

Middle School Students' Sustainable Living Awareness and Conscious Consumerism Perceptions: A Prediction Study

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ABSTRACT The purpose of this study is to examine whether middle school students' awareness of sustainable living predicts their perceptions of conscious consumerism. A predictive correlational design was employed. The sample was selected using convenience and criterion sampling methods. One hundred fifty-two middle school students (seventh and eighth grade) participated in the study. The participants included 97 females and 55 males from an urban public middle school in Kahramanmaraş, representing a predominantly middle-income socioeconomic background. Data were collected using two instruments: the Sustainable Living Awareness Scale (environmental, economic, and social dimensions) and the Conscious Consumerism Perception Scale (consumer responsibility, quality awareness, and budget-price consciousness). Data were analyzed using simple linear regression. The results indicate that middle school students' awareness of sustainable living significantly predicts their perceptions of conscious consumerism. These findings indicate that enhancing students' awareness of sustainability is associated with an increased perception of conscious consumerism. Future research could explore the impact of activities designed to raise students' awareness of sustainable living on their perceptions of conscious consumerism through experimental methods.

Keywords: Sustainable living awareness, Conscious consumerism perception, Education for sustainable development

1. INTRODUCTION

The European Union's fundamental vision for sustainability and education is to ensure that individuals have access to high-quality education on sustainability (European Commission, 2024). In this context, learning for sustainability has become a significant policy priority at both the European Union and other international levels (European Commission, 2024). Likewise, sustainable consumption is a critical agenda within the European Union and on the global stage (Süle, 2012). Conscious consumerism for sustainability is on the rise across Europe (European Commission, 2023; Rijnhout & Lorek, 2012). According to a comparative report by the European Commission, learning for sustainability can be integrated into the curriculum through various approaches (European Commission, 2021). One such approach involves incorporating sustainability into subjects such as science, geography, and citizenship (European Commission, 2021).

Science education at the basic education level equips students with fundamental knowledge about the functioning of nature, the environment, and ecosystems.

This knowledge facilitates students' understanding of environmental issues and the development of potential solutions. In this context, science education plays a crucial role in promoting sustainability and helping citizens comprehend sustainability challenges (Jeronen et al., 2024). With the introduction of the 2024 middle school science curriculum in Turkey, students are expected to utilize resources efficiently and foster sustainability awareness. In addition, they are encouraged to demonstrate sensitivity to environmental concerns and recognize environmental problems at both local and global levels (Ministry of National Education [MoNE], 2024). Furthermore, the 2024 science curriculum aims to cultivate entrepreneurial and productive mindsets in students based on the sustainability-related understanding and experiences they will acquire (MoNE, 2024). Therefore, the importance given to sustainability in science education in Türkiye

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parallels the emphasis placed on sustainability at the international level (White & Tytler, 2025).

One of the key steps in promoting a sustainable future is raising students' awareness of responsible food consumption (Deksne et al., 2025). Environmentally conscious consumers are anticipated to deliberately select sustainable and eco-friendly products and services. They are also expected to advocate for sustainable practices and development in order to mitigate negative environmental impacts (Enderez et al., 2024). However, the increase in the number and diversity of products consumed today increases the complexity of consumers' purchasing decisions (Bursa Chamber of Commerce and Industry, 2022). In this sense, conscious consumerism highlights the significance of individuals' purchasing decisions in promoting sustainable living. The objective of this study is to investigate whether the sustainable living awareness of middle school students predicts their perceptions of conscious consumerism. Accordingly, the problem statement of the study is as follows: To what extent does the sustainable living awareness of middle school students predict their perceptions of conscious consumerism?

1.1 Sustainable Living Awareness

Sustainable living is a lifestyle that aims to reduce the use of natural resources (Cubukcu, 2013). Sustainable living is also a different way of life in which people carefully evaluate the world's natural systems and use (natural) resources by considering the needs of future generations (Haan et al., 2018, p. 265). In the current study, sustainable living is examined in terms of students' awareness of environmental, economic, and social sustainability rather than their actual lifestyle behaviors. Teaching activities on sustainable living primarily aim to improve students' sustainability literacy, that is, their awareness, knowledge, and skills about sustainable development (Qureshi, 2020). It is important for educators to adapt learning resources and develop practical activities related to sustainable living. These activities should encourage students to reflect on their attitudes, behaviors, and choices in order to promote maximum engagement in sustainable living (Wynveen, 2017).

Numerous studies in the literature have examined primary and middle school students' perceptions, attitudes, and behaviors regarding sustainability (Koçulu, 2025; Olsson et al., 2016; Scharenberg et al., 2021; Suna & Çengelci-Köse, 2023). A substantial body of this research indicates that sustainability-oriented educational approaches implemented at the middle school level generally contribute positively to students' knowledge, awareness, and consciousness of sustainability. These approaches include educational models, classroom-based activities, interdisciplinary practices, out-of-school learning environments, and targeted training programs (Ayaydın et al., 2023; Scharenberg et al., 2021; Suna & Çengelci-Köse, 2023; Olsson et al., 2016; Yüzbaşıoğlu, 2023). However, the

effects of such interventions are not always consistent across studies. For instance, Scharenberg et al. (2021) reported that a sustainability-related educational model increased fifth- to eighth-grade students' knowledge about sustainability, while simultaneously leading to a decline in their emotional-motivational beliefs and attitudes toward sustainability. Similarly, Olsson et al. (2016) found that sixth-grade students attending a sustainability-focused school demonstrated slightly higher sustainability awareness, particularly in the environmental dimension, whereas this effect became negative at the ninth-grade level.

In addition to intervention-based studies, descriptive research has provided insight into the general sustainability profiles of students in basic education. Chen et al. (2022) concluded that third- to sixth-grade students exhibited high levels of knowledge, attitudes, and behaviors related to sustainable development, whereas Azrak (2023) reported that eighth-grade students' sustainable living awareness remained at a moderate level. Taken together, these findings suggest that students at the basic education level generally demonstrate moderate to high levels of sustainability-related knowledge, attitudes, and behaviors, while also indicating that these levels may vary depending on grade level and the nature of educational practices implemented (Azzrak, 2023; Chen et al., 2022). From this perspective, sustainability-related awareness can be expected not only to shape students' environmental understanding but also to influence how they interpret and evaluate everyday decisions, particularly those related to consumption and responsibility, thereby providing a conceptual foundation for examining conscious consumerism perceptions in the following section.

1.2 Conscious Consumerism Perceptions

Conscious consumerism is not only a skill that must be acquired but also a necessity in today's conditions (Balbağ, 2023). A conscious consumer is not only self-aware but also socially conscious. Such consumers care not only about their own interests but also those of their immediate and wider circle, and they take these considerations into account in their purchasing decisions (Garai-Fodor, 2023). Accordingly, conscious consumerism is addressed as students' perceptions and understanding of responsible consumption rather than their observed purchasing behaviors. Such consumers also prioritize their basic needs when purchasing goods and services and are careful to purchase high-quality, reliable, inexpensive, and durable goods and services (Gülmez, 2006). Furthermore, a conscious consumer knows, protects, and defends their rights; does not act erroneously under the influence of media and advertisements; and opposes all forms of waste and extravagance (Gülmez, 2006). The environmentally conscious consumer understands the costs associated with the production, distribution, use, and disposal of products and tries to

minimize these costs through his or her own behavior (Siva & Chandrachud, 2022). Conscious consumers are further characterized by the fact that they base their decisions on trust and reputation, seeking and preferring reliable manufacturers and brands (Garai-Fodor, 2023).

Research in basic education consistently emphasizes the need to strengthen students' awareness of sustainable and responsible consumption from an early age (Kazmierczak-Piwko et al., 2022). Empirical findings indicate that students' limited awareness and knowledge, particularly with regard to food waste, remain a critical concern (Deksne et al., 2025). In addition, studies suggest that children's consumer-related understanding is still developing and often remains fragmented. For example, detailed investigations of food preferences among 7- to 10-year-old students highlight the need for more systematic research on children as consumers (Fiates et al., 2008). Similarly, Pereira et al. (2024) reported that sixth-grade students experience the greatest difficulty during the "making choices" phase of their daily consumption practices, indicating challenges in decision-making processes. At earlier grade levels, conceptual understandings also appear limited; second-grade students tend to define conscious consumerism primarily in terms of "saving," reflecting a narrow and simplified interpretation of the construct (Balbağ, 2023). Taken together, these findings suggest that students at an early age possess restricted knowledge and experience regarding conscious consumerism, underscoring the importance of targeted educational support during primary and middle school years.

Despite these developmental limitations, the literature also documents encouraging evidence regarding the malleability of students' conscious consumerism perceptions. Descriptive studies indicate that a substantial proportion of students already demonstrate emerging awareness; for instance, Celik (2022) found that the majority of fourth-grade students exhibited a good level of awareness of conscious consumerism. Moreover, intervention-based research provides strong evidence that conscious consumerism is both measurable and developable. Educational practices based on storytelling (Ersoy & Papatğa, 2015) and practical training in conscious consumer behavior (Tural et al., 2024) have been shown to positively influence fourth-grade students' consumer-related behaviors. Similarly, structured conscious consumerism education enhances fifth-grade students' awareness and perceptions of responsible consumption (Dere & Aktaşlı, 2020). Beyond school-based interventions, family context also plays a significant role; parental communication about conscious consumerism positively affects fourth-grade students' interest in and levels of conscious consumerism (Dündar, 2017). Collectively, these findings indicate that although students' initial understanding of conscious consumerism is limited,

their perceptions are responsive to educational and social influences, highlighting the developmental and educable nature of conscious consumerism in basic education.

Taken together, this body of research indicates that conscious consumerism in basic education reflects not only an educable set of skills. It also reflects an emerging system of beliefs, evaluations, and normative orientations related to responsibility and sustainability. These findings suggest that students' perceptions of conscious consumerism are shaped by underlying cognitive and moral frameworks. They are not shaped by isolated behaviors alone. From this perspective, it becomes essential to examine conscious consumerism within a broader theoretical structure. This structure links awareness, beliefs, norms, and evaluative judgments. Accordingly, the relationship between sustainable living awareness and conscious consumerism perceptions can be meaningfully interpreted through one of these theoretical models of pro-environmental behavior, as discussed in the following section

1.3 Theoretical Framework

The Value–Belief–Norm (VBN) theory is considered one of the most widely used and theoretically well-established approaches for explaining pro-environmental behavior. Systematic reviews indicate that the VBN theory has been effectively employed not only in modeling, explaining, and predicting pro-environmental behaviors, but also in understanding the continuity of these behaviors (Canlas et al., 2022).

The relationship between sustainable living awareness and conscious consumerism can be theoretically grounded within the framework of the VBN theory (Stern et al., 1999; Stern, 2000). According to this theory, individuals' tendencies to engage in pro-environmental behavior are explained through a causal chain. This chain consists of personal values, ecological worldview, awareness of adverse consequences related to environmental threats, attribution of responsibility, and personal norms that directly trigger behavior. It is assumed that each component in this chain influences the subsequent one and that pro-environmental behavior emerges as a result of this sequential process (Stern et al., 1999; Stern, 2000).

In this context, middle school students' sustainable living awareness is closely related, particularly to the stages of ecological worldview and awareness of adverse consequences within this causal chain. Sustainable living awareness reflects how individuals make sense of human–environment relationships. It also reflects how they perceive the potential environmental, social, and economic consequences of environmental change. As the level of this awareness increases, it is assumed that individuals' tendencies to view environmental and social problems as part of their personal sphere of responsibility are strengthened.

Within the scope of the VBN theory, conscious consumerism is classified as a type of pro-environmental

behavior referred to as “private-sphere environmentalism” (Stern et al., 1999). Private-sphere environmental behaviors refer to individuals assuming environmental responsibility in their daily lives directly through their consumption preferences. Behaviors such as saving energy and water, participating in recycling, preferring environmentally friendly products, and avoiding unnecessary consumption are evaluated within this category (Stern et al., 1999; Stern, 2000). Although such behaviors have limited effects at the individual level, they can produce meaningful and lasting environmental impacts when they become widespread at the societal level (Stern, 2000).

According to the VBN theory, as individuals develop environmental and social beliefs regarding sustainability issues, these beliefs activate personal norms. These norms lead individuals to feel responsible toward the environment and society. Personal norms refer to individuals’ perceptions of moral obligation to “do the right thing” and emerge as the primary element that directly guides behavior (Stern, 2000). When these norms are activated, consumption is perceived not merely as an individual economic activity but as an ethical behavior with environmental and social consequences.

In the present study, conscious consumerism is addressed as a construct reflecting individuals’ normative and evaluative perceptions regarding consumption rather than their actual purchasing behaviors. Conscious consumerism perception refers to the ways in which individuals evaluate their consumption decisions within the framework of moral responsibility, ethical sensitivity, and norms related to resource use. In this respect, sustainable living awareness plays a decisive role in the formation of the normative evaluations that constitute the core components of conscious consumerism.

Although the VBN theory was originally developed based on adult samples, there are studies in which the theory has also been tested with early age groups (Swedhaa-Shanmathi & Vinothkumar, 2025). Early adolescence, in particular, represents a critical developmental period during which individuals begin to make sense of abstract concepts, social responsibilities, and long-term consequences. Indeed, studies in the field of sustainability and environmental education reveal that middle school students’ awareness and normative orientations toward sustainability are measurable and developable (Olsson et al., 2016).

Accordingly, in this study, sustainable living awareness is conceptualized as a belief-based cognitive antecedent of conscious consumerism perception, while conscious consumerism perception is conceptualized as a normative and evaluative outcome derived from these beliefs. This theoretical framework provides a theoretical justification for the assumption that sustainable living awareness may predict middle school students’ conscious consumerism

perceptions and enables the empirical testing of this relationship within the context of the VBN theory.

This theoretical conceptualization is supported by previous empirical and policy-oriented research emphasizing the role of sustainability-related awareness in shaping consumption-related orientations. Studies have shown that individuals who recognize the environmental and social consequences of consumption are more likely to evaluate their purchasing decisions in terms of responsibility, resource efficiency, and environmental impact (Jackson, 2005; Lorek & Fuchs, 2013; Thøgersen, 2005). In educational contexts, early exposure to sustainable living concepts has been highlighted as particularly important, as consumer awareness begins to develop at a young age and influences consumption-related perceptions across the life span (European Commission, 2023). Accordingly, examining the relationship between sustainable living awareness and conscious consumerism perception at the middle school level is theoretically meaningful and empirically warranted.

2. METHOD

This research employed a correlational framework (Ary et al., 2014) to examine the predictive relationship between students’ awareness of sustainable living and their perceptions of conscious consumerism. The primary objective was to explore the relationship between these variables rather than manipulate the independent variable (Creswell & Guetterman, 2019), which justified the use of a correlational research approach. The overall methodological process is summarized in Figure 1. As illustrated, the research followed a sequential structure, beginning with the selection of the research design and sample, followed by data collection using validated measurement tools, data preparation and assumption testing, and concluding with inferential statistical analysis. This flowchart provides an integrated overview of all methodological components and their logical sequence within the study.

2.1 Sampling

Research data were collected in 2024 at a public middle school located in the central district of Kahramanmaraş Province. Both convenience sampling and criterion sampling were employed to select the research participants (Ary et al., 2014). Regarding criterion sampling, several substantive criteria directly related to the research variables were applied. First, the school had to be a public middle school implementing the national science curriculum, which explicitly includes sustainability-related learning outcomes and responsible resource use at the middle school level. Second, the school served students from a predominantly middle-income socioeconomic background, providing a relatively homogeneous context for examining students’ awareness of sustainable living and their perceptions of conscious consumerism. Third, the

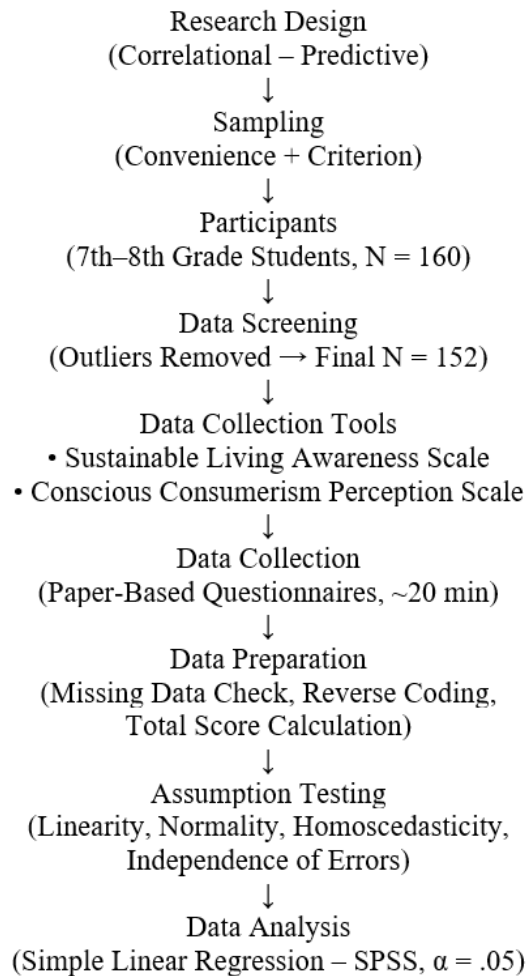


Figure 1. Research method flow of the study

school was situated in an urban setting where students are regularly exposed to diverse consumption practices and commercial environments in their daily lives. This context also involves frequent encounters with sustainability-related issues, making the school a suitable setting for investigating perceptions of conscious consumerism.

In addition, convenience sampling was employed due to the accessibility of the school to the researcher. Seventh- and eighth-grade students were selected because they represent the final stages of middle school education in Türkiye and possess the cognitive maturity necessary to reflect on abstract concepts such as sustainability and consumer responsibility. Participation was voluntary. A total of 160 middle school students took part in the study. Eight cases were excluded after data collection during the data screening and assumption-checking phase, prior to inferential analysis. Following these procedures, analyses were conducted using data from 152 participants. Of these, 97 were female, and 55 were male, with 76 students enrolled in each grade level.

However, the use of convenience sampling constitutes a significant limitation of this study. Because the sample

was drawn from a single public middle school selected based on accessibility, the findings may not be fully representative. They may not accurately reflect middle school students from different regions, school types, or socio-economic backgrounds in Türkiye. Therefore, the results should be interpreted with caution, and the generalizability of the findings is limited to students with similar demographic and educational characteristics.

2.2 Data Collection Tools

Data for the study were collected using a questionnaire that included sections for demographic information (such as gender and grade level), a scale to assess perceptions of conscious consumerism (Sağlam, 2010), and a scale to evaluate awareness of sustainable living (Akgül & Aydoğdu, 2020). The Conscious Consumerism Level Scale, developed by Sağlam (2010), is designed to assess primary students' perceptions of conscious consumerism. This scale consists of a total of 19 items grouped into three factors: consciousness of consumer responsibility, consciousness of quality, and consciousness of budget-price. Items 1-8 evaluate students' consciousness of consumer responsibility; items 9-13 assess quality consciousness; and items 14-19 measure budget-price consciousness. Additionally, two items on the scale are negatively worded (items 7 and 18), while the remaining items are positively worded. Responses to the statements use a 4-point Likert-type scale: never, occasionally, often, and always. Examples of items included in the measurement tool are: - Item 2: I check the expiration date of the products I intend to purchase. - Item 10: I first consider the quality of the product I plan to buy. - Item 16: I understand that I cannot buy everything I like. In his scale development study, Sağlam (2010) reported a Cronbach's alpha reliability coefficient of 0.77 for the scale. In the current study, the overall Cronbach's alpha coefficient for the Conscious Consumerism Level Scale was 0.67, indicating moderate internal consistency. At the sub-factor level, Cronbach's alpha coefficients were 0.55 for consciousness of consumer responsibility, 0.54 for quality consciousness, and 0.60 for budget-price consciousness. These findings suggest that the relatively low overall reliability of the scale was primarily due to the limited internal consistency of its sub-factors rather than random measurement error at the scale level.

The Awareness of Sustainable Living Scale was developed by Akgül and Aydoğdu (2020). This scale comprises 20 items divided into three dimensions: social, environmental, and economic. Items 1–8 assess the social dimension of sustainable living, items 9–15 address the environmental dimension, and items 16–20 pertain to the economic dimension. The scale includes an equal number of positively and negatively worded items—ten each. Responses are measured using a 3-point Likert scale (agree, undecided, disagree). Examples of items from the scale

Table 1. Descriptive statistics and Pearson correlation between study variables

Variables	N	Mean	SD	Min	Max	1
1. Sustainable Living Awareness	152	47.72	6.47	27.00	58.00	—
2. Perception of Conscious Consumerism	152	53.90	6.96	37.00	69.00	.27*

Note. Pearson correlation coefficients are reported.

* $p < .001$.

include: Item 3: Rapid population growth has no effect on natural resource consumption. Item 13: Problems only affect the region in which they are located. Item 19: Resources are utilized in green building applications. Akgül and Aydoğdu (2020) reported a Cronbach's alpha reliability coefficient of .77 for the overall scale. In the current study, the Cronbach's alpha was 0.76. The subscale reliabilities were 0.64 for the social dimension, 0.71 for the environmental dimension, and 0.53 for the economic dimension.

The two instruments used in this study employ different Likert response formats (4-point and 3-point), reflecting construct-driven decisions made during their original scale development. The Conscious Consumerism Level Scale (Sağlam, 2010) assesses behavior-proximal, frequency-oriented perceptions (e.g., “never” to “always”), for which a greater number of response categories enhances discrimination among respondents and reduces central tendency bias, particularly in child samples (Alan & Atalay-Kabasakal, 2020; Preston & Colman, 2000).

In contrast, the Awareness of Sustainable Living Scale (Akgül & Aydoğdu, 2020) emphasizes basic awareness and conceptual understanding of sustainability-related issues. For children and adolescents, fewer response categories (e.g., 3-point Likert scales) are generally recommended when measuring abstract or knowledge-based constructs, as they reduce cognitive load, promote clearer category use, and help maintain acceptable validity and reliability (Alan & Atalay-Kabasakal, 2020; Mellor & Moore, 2014).

In the present study, both scales were administered in their original validated formats to preserve their psychometric properties. Importantly, analyses were conducted at the scale-score level rather than at the item level. Given the unidimensional structure and acceptable internal consistency of both instruments, total scale scores were treated as approximately continuous variables, a common and accepted practice in correlational and regression analyses involving Likert-type measures. Accordingly, the difference in Likert formats reflects theoretically and psychometrically grounded measurement choices rather than a methodological inconsistency in the present study.

3. RESULT

In this study, a simple linear regression analysis was conducted to determine the extent to which middle school students' awareness of sustainable living predicts their perception of conscious consumerism. This section

presents the results concerning the assumptions and the inferential findings derived from the simple linear regression analysis.

3.1 Descriptive Statistics of Study Variables

Descriptive statistics and Pearson correlation coefficients for the study variables are presented in Table 1.

Table 1 presents the descriptive statistics and Pearson correlation coefficients for the study variables. Middle school students' sustainable living awareness scores ranged from 27 to 58 ($M = 47.72$, $SD = 6.47$), while conscious consumerism perception scores ranged from 37 to 69 ($M = 53.90$, $SD = 6.96$). The Pearson correlation analysis revealed a statistically significant positive relationship between sustainable living awareness and conscious consumerism perception ($r = .27$, $p < .001$). This finding indicates a low positive association between sustainable living awareness and conscious consumerism perception.

3.2 Regression Assumptions

Among the assumptions of simple linear regression analysis, outliers and influential cases were examined first as part of a predefined data screening procedure. With a sample size of 160 participants, the presence of outliers and influential cases was assessed using standardized residuals, Cook's distance, and box plots. The standardized residuals were within the ± 3 standard deviation threshold (Abu-Bader, 2021). Influential cases were evaluated using Cook's distance (D), with no values exceeding 1, indicating the absence of influential cases (Abu-Bader, 2021). Box plots were employed to identify extreme values that could violate the assumptions of normality and homoscedasticity. Eight cases identified as outliers during this screening phase were excluded prior to inferential analysis. Consequently, data from the final sample of 152 participants were included in the inferential analyses.

The second assumption, linearity of the relationship between the independent and dependent variables, was assessed using the Pearson correlation coefficient and a scatter plot. The scatter plot indicated a linear relationship between the independent and dependent variables (see Figure 2).

Pearson's correlation coefficient between the independent and dependent variables was statistically significant ($r = 0.270$, $p < .001$, $n = 152$), indicating a linear relationship between these variables. This finding was further supported by the scatterplot and Pearson correlation analysis ($r = 0.27$), which confirmed the linearity assumption. The absence of a curvilinear pattern in the scatterplot suggests that a linear regression model

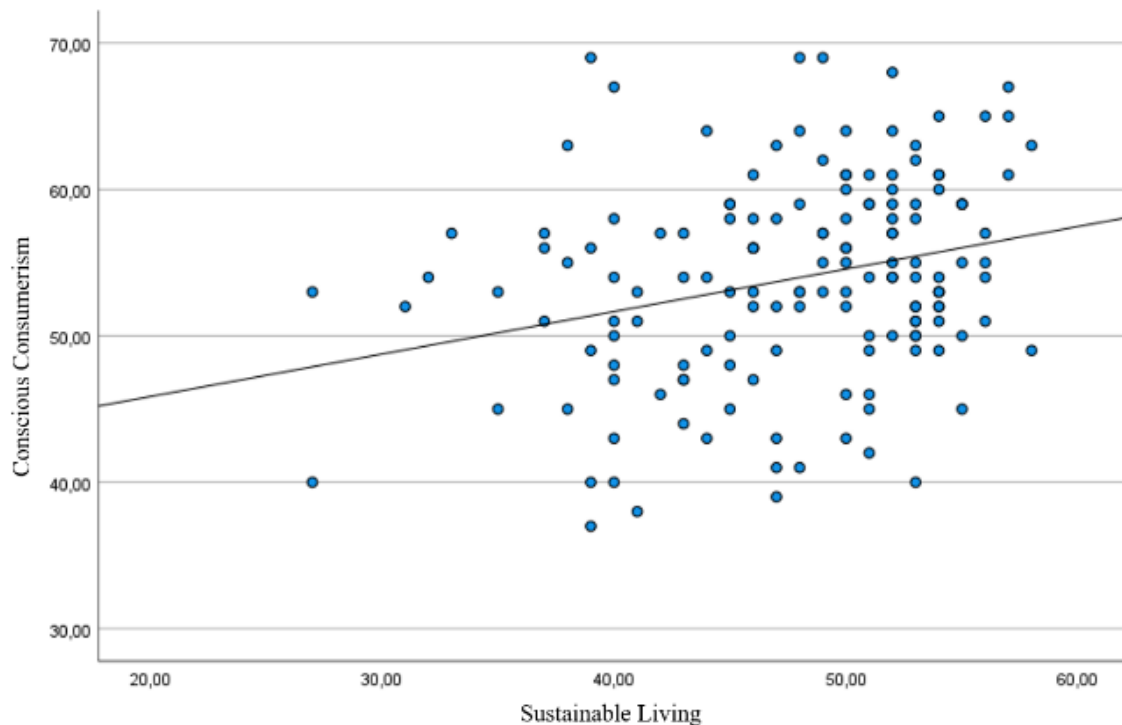


Figure 2. Scatter plot of dependent and independent variables

was appropriate for examining the relationship between the variables (Pallant, 2016).

The third assumption involved examining homoscedasticity, which refers to whether the variance of the residuals remains constant across all values of the independent variable. To test for homoscedasticity, a scatter plot of the residuals against the predicted values was created (see Figure 3).

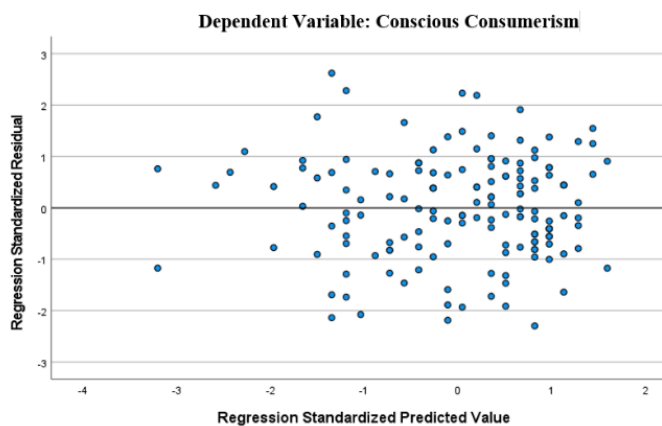


Figure 3 Scatter plot of the residuals against the predicted values

Figure 3 indicates the presence of homoscedasticity, as the residuals are evenly and randomly distributed above and below the horizontal line, with a constant spread across the predicted values.

The fourth assumption concerns the normality of errors. This assumption was assessed using histograms and normal probability plots of the residuals. To satisfy the normality assumption, the residuals should follow a normal

distribution. The histogram depicting the distribution of the residuals is shown in Figure 4.

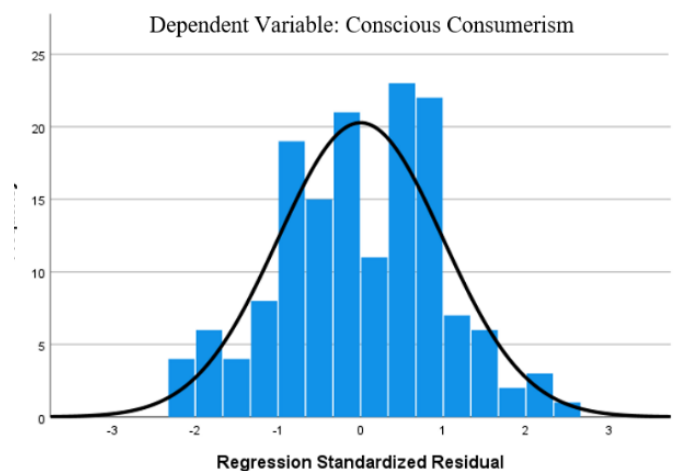


Figure 4 Histogram plot of residuals for the dependent variable

The histogram in Figure 4 indicates that the residuals of the dependent variable were normally distributed. Additionally, Figure 5 presents the normal probability plot for the residuals of the dependent variable.

In the normal probability plot shown in Figure 5, the alignment of the data along a straight diagonal line suggests that the residuals are normally distributed. Additionally, the Durbin–Watson statistic was used to assess autocorrelation in the residuals, indicating the independence of errors from one another. The calculated value was 2.151. A Durbin–Watson statistic of approximately 2 indicates that the

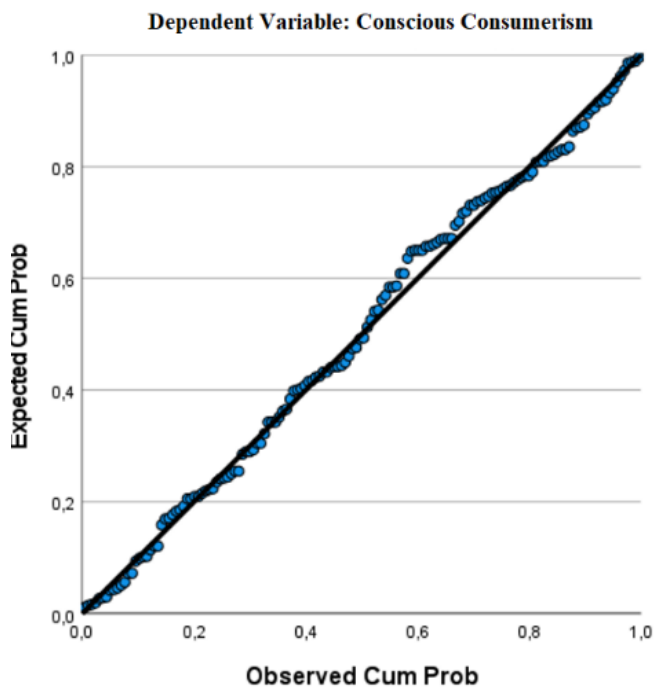


Figure 5 Normal Probability Plot of Residuals for the Dependent Variable

residuals are uncorrelated, while values less than 1 or greater than 3 raise concerns (Field, 2024).

For simple linear regression, a sample size of 30 participants is generally considered sufficient (Abu-Bader, 2021). Additionally, G*Power software was used to assess whether the sample size was adequate. The researcher determined that a minimum of 55 participants was required, assuming a statistical power of 0.80, an effect size of 0.15, and a significance level of 0.05. Therefore, the inclusion of 152 participants in the current study was more than sufficient.

A systematic examination of regression assumptions prior to conducting regression analysis provides a crucial methodological foundation for the reliability of the findings. First, the standardized residuals fell within the acceptable range of ± 3 standard deviations, and all Cook's distance values were below the critical threshold of 1. These results indicate that no single observation exerted undue influence on the regression coefficients. In the methodological literature, these criteria are widely recommended for identifying outliers and influential cases that could distort regression estimates (Abu-Bader, 2021; Bennett et al., 2023). Therefore, the overall structure of the dataset can be considered representative of the underlying relationships among the variables.

The exclusion of eight outliers identified through boxplot inspection should not be viewed merely as a procedural step to improve statistical fit. Instead, it represents a methodological decision intended to reinforce the assumptions of normality and homoscedasticity. Pallant (2016) emphasizes that extreme values violating regression

assumptions can significantly reduce the interpretability of results, especially in studies with moderate sample sizes. From this perspective, removing these observations contributed to the development of a more stable and balanced regression model.

Evidence supporting the homoscedasticity assumption was demonstrated by the even dispersion of standardized residuals across predicted values. This pattern indicates that the variance of the error terms remained relatively constant across levels of the independent variable, thereby reinforcing the reliability of the estimated regression coefficients and their standard errors (Bennett et al., 2023). Additionally, the histogram and normal probability plots of the residuals suggested an approximately normal distribution, a crucial condition for the valid interpretation of regression-based significance tests (Bennett et al., 2023).

Finally, the Durbin–Watson statistic fell within the acceptable range, confirming that the residuals were independent and that no autocorrelation was present. Field (2024) notes that meeting this assumption is particularly important in cross-sectional educational research, as violations can compromise the validity of inferential conclusions. Taken together, these findings indicate that the assumptions underlying the simple linear regression analysis were largely satisfied, providing strong methodological support for the conclusion that sustainable living awareness is a statistically valid predictor of middle school students' perceptions of conscious consumerism.

3.3 Inferential Results

Table 2 presents the results of a simple linear regression analysis conducted to evaluate the extent to which middle school students' awareness of sustainable living predicts their perceptions of conscious consumerism.

The data in Table 2 show a statistically significant regression [$F(1, 150) = 11.794, R^2 = .073, p < .001$]. The R^2 value indicates that students' sustainable living awareness scores explain approximately 7% of the variance in their conscious consumerism perception scores, representing a small effect size (Cohen, 1988). These results demonstrate that students' sustainable living awareness is a significant positive predictor of their conscious consumerism perceptions ($\beta = .270, t = 3.434, p < .001$). Furthermore, the confidence interval for the slope of sustainable living awareness predicting conscious consumerism perception ranges from .123 to .458, with 95% confidence.

Although the regression analysis revealed a statistically significant relationship between sustainable living awareness and the perception of conscious consumerism, the magnitude of the explained variance was relatively low ($R^2 = .073$). This finding should be interpreted in the context of the developmental characteristics of middle school students and the conceptual nature of the

Table 2 Results of simple linear regression analysis

Independent Variable	Unstandardized Coefficients	R	R ²	β	t	p	F	p	%95 confidence interval	
									Lower Bound	Upper Bound
Sustainable Living Awareness	0.290	.270 ^a	.073	.270	3.434	<.001	11.794	<.001	.123	.458

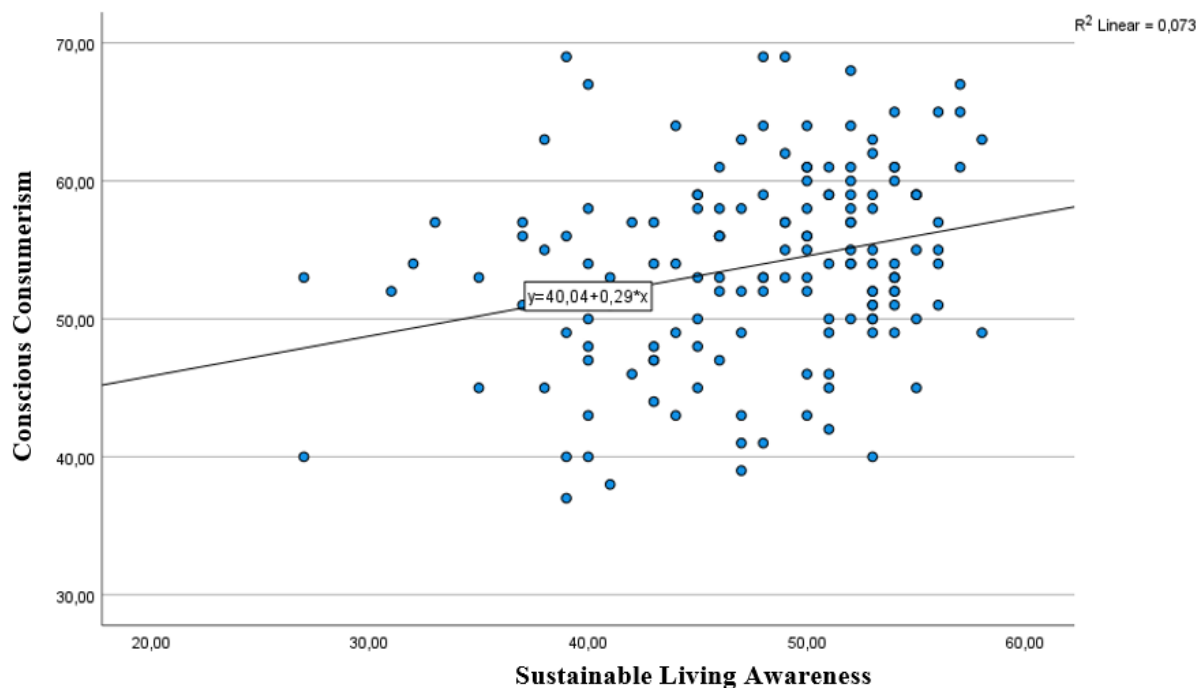
Constant B=40.040, Adjusted R²=0.067, aPredictors: (Constant), Sustainable Living Awareness

dependent variable. At this age, conscious consumerism reflects students' emerging evaluative and normative perceptions rather than fully established purchasing behaviors. Therefore, sustainable living awareness should be considered one of several cognitive factors shaping students' consumption-related perceptions, rather than the sole determinant.

From a conceptual standpoint, students who exhibit greater awareness of sustainable living—particularly across environmental, social, and economic dimensions—are

are shaped by multiple contextual factors, such as family practices, socio-economic conditions, and peer influence. Additionally, the results of the simple linear regression analysis are illustrated in the scatterplot shown in Figure 6.

Figure 6 visually illustrates the relationship between sustainable living awareness and the perception of conscious consumerism. The upward trend in the distribution of data points indicates a positive linear association, while the relatively wide dispersion around the regression line reflects the modest effect size observed in

**Figure 6.** Scatter plot illustrating conscious consumerism based on awareness of sustainable living

more likely to recognize the broader consequences of consumption. They also tend to assess their purchasing decisions based on responsibility, quality, and budget considerations. This suggests that awareness of sustainable living serves as a cognitive framework that fosters the development of conscious consumerism perceptions. However, this awareness does not directly translate into behavioral outcomes. Therefore, even a small but statistically significant effect is theoretically meaningful. This is likely because students' consumption perceptions

the regression analysis. This pattern suggests that although higher levels of sustainable living awareness are generally associated with greater conscious consumerism perceptions, this relationship is influenced by additional factors not captured within the scope of the present model. In the context of middle school students, such variability is expected, as consumption-related perceptions are shaped by multiple social and contextual influences beyond sustainability awareness alone.

The results of the simple linear regression analysis reveal a statistically significant relationship between students' awareness of sustainable living and their perceptions of conscious consumerism. This finding indicates that sustainable living awareness is a significant predictor of conscious consumerism perceptions among seventh- and eighth-grade students and supports the theoretical premise that sustainability-related awareness constitutes an important cognitive foundation for the development of responsible consumer orientations.

4. DISCUSSION

Although studies directly examining this relationship at the middle school level are relatively limited, previous research conducted with high school, university, and adult samples has consistently shown that environmental awareness and attitudes are significant predictors of green purchasing behavior and consumer responsibility (Uddin & Khan, 2018; Jhanji & Sarin, 2018). Similarly, Zsóka et al. (2013) reported that environmental education addressing consumerism increased consumer awareness among high school and university students, suggesting that awareness-oriented educational interventions play a key role in shaping consumer-related perceptions.

Although most existing studies have focused on high school, university, and adult populations, the current findings suggest that similar mechanisms may operate at earlier educational stages. The middle school years represent a critical developmental period during which students' environmental awareness, social responsibility, and moral reasoning capacities are actively shaped. Early educational experiences related to sustainable living and conscious consumption are therefore likely to have a long-term influence on individuals' consumption-related perceptions and behaviors.

Evidence supporting this interpretation can be found in the limited number of studies conducted with middle school students. For example, Kahyaoglu and Kiriktaş (2013) reported a positive and moderate relationship between environmentally conscious behaviors and conscious consumer behaviors among students in grades 6 to 8. In line with these findings, the results of the present study indicate that increasing students' awareness of sustainable living may contribute to the development of more conscious consumerism perceptions at an early age.

At the middle school level, emerging evidence indicates that sustainability-related educational practices can positively influence students' awareness of sustainable living. In this regard, Suna and Çengelci-Köse (2023) and Yüzbaşıoğlu (2023) demonstrated that sustainability-focused activities and interdisciplinary practices enhance middle school students' sustainable living awareness. Consistent with these findings, the results of the present study suggest that strengthening sustainable living awareness among seventh- and eighth-grade students may

contribute to the development of more conscious consumerism perceptions and support the formation of responsible consumption orientations at an early age.

From an educational perspective, these findings align with international policy recommendations emphasizing the integration of consumer education into basic education curricula (European Commission, 2023). Developing sustainability-related awareness and responsible consumption skills during middle school may therefore play a formative role in preparing students to act as environmentally and socially responsible consumers in later stages of life.

The results of the simple linear regression analysis reveal a statistically significant relationship between students' awareness of sustainable living and their perceptions of conscious consumerism. Although studies directly examining this relationship at the middle school level are relatively limited, previous research conducted with high school, university, and adult samples has consistently shown that environmental awareness and attitudes are significant predictors of green purchasing behavior and consumer responsibility (Uddin & Khan, 2018; Jhanji & Sarin, 2018). Similarly, Zsóka et al. (2013) reported that environmental education addressing consumerism increased consumer awareness among high school and university students, suggesting that awareness-oriented educational interventions play a key role in shaping consumer-related perceptions. Although most existing studies have focused on high school, university, and adult populations, the current findings suggest that similar mechanisms may operate at earlier educational stages. The middle school years represent a critical developmental period during which students' environmental awareness, social responsibility, and moral reasoning capacities are actively shaped. Early educational experiences related to sustainable living and conscious consumption are therefore likely to have a long-term influence on individuals' consumption-related perceptions and behaviors.

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5. CONCLUSION

This study examined whether middle school students' awareness of sustainable living predicted their perceptions of conscious consumerism. The findings reveal that awareness of sustainable living is a statistically significant positive predictor of perceptions of conscious consumerism among seventh- and eighth-grade students. Although the explained variance was modest, students with higher awareness of environmental, social, and economic sustainability evaluated consumption-related issues more thoughtfully. They considered factors such as responsibility, quality, and budget more carefully in their evaluations.

The significance of this finding lies in the developmental context of middle school education. At this stage, students' consumption-related perceptions are still forming and are influenced by multiple social and contextual factors. In this regard, awareness of sustainable living functions as an important cognitive foundation rather than the sole determinant of conscious consumerism. Although the effect is modest, it meaningfully contributes to how students interpret everyday consumption decisions.

Conceptually, this study expands the understanding of sustainable living awareness by demonstrating its predictive role in shaping perceptions of conscious consumerism among middle school students. Empirically, it provides evidence that sustainability-related awareness can be measured and linked to consumption-oriented perceptions during early adolescence. From an educational perspective, the findings underscore the importance of integrating sustainability concepts into science education to promote responsible consumption behaviors.

Given the modest effect size ($R^2 = .073$), classroom-level interventions should prioritize concrete, short-term practices rather than broad curricular reforms. This approach enables sustainability concepts to be more directly connected to students' daily experiences. For

example, science teachers can incorporate brief, activity-based modules, such as one-week classroom projects. These modules can explicitly link sustainable living concepts to everyday consumption decisions, including reducing food waste, recycling routines, and responsible purchasing behaviors. At the school level, low-cost and feasible initiatives can further support this process. Student-led sustainability campaigns, classroom waste monitoring, and simple reflection activities on consumption habits may strengthen the connection between sustainability awareness and conscious consumerism. Through these targeted, practical actions, abstract sustainability knowledge can be translated into observable consumer behaviors. This translation may, in turn, enhance the explanatory power of sustainability awareness.

Despite these contributions, the study has several limitations. The sample was drawn from a single public middle school, which limits the generalizability of the findings. Additionally, the correlational design precludes causal interpretations. Future research should address these limitations by employing experimental designs, utilizing larger and more diverse samples, and examining additional variables that may influence the development of conscious consumerism perceptions.

Another primary limitation of the present study is the moderate internal consistency of the Conscious Consumerism Level Scale. Although this scale has been previously validated, the overall Cronbach's alpha coefficient obtained in this study (.67) indicates only moderate reliability. A closer examination revealed that this limitation was mainly due to the relatively low reliability coefficients of the sub-factors, particularly consciousness of consumer responsibility and quality consciousness. This may be partly attributed to the developmental characteristics of middle school students, who may have difficulty consistently interpreting abstract concepts related to consumer responsibility, quality evaluation, and budgeting. Additionally, the limited number of items within each sub-factor and the restricted response range of the four-point Likert scale may have constrained score variability, thereby reducing internal consistency. Consequently, the findings related to perceptions of conscious consumerism should be interpreted with caution.

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ETHICAL CONSIDERATIONS

The necessary ethics committee approval for this study was obtained from the Kahramanmaraş Sütçü İmam University Ethics Committee on June 7, 2024 (Document Number: E-92405296-100-320870, Decision Number:

2024/16). The researcher informed all students and their families about the study. As the participants were underage, parents or legal guardians were informed prior to data collection through an informed information form. This form included information about the purpose of the study, data collection procedures, voluntary participation, and confidentiality. Students were informed about the study in an age-appropriate manner and participated voluntarily. They were informed that they could withdraw from the study at any time without any negative consequences. The confidentiality and privacy of the participants were safeguarded, and the collected data were analyzed anonymously. Furthermore, the Turkish Council of Higher Education's Scientific Research and Publication Ethics Guidelines were taken into consideration.

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