention	5677	0.46	0.35–0.56	261.49	95.41%	289	0.67	0.00
PBC → Intention	4485	0.47	0.30–0.62	424.22	97.88%	80	0.77	–0.20
Intention → Behavior	3306	0.56	0.34–0.73	380.90	98.16%	64	0.51	0.07
EC → Intention	4786	0.49	0.33–0.62	396.36	97.48%	130	0.82	0.20
Knowledge → Intention	2117	0.22	–0.01–0.44	28.14	89.34%	14*	0.04	1.00
Mat → Intention	2377	–0.06	–0.53–0.44	80.94	97.53%	0*	0.45	*0.33

Table 3. Hypothesis Testing Results

H1	Accepted
H2	Accepted
H3	Accepted
H4	Accepted
H5	Accepted
H6	Accepted
H7	Accepted

Publication Bias

To compute the publication bias and overcome the 'file drawer problem' associated with meta-analysis, we calculated Egger's test, fail-safe N , and funnel plot. The results reveal that fail-safe N computed for "knowledge to intention to sustainable consumption" and "materialism to intention" are as small as 14 and 0, respectively. Therefore, per the ad-hoc rule, evidence for publication bias is observed there. In the Egger's test, p -values are computed. Except for "knowledge to intention to sustainable behavior," the p -value is greater than 0.05, representing no publication bias. To evaluate TPB relationships, we also generated funnel plots.

Moderator Analysis

Moderator analysis uncovers the factors influencing effect sizes, understanding sources of heterogeneity, and identifying subgroup-specific treatment effects. This analysis enhances the precision and generalizability of meta-analytic findings, guiding evidence-based decision-making and advancing our theoretical understanding.

Product Consumed

The product consumed is chosen for moderator analysis as different product categories may have varying environmental impacts and appeal to consumers in distinct ways, as indicated in Table 4.

Most studies have been conducted to study the "intention to SCB" without considering any product ($k = 10$). Fashion, electric vehicles (car and bicycle), and food are some of the studied products, where $k = 5$, $k = 2$, and $k = 1$, respectively. As food has been studied in only one of the studies, it is not considered for moderator analysis.

Age

Age is considered one of the moderator variables used to evaluate heterogeneity in the meta-results. In various studies conducted on SCB, age has been considered a moderator (Quoquab & Mohammad, 2020). In some studies, SCB seems to be a more popular behavior among the older generation (Peluso et al., 2021; Wiederhold &

Table 4. Product Consumed

Path	n	k	Moderator β	P -value	R^2
Attitude $\rightarrow$ Intention	7198	18	-0.02	0.938	-----
SN $\rightarrow$ Intention	5677	13	-0.19	0.534	-----
PBC $\rightarrow$ Intention	4485	10	-0.02	0.961	-----
Intention $\rightarrow$ Behavior	2695	7	0.56	0.188	31.37%
EC $\rightarrow$ Intention	4786	11	0.65	0.015	42.20%

Table 5. Age

Path	n	k	Moderator β	P -value	R^2
Attitude $\rightarrow$ Intention	7198	18	0.25	0.322	6.30%
SN $\rightarrow$ Intention	5677	13	0.26	0.363	6.84%
PBC $\rightarrow$ Intention	4485	10	0.39	0.251	15.44%
Intention $\rightarrow$ Behavior	3306	7	-0.36	0.395	12.61%
EC $\rightarrow$ Intention	4786	11	-0.23	0.506	5.11%

Martinez, 2018), whereas in others, SCB is more popular among the younger generation (Banytè et al., 2020; Moen & Flood, 2013). This contradictory approach provokes thought to check whether age could be regarded as a moderator. Thus, the current study dives deep into understanding if age can be considered one of the bases for studying heterogeneity indicated in Table 5.

To conduct the moderation analysis with age, we calculated the mean age for each study and then categorized young, middle, and old ages as 18–35 years, 36–55 years, and 56 onward, respectively. None of the studies report a mean age of 56 and over; therefore, only two groups are analyzed. The middle-aged group has a higher correlation between attitude and intention, SN and intention, and PBC and intention than the young group. In comparison, intention to actual behavior and environmental concern to intention have a higher correlation in the young age group ($r = 0.64$ and 0.53 , respectively) than in the middle-aged group ($r = 0.48$ and 0.43 , respectively).

Location

A comparative analysis of sustainable consumption revealed that developed countries are more prone to exhibit sustainable behavior as compared to developing countries (Wang et al., 2019). In a study, only 20% of the consumers in India exhibited sustainable consumption patterns, compared to 65% of consumers in the USA (Mahadeva et al., 2024). Thus, location is another variable to test the reasons for heterogeneity in Table 6.

The studies were mainly conducted in India, Germany, China, Saudi Arabia, the Philippines, the US, South Korea, etc. To conduct the moderator analysis, we categorized countries into various continents they belonged to. Thus, we generated categories: Europe, Asia, and Others. Studies conducted in Europe have the highest correlation in attitude; PBC and SN are moderately correlated with intention. The relationship of “intention to actual behavior” and “environmental concern to intention” are only examined in studies conducted in Asia and Europe. “Intention to actual behavior” has a statistically significant moderate correlation of 0.6, higher than in Europe, where $r = 0.52$. “Environmental concern to intention” has a statistically significant moderate correlation of 0.54, higher than in Asia, where $r = 0.47$.

Effect Size

Effect sizes are calculated in meta-analysis to quantify the extent of association between variables or the impact of interventions across multiple studies. Effect sizes also aided in identifying patterns, sources of heterogeneity, and potential moderators, as calculated in Table 7.

Table 6. Location

Path	<i>n</i>	<i>k</i>	Moderator β	<i>P</i> -value	<i>R</i> ²
Attitude → Intention	7198	18	−0.10	0.714	0.96%
SN → Intention	5677	13	0.28	0.370	7.96%
PBC → Intention	4485	10	−0.08	0.825	0.71%
Intention → Behavior	3306	7	0.18	0.676	3.37%
EC → Intention	4786	11	−0.16	0.658	2.50%

Table 7. Effect Size

Moderator/ Paths			Attitude and Intention	SN and Intention	PBC and Intention	Intention and Behavior	EC and Intention
Age	Young	<i>n</i>	4715	3841	2459	1395	2799
		<i>k</i>	12	9	6	4	7

Location	Middle-aged	<i>r</i> +	0.54	0.43	0.4	0.64	0.53
		<i>n</i>	2483	1836	2026	1911	1987
		<i>k</i>	6	4	4	4	4
	Europe	<i>r</i> +	0.65	0.53	0.57	0.48	0.43
		<i>n</i>	2597	2378	1659	1764	1540
		<i>k</i>	5	4	3	4	3
	Asia	<i>r</i> +	0.65	0.4	0.5	0.52	0.54
		<i>n</i>	3170	2231	1758	1542	3248
		<i>k</i>	10	7	5	4	8
	Others	<i>r</i> +	0.53	0.47	0.47	0.6	0.47
		<i>n</i>	1431	1068	1068	Na	Na
		<i>k</i>	3	2	2	Na	Na
Product Consumed	General	<i>r</i> +	0.61	0.55	0.45	Na	Na
		<i>n</i>	4132	3140	3102	2174	4306
		<i>k</i>	10	7	7	5	10
	Fashion	<i>r</i> +	0.59	0.47	0.51	0.47	0.45
		<i>n</i>	2100	1855	701	237	482
		<i>k</i>	5	4	1	1	1
	Vehicle	<i>r</i> +	0.53	0.5	0.03	0.65	0.80
		<i>n</i>	682	682	682	-----	-----
		<i>k</i>	2	2	2	-----	-----
		<i>r</i> +	0.54	0.36	0.53	-----	-----

A positive correlation is observed between attitude and intention with $r = 0.59$ as compared to $r = 0.53$ and 0.54 in the cases of sustainable consumption of fashion products and vehicles. At the same time, the relationship between SN and “intention to SCB” is statistically significant, with a low positive correlation in the case of vehicles $r = 0.36$) and moderate in the case of fashion products ($r = 0.5$). The relationship “PBC to intention” was studied only in the case of general studies and vehicles with a moderate correlation of $r = 0.51$ and 0.53 , respectively. The relationships “intention to actual behavior” and “environmental concern to intention” are studied only in the cases of general studies, reporting a low to moderate correlation ($r = 0.47$ and $r = 0.45$, respectively).

Only the relationship of environmental concern to intention to SCB is moderated by the product consumed, where at a 95% confidence level, the p -value is significant. Regarding “environmental concern to intention,” the product consumed explained 42.20% of the heterogeneity.

Theoretical Implications

The study provides various avenues for future research in SCB. First, the current study affirms that the intention-behavior gap is consistent with existing literature (Rausch & Kopplin, 2021), posing a research question for future studies: Why is the “intention to SCB” not duly converted into actual behavior? Previous research has explored a few reasons to explain the intention-behavior gap, such as emotional factors (Faries, 2016), habitual behavior (Sajid et al., 2024), and situational influences (Hassan et al., 2016). But still, this area remains insufficiently examined. Thus, future research can investigate the barriers/facilitators to SCB to bridge this gap. Second, the paper proposes an integrated approach establishing environmental concern, environmental knowledge, and

materialism as significant factors impacting “intention to SCB” along with antecedents of TPB. Third, the findings of the theory contradict previous studies, as past research has established demographic variables like age (Joshi et al., 2019), location etc., impact SCB, whereas in the current study, age and location are the cause of heterogeneity reported in analysis paving the way for future studies to investigate this as reasons for existing intention-behavior gap. Finally, the paper also observes that the explanatory power of TPB antecedents varies in predicting the “intention to SCB” establishing attitude to be the most significant predictor in line with existing studies (Huang et al., 2021; Johnson et al., 2016; Prieto et al., 2019), directing future studies to investigate the factors that affect attitude formation toward SCB.

Practical Implications

This study's systematic literature review and meta-analysis will help formulate marketing policies related to sustainable products. Out of all the relationships analyzed, the highest correlation was observed in attitude and intention (Rausch & Kopplin, 2021), which infers that marketer should direct their efforts toward building positive consumer attitudes toward sustainable products by establishing products in the green category (Hosta & Zabkar, 2021). Promotion tools, advertisement, marketing campaigns, experience sharing, and creating a positive image of products will help accomplish the objective. Social media influencers and blogging help shape consumers' attitudes and can be used as a marketing strategy (Zhao et al., 2019). Materialism is negatively correlated with consuming sustainable products (Becker-Leifhold, 2018), which implies that marketers should focus on consumers who do not promote materialistic behavior.

PBC (Joshi et al., 2019) and SN (Berndt et al., 2021) are moderately correlated, inferring that peer group, social pressure, and individual control over perceived behavior significantly impact the “intention to SCB.” The information available about the product helps the customer frame perception of the product and further facilitates decision-making. Information on green labels generates consumer interest in products (Young et al., 2010). Marketers must consider that a consumer contributing to the benefit of society by purchasing greener products is the biggest motivation and, thus, should be the core for drafting marketing policies.

Environmental concern is moderately correlated with “intention to consume,” which implies that environmentally conscious consumers are more likely to buy sustainable products (Khan & Rundle-Thiele, 2019). Accordingly, managers must consider manufacturing products through environmental production processes, and marketers need to focus on packaging and labeling, representing the greener nature of the product with environmental conservation.

“Intention to SCB” is moderately correlated with actual behavior, which implies that not all consumers who intend to buy sustainable products end up buying them. Marketers should focus on all potential consumers, and policies should be drafted to increase the customer base for sustainable products.

Limitations of the Study

Although the study contributes significantly to the extant literature, the inherent limitations must also be addressed. First, the research papers published only in the English language were considered, thus leaving room for some good research papers published in other languages not getting covered under this study. Also, the search query is based on chosen keywords that are repetitively used in literature. There is a possibility that some relevant studies may not have been considered where such keywords are not found in the title, abstract, or keywords provided. Further, the research studied a few moderators to analyze heterogeneity, whereas other contextual factors, like habit, moral engagement, etc., have not been considered. Moreover, cultural differences can also account for the heterogeneity, which this study has not considered.

Scope for Future Research and Conclusion

Though comprehensive, the systematic literature review conducted here could not fathom a few relationships. These unexplained variations are considered notable gaps in the literature. Gender and age-specific studies can be conducted to evaluate whether women portray more inclination toward sustainable purchases as compared to men, as the current study finds a contradicting view in past research quoting females to have more inclination toward SCB (Khan & Trivedi, 2015; Peluso et al., 2021). Future research concentrating on studying SCB by employing TPB should incorporate the TACT (Target, Action, Context, and Time) principle. It is purported that using this principle helps improve the quality of research conducted by controlling study variations (Cooke et al., 2016).

Most studies concentrate on fashion, apparel, clothing, and vehicles. FMCG could be another area of products that could be included in future studies. Various studies observed that green products are comparatively higher in price (Rincón et al., 2021) but failed to observe the relation between price and “intention to SCB.” Thus, the cost of product and usage could be studied along with TPB as moderators/ mediators for future research. The current study aligns with the findings of the paper by Thakur et al. (2021) and, thus, recognizes location as a potential factor contributing to heterogeneity in SCB. However, as the paper fails to identify the location as a moderator, it opens the scope for future research to investigate the influence of cultural variations to get deeper insights into sustainable consumption patterns. Future research can address this gap by examining different cultural contexts. Researchers are urged to conduct more research employing the integration of TPB and other theories that can identify the reasons for the intention-behavior gap.

Authors' Contribution

The study was conducted under the supervision of Dr. Satinder Kumar. Dr. Satinder Kumar conceptualized the research idea, crafted the necessary framework for conducting a meta-analysis study, and listed the appropriate keywords after the meticulous literature review. Esha Jain extracted the list of papers from various search engines and shortlisted the appropriate research papers after conducting title and abstract analysis. Then, both authors extensively checked all the shortlisted papers and, following the inclusion/ exclusion criteria, selected the eligible research papers. Esha Jain conducted the analysis using meta-essentials. Dr. Satinder Kumar and Esha Jain collectively documented the analysis and interpretation.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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