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Unpacking the Drivers of Sustainable Consumption Behavior Among Children: An Empirical Investigation of Key Determinants

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ABSTRACT

This study contributes to the existing literature by specifically investigating the cognitive factors associated with ESCB among school children. Self-regulation, environmental values, and social influence contribute to the development of a comprehensive model for understanding and promoting sustainable behavior in this demographic. This research adds original insights into the field of sustainable consumption and highlights the need for further exploration and modelling of all relevant variables. This paper aims to identify the key cognitive factors that impact environmentally sustainable consumption behavior (ESCB) among school children. The study investigates the correlation between various cognitive factors and ESCB to provide insights into promoting sustainable behavior in this demographic. A survey was conducted among a sample of 643 school children to gather data on the factors (self-regulation, environmental values, social influence, environmental attitude, environmental responsibility, and environmental knowledge) related to ESCB. Factor analysis and multiple regression were employed to analyze the data. The study focused on examining the influence of self-regulation, environmental values, social influence, environmental attitude, environmental responsibility, and environmental knowledge on ESCB. The analysis revealed that self-regulation emerged as the most significant cognitive factor influencing ESCB among children. Environmental values and social influence also played significant roles in shaping their consumption behavior. However, environmental attitude, environmental responsibility, and environmental knowledge were found to have no significant impact on ESCB. These findings shed light on the cognitive factors that need to be addressed to enhance environmentally sustainable behaviors among school children. The results suggest that efforts to improve ESCB among school children should focus on strengthening self-regulation, fostering environmental values, and leveraging social influence. It is important to understand that promoting environmental awareness among children requires influencing their peers and parents as well. The findings provide practical implications for designing interventions and educational programs targeting school children's consumption behavior.

1. INTRODUCTION

"Our Common Future", devised the term sustainability [1]. This report described sustainable development as a form of growth that meets the needs of the present generations without jeopardizing the ability of future generations to meet their own needs [2]. Later, during Rio de Janeiro Earth Summit 1992, Commission for Sustainable Development, UNESCO recognized that this field is "in its infancy" (Chapter 36 of Agenda 21). Sustainability has been re-defined as "meeting the requirements of present generations without limiting future generations' ability to fulfil their own requirements" [3]. One of the main causes of problems related to sustainability in general and sustainable development, in particular, is "over consumption". The consumption habits of human beings directly and indirectly affect the environment [4]. Hence any progress towards sustainability will ideally require that every individual should change his/her consumption habits [5]. Sustainable consumption is acknowledged as an important pillar of environmental sustainability [6]. The concept sustainable consumption originated at Rio Earth Summit in 1992, and then it became a notable policy factor in general sustainable development [7]. This was the first time that excessive consumption in the developed world was identified as a direct cause of unsustainable consumption in international environmental discourse. An actual characterization of sustainable consumption, as cited by Birtwistle and Moore [8], is "a consumption that holds the capacity of present and forthcoming generations to sustain their things and other needs, without initiating permanent loss to the environment or damage of functions in natural approaches". Other researchers, Newholm and Shaw [9] have considered consumption as sustainable where consumers have concerns about the environmental effects of the buying, consumption, and removal of their product and services. Since, the component of "pro-environmental behavior" comes closest to the Environmentally Sustainable Consumption Behavior (ESCB), and it applies well to children in terms of what they participate

in, this component from an ESCB perspective was adopted. The importance of investigating ESCB and its antecedent factors lies in the fact that, although numerous studies have focused on understanding the pro-environmental behaviors of elementary and secondary level students [10-14], only a limited number of studies have delved into the ESCB of primary school children [15-17]. These studies have based their findings on older age groups. Studies on younger age groups are lacking.

Given that early childhood is considered a sensitive period for the development of a child's personality, fundamental beliefs, attitudes, abilities, behaviors, and habits, this study focuses on primary school students. Early childhood is a critical period for the development of children's environmental awareness and attitudes, given their cognitive, socio-emotional, and physical development. Furthermore, once a negative attitude towards the environment is formed in early childhood, it is difficult to change. Additionally, since today's children often go shopping with their parents, they likely have more market experience and get to choose what to buy—whether it be toys, cereal, sweets, comic books, or other items—or at least have an influence on these and other purchases. Therefore, it appears crucial to prepare children to be informed and competent consumers, and this preparation should start as soon as possible. This is why it's critical to encourage elementary school students to adopt sustainable consuming habits.

In a very recent work in this area, Sawitri et al. [18] highlight the need to establish a theoretical framework for understanding the development of environmentally friendly behavior. Based on the above studies this study aims to address the following research question.

RQ1. What are the important factors which affect ESCB in primary school children?

The objective of this study is to identify the influence of various cognitive and external factors on ESCB.

2. LITERATURE REVIEW

This section attempts to make a comprehensive identification and elaboration of the factors that could affect ESCB among children.

2.1 Environmental attitude

Many studies have researched environment attitude as a predictor of general concern for ESCB [19-22] as well as particular concern for ESCB such as recycling behavior [23, 24]. Kollmuss and Agyeman [25] studied theoretical frameworks (Early US Linear Models, Theory of Planned behavior, Altruism, Empathy, and Prosocial Behavior Models) explaining what shapes pro environmental behavior. After analysing these frameworks in detail, they proposed their own framework, and found that environmental attitude is one of the most important factors that have a positive influence on pro-environmental behavior. In 2007, Kollmuss and Agyeman [25] piloted a learning to find the correlation among attitude towards the environment, personal factors, and environmental behavior among urban residents of Tehran. He found the direct or indirect influence of personal factors and environmental attitude on environmental behavior. Another distinct comparative study between two different consumer groups was conducted by Park and Ha [24], with the aim of investigating differences in environmental attitudes regarding pro-environmental behavior. MANOVA results revealed a higher level of environmental attitude among green product purchases. In 2011, Sinnappan and Rahman [22] conducted a study among Malaysian consumers for identifying the antecedents of green purchasing. They found environmental attitude as the best predictor of green purchasing behavior. Another study to understand predictors of green purchase behavior [26], it revealed that having a high environmental attitude does not translate into green purchase behavior. Another study found environmental attitude as a significant interpreter of environmental behavior among consumers [27]. Research study conducted by Khare [28] also revealed environmental attitude as an interpreter of environmental behaviour in Indian consumers. In conclusion, while the environmental attitude towards environmentally sustainable consumption behavior has been examined by a limited number of authors, the evaluation of environmental attitudes in children has scarcely been done. Moreover, since environmental attitude for environmentally sustainable behavior has contrasted for presented studies, it is valuable to check on environmental attitude. An early study investigated high school students environmental attitude about pro-environmental behavior and found that students environmental attitude significantly predicts environmental behavior [21]. Lee [16] studied multiple variables and found environmental attitude to be substantial predictor of green consumption behavior among adolescents of Hong Kong. Şahin and Erkal [29] examined the influence of environmental attitudes of students of VIth, VIIth, and VIIIth grade. T test, single-factor analysis, and Tukey's tests analysed the data related to school and class attitudes of middle school students for the environment were found positive and significant. Consequently, no study exists to assess the environmental attitude of primary school children in India; the scope of the present study considers water. Therefore, following hypothesis can be formed.

H1a: Environmental Attitude positively influences ESCB among primary school children.

2.2 Environmental concern

Aman et al. [30] also refer to environmental concern as the emotional disposition of consumers towards the environment, such as anger towards the destruction of nature. The study also found that consumers of renewable energy are willing to pay more if they are more concerned about the environment [31]. Several authors correlated environmental concern to environmentally friendly behavior. Also, many studies have researched the cause of environmental concern on environmentally sustainable conduct [22, 25, 32-34]. A positive correlation was found between environmental involvement and the example of recycling as an ecologically responsible behavior [35]. Authors have studied the influence of environmental concern on pro-environmental behavior that’s affected by one’s own willingness to make sacrifices for their habits [33, 36]. All the above studies state that environmental concern has a significant influence on environmentally sustainable behaviour among adults. Very few studies have been conducted among university students for determining the influence of environmental concern, and researchers found diverse results [4, 37]. Tan and Lau [4] has done his research among 280 university students of Malaysia and concluded that there is no significant environmental

concern towards environmental consumption behavior. Moreover, a study of Lasuin and Ng [37] has been conducted to identify the impact of environmental concern on green buying among university students in Malaysia and found to have a significant positive relationship. From the above studies, we can see those studies for determining the influence of environmental concern on environmentally sustainable consumption behaviour have been done among adults or university students. However, very few studies have been conducted to examine the influence of environmental concern among adolescents or in schools. while level of environmental concern has been investigated among adults, university students, high school students by various authors it is worthy to check on influence of environmental concern on ESCB among primary school children. Consequently, the following hypothesis can be formulated:

H2a: Environmental Concern positively influences ESCB among primary school children.

2.3 Environmental value

A lot of psychological stories and theories on values are established on work. People's practices and the process of knowledge acquisition shape their values [38]. This implies that when people behave in environmentally conscious ways, such as purchasing green products, reusing items, and recycling, they are expressing their value for the environment. Stern [39] proved that values have an important function in justifying behavior and thus acts as an important predictor. In environmental psychology, there are studies [40] examined the influence of values on behavior [41-45]. The study examined that Schwarz's values were substantially correlated with behaviours, which are important to protect the environment e.g., recycling behavior, consumer behavior, etc. [46]. Various researchers have observed the relationship between values and environmental behavior [25, 47-50]. The causal relationship between values and environmentally friendly behavior [47]. Structural Equation Modelling results state that environmental value leads to environmentally friendly behavior. With the help of DEMATEL test, Hessami and Yousefi [27] investigated 24 adults green purchase behavior and found environmental values relative to the green purchase behavior. Wang et al. [50] examined the role of environmental value among adults in China. With the help of path analysis result, it was revealed that environmental value has a significant indirect effect on sustainable consumption and direct effect on behavior intention. Therefore, from all the above studies we can suggest that environmental value plays a major role in predicting environmentally sustainable behavior among adults. However, no study has been found that has determined the effect of environmental values on environmentally sustainable consumption behavior. Hence, it is worth investigating the importance of environmental values on ESCB among primary school children. Therefore, the next hypothesis is:

H3a: Environmental Value positively influences ESCB among primary school children.

2.4 Environmental sensitivity

Influence of environmental sensitivity on environmentally sustainable consumption behavior has been studied by very few researchers [51, 52]. Sia et al. [51] examined the influence of environmental sensitivity on environmental behavior among adults and found it to be a topmost predictor. Similarly, Wang et al. [50] also determined environmental sensitivity as a significant predictor of sustainable consumption behavior among adults. In their study, Mansuroglu et al. [52] identified significant differences in levels of environmental sensitivity between males and females using correlation analysis. To understand the influence of environmental sensitivity on ESCB among primary school children, we propose the following hypothesis:

H4a: Environmental Sensitivity positively influences ESCB among primary school children.

2.5 Environmental knowledge

Various authors have defined environmental knowledge in their research papers [21, 23, 27, 53]. Wang et al. [50] defined environmental knowledge as "knowledge that refers information about the environmental concept, environmental problems, strategies to solve those problems." An early study investigated the level of awareness about pro-environmental issues among Chinese university students and found that the students were well aware of China's environmental problems [54]. Önder and Geban [55] discovered that while students had sufficient knowledge, they were also motivated to implement positive behaviours in another study to understand university students' awareness of pro-environmental problems and their practise of both ESC and pro-environmental behaviour. Lee [56] discovered that environmental knowledge was significantly related to green purchase behaviour among Hong Kong adults after conducting extensive studies with multiple variables. Hanss and Bohm [6] conducted a separate study in Norway among people aged 16 and up to examine the impact of pro-environment knowledge enhancement interventions on actual ESC purchase. He discovered that the intervention had a significant effect on the purchase of environmentally friendly groceries. Wang et al. [50] investigated the relationship between independent variables (Perceived Behaviour Control, environmental values, environmental knowledge, and environmental sensitivity) and dependent variables (behavioural intention and ESC). He discovered the following significant relationships: environmental knowledge and behavioural intention, behavioural intention and environmental knowledge, and environmental knowledge and ESC. The studies in this section all emphasise the significance of assessing adults' environmental knowledge. Grodzinska-Jurczak et al. [57] investigated six-year-old children's familiarity with the fundamental concept of pro-environmental issues and their identification of inappropriate behaviour in the same areas, which is very similar to the context of the current study. While the children were familiar with and capable of identifying inappropriate behavior related to simpler environmental issues, their abilities declined as the problems became more complex. Said et al. [15] discovered an extreme level of consciousness about environmental difficulties in Malaysian secondary school students aged 14-17 years, as well as a noteworthy positive association between sustainable consumption practises and environmental apprehension and acquaintance. Secondary school students were found to have high levels of environmental perception, which had a positive, albeit ineffective, correlation with pro-environmental practises, attitudes, and moral values. To summarise, while few authors have investigated levels of awareness for pro-environmental issues, assessing environmental knowledge levels in children has been rare. Furthermore, given the

variations in the level of knowledge about pro-environmental matters reported in previous studies, it's worthwhile to not only verify this knowledge level in a recent population of children. Therefore, the following hypothesis can be formed:

H5a: Environmental Knowledge positively influences ESCB among primary school children.

2.6 Environmental responsibility

Hines et al. [19] defined environmental responsibility as individual's feelings of duty or obligation to the environment. Their paper meta-analysed six studies which have explored the link between environmental responsibility and environmentally responsible behavior. The resulted correlation coefficient (.328) determines that individuals who feel some sense of responsibility towards the environment are engaged more in pro environment behavior. Researchers have studied environmental responsibility as a significant predictor of environmentally sustainable consumption behavior. Most of the studies have identified this relationship among adults. Kaiser et al. [58] structure equation analysis revealed that if people feel guilty about what they are doing, in that case, they feel more responsible towards the environment. He assessed the relative influence of responsibility on ecological behavior. Kollmuss and Agyeman [25] conducted the conceptual study by analysing most influential analytical frameworks that describe pro environmental behavior and examined factors that have a positive or negative influence on pro-environmental behavior. In his study, they proposed a model that explains pro environmental behavior and found environmental responsibility as one of the important influencers in his model. Predictors of green purchasing behavior in young Malaysian consumers [22]. With the help of t-test analysis and multiple regression analysis environmental responsibility was found one of the significant predictors of green purchase behavior. A similar type of study among rural residents of China. Path analysis results revealed responsibility as a significant predictor of sustainable consumption behavior [50]. Till date, most of the studies were conducted among adults. While these studies provide valuable insights, research on children's environmental responsibility is noticeably scarce. Lee [56] examined the environmental responsibility as a significant interpreter of green purchasing behavior among adolescents Hierarchical Regression analysis found environmental responsibility as one of the important predictors. As there are very few studies, who have identified the influence of environmental responsibility on environmentally sustainable consumption behavior it will be noteworthy to conduct this study among primary school children.

H6a: Environmental Responsibility positively influences ESCB among primary school children.

2.7 Self-Efficacy

Bandura [59] in his Social Cognitive Theory explained how self-efficacy helps in explaining one's behavior. In various papers, self-efficacy is coined as perceived consumer effectiveness [60]. Several authors have conceptually and descriptively studied the connection between self-efficacy and responsible environmental behavior, finding support for an association between self-efficacy, pro-environmental behavior, and sustainable consumption. Hines et al. [19] meta-analysed fifteen studies for determining a relationship between locus of control and environmental behavior. The resulting correlation coefficient of .365 suggests a relationship between the existing variables. Whereas in the study conducted by Sia et al. [51] step wise multiple regression does not find to have a significant influence of locus of control on environmentally responsible behavior. Self-efficacy was studied as a moderating variable between environmental attitude and environmental behavior by Meinhold and Malkus [21] among 858 students. Regression analysis revealed that self-efficacy does not show significance as a moderator but has a significant influence on environmental behavior. We find a positive relationship between self-efficacy and environmentally responsible behavior [31, 61]. Wang et al. [50] explained the role of response efficacy among rural residents of China. Path analysis results revealed response efficacy as a significant predictor of sustainable consumption behavior. Lee et al. [60] also explored the connotation between self-efficacy and pro-environmental conduct and found a significant positive association. Although to date, very few studies have explored the influence of self-efficacy on sustainable consumption behavior, those that have, identify it as a significant predictor among adults. No study has investigated such relationship in children. Therefore, it becomes necessary to examine the effect of self-efficacy on ecologically sustainable consumption behaviors among primary school children. Based on this, the following hypothesis can be proposed:

H7a: Self-Efficacy positively influences ESCB among primary school children.

2.8 Self-Regulation

Bandura [59] in his Social Cognitive Theory explained Self-Regulation. Bandura [62] demonstrated that self-regulation of an individual operates through a) monitoring one's behavior, determinants of that behavior and effect of that behavior, b) judging own behavior concerning personal standards and environmental condition, c) through effective self-reaction. Self-regulation mediates the effect of external influences as well as provide the basis for action. He defined self-regulation "as when individual beliefs about what they can do, anticipating consequences of their actions, setting goals and planning a course of action that brings desired a course of action." This construct of SCT has been mainly studied as an important predictor of health behavior such as nutrition behavior, dietary behavior, etc. A study conducted by Anderson et al. [63] to determine significant predictor of nutrition behavior among adults (N = 712) found that self-regulation is the best predictor. A similar study was carried out [64] among university employee's dietary behavior. Results of multiple regression analysis revealed that self-regulation was not an associated with this behavior. Hence was not a significant predictor. Rovniak et al. [65] identified different factors influencing physical activity among 277 university students. Structural Equation Modelling revealed self-regulation as a meaningful analyst of physical activity. From above few studies, we cannot identify that is self-regulation a significant predictor of behavior. Also, there is no study which has examined its relationship with environmentally sustainable consumption behavior among students. Therefore, it becomes necessary to investigate the influence of self-efficacy on environmentally sustainable consumption behavior among primary school children. Therefore, the following hypothesis can be formed.

H8a: Self-Regulation positively influences ESCB among

primary school children.

2.9 Social influence (peer influence and parental influence)

DeLamater et al. [66] defines social influence as the process where one's attitudes and behaviors are influenced by the actions of others. It can be by persuading or by threatening. Wahid et al. [26] and Lasuin and Ng [37] in their paper stated that "societal effect is an illustration of subjective pattern." Subjective Norm is one of the important constructs of Theory of Planned behavior [67]. He explained subjective norm as whether an action should be performed by an individual from a referent's point. Here referent could be parents, friends, peer, etc. In this study, social reference is referred as a change in behavior or attitude through the influence of peer, and parents. Various researchers have conducted experimental or descriptive studies to identify the influence of social factors and subjective norms on environmentally sustainable behavior [26, 68-71]. In their behavioral experiment, Salazar et al. [69] studied the influence of family and friends on the decision to choose environmentally friendly products. 135 participants comprising high school students and teachers participated in the experiments. Results of the experiment revealed that participants who were informed about their "peer choices involving friends and family members" behaved significantly different than those who were not. The influence of social norms, incorporating peer influence, was found to be a significant predictor in various studies conducted among a diverse population of adults [26, 28, 68]. Tirr and Nokelainen [72] also determined in their research about peer influence green purchasing among Malaysian consumers Although there are not many studies identifying peer and parental influence on environmentally sustainable consumption behavior. Very few studies have been found in literature who have studied peer and parental influence on sustainable consumption behavior among children. In the study, among 6010 adolescents of Hong Kong [16, 56]. Multiple regression found peer influence as the top analyst of green purchasing behavior. Parental Influence was also identified as a significant predictor among 6010 adolescents of Hong Kong by a researcher [56]. From the above studies, we can see that although social influence if acquired to be an important predictor in different population but still it has not been explored in the field of primary school children. Hence this study aims to study the influence of peer and parental influence on primary school children in context to ESCB.

H9a: Peer Influence positively predict ESCB among primary school children.

H10a: Parental Influence positively predicts ESCB among primary school children.

3. METHODOLOGY

The study was primarily concerned with determining the status of cognitive factors and their correlation to ESCB. So, an empirical study with the cross-sectional design was adopted. Scales to measure relation between the above variables along with ESCB were taken from literature. Scales used for assessing are Environmental attitude of children is Children's Environmental Attitude and Knowledge Scale (CHEAKS), Environmental Value "Model of Ecological Values" (2MEV) developed by Milfont and Duckitt [71], Environmental Sensitivity by Tirri and Nokelainen [72], Environmental Responsibility Children Responsible Environmental Behaviour Scale (CREBS) developed by Erdogan et al. [73]. Self-Efficacy by Pastorelli et al. [74]. Self-Regulation by Branscum and Sharma [75] Peer and Parental Influence by Wilson [76] and Environmentally Sustainable Consumption Behaviour by Muderrisoglu and Altanlar [77]. The questionnaire consists of 70 items taken from literature representing nine independent variables and one dependent variable. The overall Cronbach alpha of the questionnaire is .853. A Cronbach alpha value of .853 suggests that the items or variables in the study are fairly reliable and consistent in measuring the intended construct. It indicates a strong degree of internal consistency among the items, meaning that they are measuring the same underlying concept or construct reliably. The reliability measure of the questionnaire is listed in Table 1. All the values are more than the evaluation criteria, i.e., 0.6.

Table 1. Reliability measures of independent and dependent variables

S. No	Variables	Cronbach's alpha
1	Environmental Attitude	.628
2	Environmental Responsibility	.639
3	Environmental Sensitivity	.777
4	Environmental Concern	.757
5	Environmental Value	.676
6	Self-Efficacy	.744
7	Self-Regulation	.655
8	Peer Influence	.853
9	Parental Influence	.844
10	Environmental Knowledge	.642
11	Environmentally Sustainable Consumption Behavior	.783

The population of interest were all students of class Three, Four and Five in schools of the urban area of Bhiwadi (India). Total population of students considered was 5782 and Sample size is 643. Random Stratified sampling method was used. The two strata used were based on type of school and class. By dividing the population into strata, we tried to capture the variability within each subgroup and obtain a representative sample. Survey was done in person. For data collection prior permission was taken by parents and school principals where a short talk explained the purpose and process of involving students in particular study. A summarized breakdown of 643 respondents related to demographic profile has been shown below in Table 2.

Table 2. Breakdown of the sample by demographic factors

Characteristics	N
Gender	
Male	313
Female	330
TOTAL	**643**
Schools	
Private	324
Government	319
TOTAL	**643**
Age	
III	215
IV	207
V	221
TOTAL	**643**

Factor analysis was used to determine the construct validity of the questionnaire. It helps us to examine the empirically the

interrelationship amongst the items and the construct. For analysing gathered data quantitatively, i.e., to see the influence of cognitive factors on ESCB among children Multiple regression was used. In this study, VIF value of all the predictors is from 1.063 to 1.778, showing non-presence of multicollinearity.

4. RESULTS AND FINDINGS

A Confirmatory factor analysis (CFA) is done initially to test and validate the factors proposed on the basis of theory and prior research. CFA is used to assess the goodness-of-fit between the observed data and the hypothesized factor structure. The Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity are commonly applied in factor analysis to assess the appropriateness and appropriateness of the data for factor analysis. They provide information about the adequacy of the sample size and the intercorrelations among variables.

4.1 Results of factor analysis

As per Table 2, the Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity value were in range. A KMO value closer to 1 suggests that the variables are highly correlated, and that factor analysis is appropriate. A KMO value less than 0.5 indicates that the variables have low correlations, and factor analysis may not be suitable. In general, a KMO value of 0.6 or higher is believed acceptable for factor analysis. Here as shown in Table 3, KMO value is 0.746 that shows appropriateness of factor analysis.

The eigenvalue associated with each factor before extraction and after extraction was determined. All the factors having an eigenvalue greater than 1 were extracted. All the eleven factors account for 50.42% of the variance. The rotated component matrix in Table 4 shows the factor loading after rotation along with the name of the component.

It is clear from the above table that items of all ten components are applicable in this context. Thus, the list of items confirmed through analysis represents a list of environmental variables which have an impact on ESCB of primary school children.

Table 3. KMO and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		**.746**
Bartlett's Test of Sphericity	Approx. Chi-Square	11239.64
	Df	3321
	Sig.	.000

Table 4. Rotated component matrix determining factor loading on each factor

Items	**Factor Loading**	**Factor Name**
I would be willing to separate trash for recycling.	.581	Environmental Attitude
I have asked my parents to buy products made using extra packaging.	.572	
I would be willing to save paper by using both sides of paper.	.566	
I would be willing to stop buying some products that are not reusable.	.564	
It upsets me when I see people use too many plastic items.	.540	
It makes me happy when people recycle used bottle, cans and paper.	.536	
I properly disposed off and avoid improper disposal of trash/garbage in school, home, picnics, playgrounds, etc.	.535	Environmental Responsibility
I purchase products which are recyclable (e.g., I purchase the products on which there is/are recycling sign).	.535	
I warned my friends not to use plastic bags if not necessary.	.504	
I threw material such as paper, glass, plastic cans into recycle bin.	.491	
I gave old books, dress, toys, which are not used by me to other people in need.	.532	
I purchased reusable pens.	.513	
I enjoy the beauty and experiences related to nature.	.592	Environmental Sensitivity
Protecting the nature is important to me.	.539	
I pay attention to my consumption habits in order to protect the environment.	.756	
I pay attention to my recycling habits in order to protect environment.	.634	
My Lifestyle	.624	Environmental Concern
My Future	.521	
Me/Myself	.630	
My Health	.729	
All People (in different countries)	.717	
People in my country	.706	
If someday I have free time, I would like to volunteer for recycling to help protect the environment.	.554	Environmental Values
If I would have extra money, I would be open to donate to protect nature.	.543	
I make sure that all old newspapers are recycled when we don't need them.	.629	
I would really enjoy sharing toys, stationery items or books.	.630	
I try to tell others that buying reusable bottles is important.	.633	
I try to save paper by writing on both sides or using one side used paper for other work.	.643	
Arrange or sort old things for donating/sharing to others (e.g., toys, books).	.535	Self-Efficacy
Learn about Eco-labels or information on products.	.532	
Express your opinion about using both sides of paper for writing.	.513	
Participate in recycling products such as newspaper etc.	.504	
Learn about recycling of plastic bottle.	.536	
Plan your purchase of environmentally friendly product (e.g., refillable pen)	.535	

Remind yourself to recycle newspaper by giving it to the kabadiwala.	.460	Self-Regulation
Remind yourself to write on both sides of the paper instead of one side.	.491	
Plan to purchase product with less packaging.	.475	
Pay closer attention to pass/share toys, books to others.	.466	
Plan to recycle bottles, cans instead of throwing them in dustbin.	.513	
Remind yourself to purchase refillable pens than simple pen.	.404	
My friends and I have the same basic beliefs regarding using both sides of paper.	.761	Peer Influence
It is very important that my friends approve recycling of bottles and newspapers.	.891	
My friends influence my beliefs about recycling.	.808	
It is very important that my friends approve purchase of refillable pen.	.833	
My friends and I do not agree about sharing of toys and books.	.832	
My friends and I do not agree about purchasing products with less packaging.	.858	
My beliefs about using both sides of paper for writing are the same as my parents.	.610	Parental Influence
My parents and I have the same value system regarding sharing of toys, books with others.	.725	
I do not care what my parents think about purchasing refillable pens.	.943	
My parents do not influence my beliefs about separating glass bottles from trash.	.629	
My parents do not influence my beliefs about purchase of environmentally friendly products.	.555	
My beliefs about recycling newspaper, bottles are the same as my parents.	.780	Environmentally Sustainable Consumption Behaviour
Passed toys to others.	.659	
Bought used books.	.734	
Used both sides of paper to write.	.731	
Repaired bags and shoes on time so that they last longer.	.564	
Passed old textbooks and storybooks to others.	.765	
Borrowed or hired stationery items that one only needs occasionally.	.789	
Shared toys that one only needs occasionally	.614	
Gave newspaper, glass tumblers/bottle cans and plastic bottles to kabadiwala (Recycle).	.487	
Bought writing paper and notebooks made from recycled paper.	.641	
Bought reusable bottles and lunch box.	.819	
Purchased refillable pens.	.556	
Packed breakfast or lunch in washable container instead of a use and throw container.	.468	
How can we reduce wastage while purchasing?	.704	Environmental Knowledge
Soil pollution is generally due to	.655	
_____is an effective way of informing customers about the environmental impacts of the products & the choice they make while purchasing.	.593	
What should you do with used glass bottles?	.694	
An item which cannot be recycled and used again is:	.762	
One of the following does not decompose in ocean and cause harm to fish	.450	

4.2 Relationship between ESCB and independent variables

Next, we look at the descriptive analysis. Table 5 shows the mean and standard deviations of each variable in the dataset.

Table 5. Reliability measures of independent and dependent variables

S. No	Variables	Mean	Std. Deviation
1	Environmental Attitude	1.52	.353
2	Environmental Responsibility	1.41	.428
3	Environmental Sensitivity	2.51	.636
4	Environmental Concern	2.78	.363
5	Environmental Value	2.68	.388
6	Self-Efficacy	2.70	.332
7	Self-Regulation	2.64	.381
8	Peer Influence	2.57	.426
9	Parental Influence	2.55	.433
10	Environmental Knowledge	.387	.248
11	Environmentally Sustainable Consumption Behaviour	2.69	.323

For example, the mean for ESCB was 2.69 on a scale of 3 for all primary school children in the sample, which is pretty high. Hence, we can infer that environmentally sustainable consumption behaviour in school children is pretty high.

The correlation matrix Table 6 of primary school children shows that the ESCB has a reasonably good positive correlation with self-regulation (r = .531), so it is likely that this variable will be best to predict ESCB. All the other variables have significant correlations except environmental knowledge (r = .026, p = .253), hence it is likely that this variable will not to be good to predict ESCB.

Table 6. Correlations between IV and DV for primary school children

S. No	Variables	ESCB	Sig
1	Environmental Attitude	.144	.000
2	Environmental Responsibility	.263	.000
3	Environmental Sensitivity	.152	.000
4	Environmental Concern	.282	.000
5	Environmental Value	.442	.000
6	Self-Efficacy	.384	.000
7	Self-Regulation	.531	.000
8	Peer Influence	.431	.000
9	Parental Influence	.394	.000
10	Environmental Knowledge	.026	.253
11	Environmentally Sustainable Consumption Behaviour	1.00	

Backward elimination method for multiple regression is followed to establish a relationship between independent and dependent variables. Table 6 provides the model summary. When all the independent variables are used in Model 1, the

simple correlation between dependent and all the independent variables is .654. Subsequently, as per backward elimination method, the insignificant independent variable from the model is dropped one by one, and another model is developed. Five models are developed and the details of all five models are shown in Table 7. In the final model, Model no. 5, parental influence, environmental sensitivity, environmental concern, self-efficacy, environmental value, peer influence, and self-regulation are found to be significant predictors of the dependent variable with a correlation value of .781, which is reasonably high positive. Also, the R square value of the model is 0.609 which shows that 60.9% variability in ESCB can be determined by Environmental Sensitivity, Environmental Concern, Environmental Value, Self-Efficacy, Self-Regulation, Peer Influence and Parental Influence.

The first part of Table 8 delivers us the estimates of b-values. These b- values (unstandardized) reveal the individual contribution of each independent variable to the model. We can define the model as follows:

$$ESCB = .504 + .186\ SR + .125\ EV + .117\ PI + .117\ PAI + .077\ SE + .062\ EC + .037\ ES$$

Table 7. Model Summary[f] for primary school children's data

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.654[a]	.427	.416	.24679	.427	39.518	10	636	.000	
2	.654[b]	.427	.417	.24660	.000	.014	1	636	.906	
3	.653[c]	.427	.418	.24642	.000	.085	1	637	.770	1.746
4	.653[d]	.426	.418	.24644	-.001	1.107	1	638	.293	
5	.781[e]	.609	.596	.24676	-.002	2.648	1	639	.104	

a. Predictors: (Constant), PAI, ES, EA, EK, EC, ER, SE, EV, PI, SR
b. Predictors: (Constant), PAI, ES, EA, EK, EC, ER, SE, EV, PI, SR
c. Predictors: (Constant), PAI, ES, EA, EC, ER, SE, EV, PI, SR
d. Predictors: (Constant), PAI, ES, EA, EC, SE, EV, PI, SR
e. Predictors: (Constant), PAI, ES, EC, SE, EV, PI, SR
f. Dependent Variable: ESCB

Table 8. Coefficients[a] IV for primary school children

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
5 (Constant)	.504	.112		4.494	.000		
ES	.037	.016	.072	2.339	.020	.941	1.063
EV	.125	.030	.151	4.238	.000	.711	1.406
EC	.062	.029	.070	2.180	.030	.869	1.150
SE	.077	.035	.079	2.219	.027	.712	1.405
SR	.186	.034	.219	5.482	.000	.563	1.778
PI	.117	.027	.155	4.285	.000	.691	1.448
PAI	.117	.026	.157	4.572	.000	.766	1.305

a. Dependent Variable: ESCB

Table 9. Excluded variables coefficients[a] for primary school children

Model	B	T	Sig.	Tolerance
EK	.004	.135	.892	.936
ER	.039	1.171	.242	.821
EA	.052	1.627	.104	.882

a. Dependent Variable: ESCB

Table 10. Hypothesis results

S. No	Variable Name	Unstandardized B Coefficients	Significance	Relationships Exp.	Relationships Obs.	Alternate Hypothesis Accepted/Rejected
1	Environmental Attitude	.052	.104	+	+	Rejected
2	Environmental Sensitivity	.037	.020*	+	+	Accepted
3	Environmental Knowledge	.004	.936	+	+	Rejected
4	Environmental Responsibility	.039	.821	+	+	Rejected
5	Environmental Concern	.062	.030*	+	+	Accepted
6	Environmental Value	.125	.000*	+	+	Accepted
7	Self-Efficacy	.077	.027*	+	+	Accepted
8	Self-Regulation	.186	.000*	+	+	Accepted
9	Peer Influence	.117	.000*	+	+	Accepted
10	Parental Influence	.117	.000*	+	+	Accepted

*Significant at $p < .05$

Here in the above model, b- value indicates that if the self-regulation is increased by one unit, then additional increase in ESCB will be by .186 units. For the above given model, self-regulation ($t(649) = 5.482$, $p < .05$), environmental value ($t(649) = 4.238$, $p < .05$), peer influence ($t(649) = 4.285$, $p < .05$), self-efficacy ($t(649) = 2.219$, $p < .05$), environmental concern ($t(649) = 2.180$, $p < .05$), and environmental sensitivity ($t(649) = 2.339$, $p < .05$) values are as given.

Table 9 gives us the estimates of these b- values of variables that are found insignificant predictor of ESCB. From the Table 8, we can see that all the insignificant predictors are positively related to ESCB. From the magnitude of the t statistics, we can see that self-regulation has the highest impact followed by parental influence, peer influence, environmental value, environmental sensitivity, self-efficacy, and environmental concern. Finally, on the basis of results, accept-reject decisions for hypothesis were made. Table 10 gives detail about the hypothesis results.

4.3 Findings

Out of the five models tested, only the fifth model was found to have significant predictors. Therefore, the fifth model was chosen for further analysis, which included seven predictors that were found to be significant. Among primary school children, the most significant predictors of ESCB (Environmentally Sustainable Consumer Behavior) were identified in the following order: Self-Regulation, Environmental Value, Peer Influence, Parental Influence, Self-Efficacy, Environmental Concern, and Environmental Sensitivity. In the study, Environmental Attitude, Environmental Knowledge, and Environmental Responsibility were not found to be significant predictors of ESCB among primary school children. Among the predictors that were found to be significant, Self-Regulation, Environmental Value, and Peer Influence showed a high correlation with ESCB. When non-significant predictors were removed from the models, the change in multiple correlations from model 1 to model 5 was reasonably high, and increased from 0.654 to 0.781. This suggests that the models had a moderately strong goodness of fit. In summary, the findings indicate that the fifth model with seven significant predictors was chosen for further analysis, highlighting the most significant predictors of ESCB among primary school children.

5. CONCLUSION

In conclusion, this study has shed light on the cognitive factors that significantly influence Environmentally Sustainable Consumer Behaviour (ESCB) among primary school children. The results provide valuable insights into the role of various factors in shaping children's pro-environmental attitudes and behaviours. The world is discussing the sustainability goals with great enthusiasm. The study is important as it brings out the important determinants of sustainable consumption among children, who, are the future of world economies. The significant predictors identified in this research include self-regulation, environmental values, environmental sensitivity, self-efficacy, peer influence, parental influence, and environmental concern.

The strongest predictor of ESCB was found to be self-regulation, emphasizing the importance of children's ability to set goals, plan, and monitor their actions in daily routines to maintain a clean environment. This finding supports previous research highlighting the crucial role of self-regulation in initiating and maintaining environmentally responsible behavior. Previous studies also have given evidences in similar directions [78].

Environmental values were also identified as a significant predictor of ESCB, underscoring the influence of socialization and individual learning experiences in guiding children's actions towards environmental stewardship. Children who hold high environmental values are more prone to engage in behaviors that contribute to a sustainable environment.

The study highlights the significant impact of peer and parental influence on children's ESCB. Parents and peers serve as primary socialization agents, shaping children's values and behaviors. When parents and peers model in ecological behaviors, children are more inclined to follow suit, indicating the importance of social influences in fostering pro-environmental attitudes and behaviors.

Self-efficacy emerged as another important determinant of ESCB, with a positive relationship observed between self-efficacy beliefs and environmentally sustainable behavior. Direct experiences and the observation of role models performing sustainable behaviors contribute to children's self-efficacy, which plays a crucial role in motivating them to engage in ESCBs.

Furthermore, the study found that environmental concern and environmental sensitivity significantly predict ESCB. Children who express concern for the environment and exhibit sensitivity towards it are more likely to hold in behaviors that protect and preserve the environment. This finding highlights the role of personal connection and emotional attachment to nature in driving pro-environmental actions.

The insights gained from this research have practical implications for interventions and educational programs aimed at promoting environmentally sustainable behavior among children. By targeting the identified cognitive factors, such as enhancing self-regulation skills, fostering environmental values, leveraging peer and parental influence, and building self-efficacy and environmental concern, educators, policymakers, and parents can contribute to the development of environmentally conscious individuals.

Despite the significant contributions of this study, there are opportunities for future research to further enhance our understanding of cognitive factors influencing ESCB among primary school children. Quoquab and Mohammad [79] presents the studies on sustainable consumption undertaken in decade and higlights the importance of the subject and also give directions to future research.

Firstly, longitudinal studies can explore the long-term impact of these factors on sustainable behavior to ascertain whether these influences persist over time. Additionally, cross-cultural studies can investigate the cultural variations in the importance and manifestation of these cognitive factors. Moreover, examining the role of other potential factors, such as environmental knowledge, social norms, and institutional influences, can provide a more comprehensive understanding of ESCB among children.

6. IMPLICATION

Overall, “parental influence” plays an important role in influencing the ESCB. Thus, it indicates that if teachers make some systematic effort to involve parents in helping to enhance

ESCB, it could increase the readiness of children to participate in the same. The study will help to focus on the most important factors that could cause a change in children's behaviour while designing campaign for encouraging sustainable consumption behaviours Sustainable consumption is a much discussed topic in marketing reserach and advocates the use of marketing tools for changing consumer behavior to more environmentally conscious behavior [80]. Also, Campaigns aimed at children and engrossed on detailed concerns of sustainable consumption may be operative in fluctuating associated attitudes and behaviours, bringing the target prospects nearer to the brand.

7. LIMITATION OF THE STUDY

Data has been collected from primary school children of Bhiwadi, a census town of Alwar district for testing hypothesis. Therefore, the generalizability of the study cannot be done.

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