

Article

Environmental Perceptions and Sustainable Consumption Behavior: The Disparity among South Africans

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Abstract: The aim of this study is to assess the impact of sociodemographic factors on the environmental perceptions and sustainable consumption behavior in South Africa, a country with the highest record of inequality in the world. Few studies have examined the ways in which people in low-income countries perceive social and environmental problems. By using the International Social Survey Programme Environment III dataset for 2010, this study assessed the impact of sociodemographic factors on the environmental perceptions and sustainable consumption behavior of South Africans. The results show that environmental concern rates are highest among those with low socioeconomic status and African people. Since these individuals constitute the majority of the most vulnerable population in society, it supports the exposure to degradation hypothesis in a South African context. In contrast, sustainable consumption behavior rate is highest among those with high socioeconomic status, suggesting a strong post-materialist effect on pro-environmental consumption. From a policy perspective, environmental policymakers in South Africa could take note of the strong environmental concerns among those more vulnerable to daily environmental degradation and provide further incentives and support their transition to sustainable consumption behavior changes that would assist in environmental protection.

Keywords: environmental behaviour; green consumption; inequality; South Africa



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1. Introduction

In the last few decades, a considerable amount of research has been dedicated to human–nature interactions [1]. A large body examines environmental attitudes based on surveys of peoples’ environmental knowledge [2,3] and environmental risk perceptions [4,5] environmental concerns [6,7] and pro-environmental behaviour [6,8,9]. There is also strong evidence that these environmental perceptions and pro-environmental behaviors greatly influence willingness to sacrifice for the sake of the environment and help reduce individual environmental footprint [8,10]. Furthermore, in determining the ways in which people react and whether they embrace related policies, community perceptions of environmental exposure are crucial. Therefore, it is essential to understand the people’s perception of the issue in order to devise effective intervention strategies.

Extensive literature has explored the individual perceptions of environmental issues based on their sociodemographic characteristic [11–14]. These studies show that race, gender, location and economic position all play a vital role in public perceptions of environmental issues and their sustainable consumption behaviour. However, developing countries have been heavily underrepresented in this rich literature on environmental perceptions among those with different sociodemographic characteristics [14,15]. We focus on South Africa, a country whose society is regarded as the most unequal in the world [16]. Since the end of colonialism and apartheid, the legacies of these discriminating regimes are still lingering in the social stratification of the country where a small share of individuals still holds most of the resources, while there is a mass at the bottom, mainly comprising

African people, that are struggling to meet the minimum requirement for sustainability [17,18]. African people and female-headed households still dominate the share of those vulnerable in society; poverty is also dominated by African people, females, and those in rural locations [19]. Furthermore, the increase in income polarization and the struggling middle class has further increased the gap between those on top and those at the bottom of the social hierarchy [16]. With two groups that are so economically and socially different, South Africa has been labeled a country of two nations [20] and the highly unequal setting presents an opportunity to assess the varying views those with different sociodemographic characteristics hold in terms of environmental concerns, environmental knowledge, risk perceptions, behavioral intentions, and sustainable consumption behavior.

This study aims to make several contributions. Firstly we aim to provide insight into environmental perceptions of sustainable consumption behaviour in an African context, a continent heavily underrepresented in this field of research. Secondly, we aim to provide an empirical contribution into the heterogeneous environmental perceptions among different sociodemographic groups in South Africa, contributing to the growing literature that observes environmental perceptions that differ by sociodemographic characteristics, especially in developing countries [14,21,22]. Thirdly, as South Africa has the most unequal society, this study presents a unique insight for policymakers into the environmental perceptions and pro-environmental consumption behavior that individuals hold in an African society within vastly different social groups.

The rest of the paper is structured as follows: Section 2 presents the literature review and empirical background behind environmental perceptions; Section 3 explains the data and methodology used; Section 4 provides a descriptive and empirical analysis of the results; Section 5 concludes the study with possible future avenues.

2. Literature Review

Environmental degradation is one of the most alarming issues of this century and has received a great deal of research attention. Focusing on the human–environment relationship, a host of studies have assessed the collective understanding of the environment, which is seen as a significant force in shaping the environment through human behaviour. Since individual perceptions of environmental issues might drive one's behaviour toward intention for sustainable consumption, a clear understanding of the human–environment relationship is vital. Furthermore, it is important to understand public perceptions of the environment, since it provides public policymakers with insight into people's stance on environmental issues and social development which could drive pro-environmental policy formations in the scope of social development [21].

A key element within further understanding public perceptions of environmental issues and sustainability is the heterogeneity of perceptions among people with different socio-economic characteristics. From a materialist view, a large literature support was observed posing the popular affluence argument. Individuals with high social and economic standings have a post-materialist pro-environmental view of environmental issues [23]. Other results, however, have shown that those at the lower end of society and the disadvantaged are more vulnerable to climate change and environmental events daily and therefore have a strong and sometimes greater pro-environmental view than those at the higher end of society [12,24–27]. While economic position is indeed important to environmental perceptions, a host of studies have also focused on other sociodemographic characteristics such as gender [28,29], race [12], and location [30].

Given this strong theoretical underpinning, many studies have shown that individuals have varying perceptions of environmental issues based on their population groups and socioeconomic characteristics [7,27,31,32]. For example, ref. [31] showed that individuals have different risk perceptions of environmental issues based on rapid societal transformations and exposure to environmental degradation. In contrast, in a study by [13], the researchers determined that the Hispanic population, one of the minority groups in the U.S., have deeper environmental concerns than white people. In support of this, ref. [12]

showed that non-white people, females, and those with low-income positions tend to view human-based issues more through an environmental lens than advantaged groups. Furthermore, ref. [27] discovered more significant concern about environmental justice issues among U.S. minority and lower-SES respondents compared to white people and higher-SES respondents, even after controlling for demographic variables such as gender and political ideology. In terms of gender and location differences, ref. [28] showed that women have a stronger sense of environmental concern compared to men when observing a sample in Oman and India.

However, these studies have mainly focused on developed nations and developing countries outside the African continent, and little is known about these varying environmental perceptions and sustainable consumption behavior among South African people, a population with some of the highest inequality levels in the world. Since the end of apartheid in 1994, income inequality has also increased among South African people. Furthermore, while inequality is heavily racialized, due to the gap between those living in deep poverty and those living above comfortable lifestyles, South Africa has been dubbed a country of two nations. However, little is still known about the environmental perceptions and sustainable consumption behavior of South African people, especially among different sociodemographic groups. This study aims to expand the current literature on environmental perceptions and sustainable consumption behavior and link it with different social groups in this highly unequal society. The study aims to make several contributions to the literature. Firstly, it aims to expand the literature on public perceptions about environmental issues in developing countries, especially on the African continent. Secondly, the study aims to test the affluence or exposure to degradation hypothesis in a South African context and observe the drivers behind environmental concern, risk behaviour, behavioral intentions and sustainable consumption behaviour. The following hypothesis is tested: the environmental perceptions and sustainable consumption behaviour vary by race, gender, location and socioeconomic status.

3. Data and Methodology

3.1. Data

We use the ISSP Environment III open data set. Between 2009 and 2013, the Environment III module was collected with a mixed-method approach and included 36 countries. The dataset includes South Africa only for the 2010 module, which we used in this study (N = 3112). The cross-sectional dataset includes vital questions about individual attitudes toward environmental issues, environmental knowledge, and consumption behavior, making it possible to assess the pro-environment attitudes and pro-environment consumption behavior for multiple countries across different social groups [6,33–35]. This current study complements previous studies by analyzing the impact of socioeconomic and population group status on environmental perceptions and sustainable consumption behavior for South African people. A summary of the demographic variables can be found in Table 1.

Table 1. Demographic data.

Variable	Number of Observations	Percentage of the Total Sample
African	1781	57.25
Person of Color	564	18.13
Indian/Asian	365	11.73
White	401	12.89
Low status	1230	55.88
High status	971	44.12
Male	1268	40.75
Female	1844	59.25
Urban	2246	72.17
Rural	866	27.83

3.2. Variables

The ISSP dataset enabled us to construct various index measures of environmental perceptions. Since there are multidimensional dynamics behind environmental perceptions, we followed a measurement approach similar to those of [6,36–38]. Environmental issues were divided into five environmental measures: knowledge, environmental concerns, environmental risk perceptions, behavioral intentions, and sustainable consumption behavior. According to [6], there is a strong intercorrelation between these environmental perceptions and consumption behavior. In order to construct these five environmental measures, 17 questions were drawn from the ISSP Environment survey that relates to each component. (Except for the items on sustainable consumption behaviour, which were measured on a 4-point scale, all items were measured on a 5-point Likert scale. The environmental concern questions were reverse-coded, so all measures rank from 1 (lowest response) to 5 (highest response).) These 17 questions were then grouped into five environmental perceptions measures (refer to Table 2). For each one of these index measures, a Bartlett test of sphericity, Kaiser–Meyer–Olkin (KMO) test, and Cronbach Alpha were conducted to confirm the reliability and validity of these groupings.

Table 2. Measures of environmental perceptions and sustainable consumption behavior.

ISSP Code	Description
Environmental Knowledge	
V18	How much do you feel you know about the causes of these sorts of environmental problems?
V19	How much do you feel you know about solutions to these sorts of environmental problems?
V37	(How much do you agree or disagree with . . .) “I find it hard to know whether the way I live is helpful or harmful to the environment”?
Environmental Concern	
V15	V15: Generally speaking, how concerned are you about environmental issues?
V23	How much do you agree or disagree with this statement? We worry too much about the future of the environment and not enough about about prices and jobs.
V25	How much do you agree or disagree with this statement? People worry too much about human progress harming the environment.
V36	How much do you agree or disagree with this statement? Many of the claims about environmental threats are exaggerated.
Environmental risk perception (In general, do you think that . . . is . . . ?)	
V39	Air pollution caused by cars.
V40	Air pollution caused by industry.
V43	Rise in the world’s temperature caused by climate change.
Behavior intention (How willing would you be to . . . to protect the environment?)	
V29	Pay much higher prices.
V30	Pay much higher taxes.
V31	Accept cuts in your standard of living.
Sustainable consumption behavior (How often do you . . . (for environmental reasons))	
V56	Make a special effort to buy fruits and vegetables grown without pesticides or chemicals.
V58	Reduce the energy or fuel you use at home.
V59	Choose to save or re-use water.
V60	Avoid buying certain products.

The aim of the paper is to determine the impact of sociodemographic dynamics behind these five environmental perception measures, specifically assessing the impact of race, gender, location and socioeconomic status on environmental perceptions and sustainable consumption behavior. Independent variables included in the model are race, gender, location and socioeconomic status. Race is defined according to four categories, namely African, People of Color, Indian/Asian and white, with African being the reference category. Gender and location are both binary variables with males and rural dwellers representing the reference categories. Low and high socioeconomic status are derived from the income position of households, where those who belong to a household with an income below

R4000 per month are classified as low socioeconomic status individuals and those with income above R4000 are high-status individuals. The R4000 separation line is based on the lower poverty bound in South Africa, which is R945 [39] times the average household size in South Africa of four household members.

3.3. Empirical Models

We constructed five independent Ordinary Least Squares (OLS) regression models with gender, race, location and socioeconomic status as predictors of each item to test whether different population and socioeconomic groups were significantly associated to the five environmental perception index measures.

$$\text{Environmental knowledge}_i = \beta_0 + \beta_1 \text{race} + \beta_2 \text{gender} + \beta_3 \text{location} + \beta_4 \text{socioeconomic status} + \varepsilon_i \quad (1)$$

$$\text{Environmental concern}_i = \beta_0 + \beta_1 \text{race} + \beta_2 \text{gender} + \beta_3 \text{location} + \beta_4 \text{socioeconomic status} + \varepsilon_i \quad (2)$$

$$\text{Environment risk behaviour}_i = \beta_0 + \beta_1 \text{race} + \beta_2 \text{gender} + \beta_3 \text{location} + \beta_4 \text{socioeconomic status} + \varepsilon_i \quad (3)$$

$$\text{Behaviour intention}_i = \beta_0 + \beta_1 \text{race} + \beta_2 \text{gender} + \beta_3 \text{location} + \beta_4 \text{socioeconomic status} + \varepsilon_i \quad (4)$$

$$\text{Sustainable consumption behaviour}_i = \beta_0 + \beta_1 \text{race} + \beta_2 \text{gender} + \beta_3 \text{location} + \beta_4 \text{socioeconomic status} + \varepsilon_i \quad (5)$$

3.4. Descriptive Analysis

Table 3 reports the reliability and validity of the environmental perception groupings. The Bartlett test of sphericity, Kaiser–Meyer–Olkin (KMO) test, and Cronbach Alpha were conducted for each of these groupings (results in Table 3). The Bartlett test is significant for all measures and confirms significant intercorrelations among items to conduct factors analysis. The KMO test also reports enough overlap between items to conduct factor analysis since all the KMO estimated values exceed the rule of thumb of 0.5. Lastly, Cronbach Alpha shows that all the environmental perceptions and consumption behavior measures are reliable with a high Cronbach Alpha score. After the reliability and validity of each measure were confirmed, an exploratory factor analysis was used to determine indices for each one of these five environmental perception measures in order to assess the impact of varying socioeconomic and population group statuses on these environmental views in South Africa (refer to Table A1 in Appendix A for factor loadings).

Table 3. Test of reliability and validity.

	Bartlett Test of Sphericity	KMO Test	Cronbach Alpha
Environmental knowledge	0.000	0.528	0.630
Environmental concern	0.000	0.527	0.358
Environment risk perceptions	0.000	0.652	0.648
Behavior intention	0.000	0.736	0.896
Sustainable consumption behavior	0.000	0.771	0.777

To test whether the mean of the environmental perception items is statistically different among different social groups, we used a one-way Analysis of Variance (ANOVA) with race, socioeconomic status, gender, and location predicting the average level of agreement across the 17 questions. The results in Appendix A confirm that most mean levels are statistically different among social groups. Upon closer observation, the heterogeneous mean values provide helpful insight into the environmental perceptions among individuals in different social groups. For example, white people, high-status individuals, males, and those residing in urban areas display better environmental knowledge than those from previously disadvantaged population groups, low-status individuals, females, and people located in rural areas. This is not surprising since environmental knowledge usually is better for individuals in higher social standings [40]. However, these results should

be considered in context of the environmental knowledge measure being limited by a few standardized questions. There might be other excluded environmental knowledge components that are more relatable in a South African context, which might yield different results. Similarly, risk awareness is highest among white people, high-status individuals, and urban dwellers. However, females tend to have slightly higher environmental risk awareness compared to males in South Africa.

Observation of environmental concerns shows that those from previously disadvantaged population groups tend to have higher levels of environmental concern compared to white people. At the same time, those with low socioeconomic status levels also tend to have higher levels of environmental concerns, supporting the exposure to degradation argument that individuals that are more exposed to environmental degradation have a stronger sense of environmental concern compared to individuals with high socioeconomic status [23,41]. However, the rate of behavioral intentions is higher among those with high socioeconomic status. Likewise, for race, gender, and location, white people, males, and those in urban areas have the most robust sense of behavioral intentions toward pro-environmentalism. This indicates that the strong environmental concerns among those more vulnerable in society do not necessarily lead to higher behavior intentions in South Africa. Numerous factors could break this relationship between environmental concern and behaviour intentions. Although we do not further delve into this, the affordability of sustainable consumption behaviour could be one of the reasons. The questions used to measure behavioural intentions might not capture all the pro-environmental components of a South African population heterogenous from the developed North.

Lastly, observing the sustainable consumption behavior of individuals from different social groups shows that Indian/Asian people have the highest mean for sustainable consumption behavior, while individuals with high socioeconomic status and urban dwellers have the highest tendency for sustainable consumption behavior. This should be of no surprise since sustainable consumption behavior is usually seen as a post-materialist choice strongly associated with individual affluence. Since a large South African population is either vulnerable to poverty or living below the poverty line [17], most South African people do not have the finances to implement sustainable consumption changes. Therefore, their strong environmental concerns do not translate into pro-environmental behavioral action (Table 4).

Table 4. Measurement items and mean values by social group (South Africa).

	Race				Socioeconomic Status		Gender		Location	
	African	People of Color	Indian	White	Low Status	High Status	Male	Female	Urban	Rural
Environmental knowledge										
How much do you feel you know about the causes of these sorts of environmental problems?	2.61	2.71	3.25	3.34	2.51	3.09	2.92	2.72	2.93	2.46
How much do you feel you know about solutions to these sorts of environmental problems?	2.5	2.54	2.92	3.18	2.37	2.92	2.77	2.57	2.77	2.34
How much do you agree or disagree with . . . : “I find it hard to know whether the way I live is helpful or harmful to the environment”?	2.51	2.68	2.42	2.96	2.49	2.56	2.56	2.59	2.63	2.5

Table 4. Cont.

	Race				Socioeconomic Status		Gender		Location	
	African	People of Color	Indian	White	Low Status	High Status	Male	Female	Urban	Rural
Average	2.54	2.64	2.86	3.16	2.46	2.86	2.75	2.63	2.78	2.43
Environmental Risk Perception (In general, do you think that ... is ... ?)										
Air pollution caused by cars.	3.8	3.96	4.06	4.04	3.76	4.01	3.85	3.92	3.92	3.81
Air pollution caused by industry.	4.17	4.09	4.46	4.27	4.1	4.31	4.22	4.2	4.24	4.11
Rise in the world's temperature caused by climate change.	3.77	3.8	4.3	4.04	3.72	4.07	3.9	3.9	3.91	3.8
Average	3.91	3.95	4.27	4.12	3.86	4.13	3.99	4.01	4.02	3.91
Environmental Concern										
Generally speaking, how concerned are you about environmental issues?	3.02	3.01	3.63	3.55	2.91	3.45	3.21	3.13	3.27	2.88
How much do you agree or disagree with each of these statements? We worry too much about the future of the environment and not enough about prices and jobs.	3.43	3.47	3.19	3.13	3.45	3.31	3.34	3.39	3.39	3.31
People worry too much about human progress harming the environment.	3.42	3.33	3.34	3.09	3.45	3.29	3.33	3.36	3.35	3.33
Many of the claims about environmental threats are exaggerated.	3.07	2.97	2.86	2.89	3.07	2.92	3.05	2.96	2.99	3.02
Average	3.24	3.20	3.26	3.17	3.22	3.24	3.23	3.21	3.25	3.14
Behavioral Intention (How willing would you be to ... to protect the environment?)										
Pay much higher prices.	2.39	2.42	2.57	2.88	2.25	2.7	2.56	2.43	2.58	2.22
Pay much higher taxes.	2.28	2.28	2.45	2.64	2.14	2.53	2.4	2.31	2.42	2.15
Accept cuts in your standard of living.	2.29	2.32	2.5	2.83	2.19	2.61	2.44	2.36	2.47	2.18
Average	2.32	2.34	2.51	2.78	2.19	2.61	2.47	2.37	2.49	2.18
Sustainable Consumption Behaviour (How often do you ... (for environmental reasons))?										
Make a special effort to buy fruits and vegetables grown without pesticides or chemicals.	1.88	1.54	1.89	1.94	1.78	1.97	1.81	1.84	1.82	1.87
Reduce the energy or fuel you use at home.	1.74	1.63	2.34	2.14	1.71	2.07	1.89	1.82	1.9	1.7
Choose to save or re-use water,	2.03	1.77	2.27	2.06	1.98	2.19	2	2.03	2	2.06
Avoid buying certain products.	1.65	1.49	1.86	1.94	1.6	1.79	1.67	1.68	1.71	1.6
Average	1.83	1.61	2.09	2.02	1.77	2.01	1.84	1.84	1.86	1.81

4. Empirical Results

To determine whether belonging to different social groups significantly influences environmental perceptions and consumption behavior, we ran separate ordinary least square regression analyses with race, socioeconomic status, gender, and location as predictors of each factor (Table 5).

Table 5. OLS regression analysis predicting environmental perceptions.

VARIABLES	(1) Environmental Knowledge	(2) Environmental Concern	(3) Environment Risk Behavior	(4) Behavioural Intention	(5) Sustainable Consumption Behavior
People of Color	−0.0892 *	−0.0699	−0.0249	−0.0486	−0.214 ***
	(0.0533)	(0.0435)	(0.0490)	(0.0591)	(0.0600)
Indian	0.159 **	−0.132 ***	0.263 ***	−0.0630	0.199 ***
	(0.0622)	(0.0494)	(0.0567)	(0.0697)	(0.0697)
White	0.369 ***	−0.259 ***	0.0271	0.116	0.126
	(0.0704)	(0.0560)	(0.0646)	(0.0797)	(0.0770)
High status	0.284 ***	−0.102 ***	0.190 ***	0.253 ***	0.215 ***
	(0.0408)	(0.0330)	(0.0374)	(0.0459)	(0.0465)
Females	−0.104 ***	−0.0223	0.0376	−0.0602	−0.00179
	(0.0368)	(0.0299)	(0.0338)	(0.0415)	(0.0421)
Urban	0.182 ***	0.171 ***	0.0373	0.180 ***	0.00437
	(0.0436)	(0.0360)	(0.0406)	(0.0494)	(0.0512)
Constant	−0.252 ***	0.00721	−0.177 ***	−0.214 ***	−0.0699
	(0.0402)	(0.0330)	(0.0373)	(0.0456)	(0.0470)
Observations	2077	1889	2001	2033	1684
R-squared	0.097	0.028	0.041	0.038	0.042

Note. *** Significant at the 1% level. ** Significant at the 5% level. * Significant at the 10% level.

The results in Table 5 confirm the impact of different social groups and socioeconomic status on environmental perceptions and consumer behavior. For example, white people, males, individuals with high socioeconomic status, and urban dwellers all display higher environmental knowledge rates than African people, females, low-status individuals, and rural dwellers. In contrast, African people and those with low socioeconomic status tend to have deeper environmental concerns than white people and individuals with high socioeconomic status. These results support the exposure to degradation hypothesis, stating that individuals at the lower end of the social stratum tend to be vulnerable to climate change shocks and, therefore, display a more substantial concern about environmental issues [23]. Surprisingly, the same is not observed for environmental risk perceptions, where individuals of high socioeconomic status display high rates of perception of environmental risk compared to individuals of lower socioeconomic status. This points to varying individual environmental perceptions about environmental issues in South Africa.

Furthermore, observing the impact of socioeconomic status and population group status on consumer behavior shows that those with high socioeconomic status display higher rates of sustainable consumption behaviour compared to those in low social standings. These findings support the affluence hypothesis, stating that affluent individuals have the luxury to focus on a post-materialist agenda more so than those at the lower end of the social distribution, still struggling to meet minimum material requirements for survival, of which African people still make up the largest share.

Discussion

The results in this study reveal that environmental perceptions and sustainable consumption behaviors are heterogeneous for people from different sociodemographic groups in South Africa. Consistent with other studies that have assessed environmental perceptions among different sociodemographic characteristics, we determined that environmental

perceptions and sustainable consumption behaviour vary by race, gender, location and socioeconomic status. Firstly, by race, we discover that people of color have lower rates of environmental knowledge and sustainable consumption behaviour compared to African people, the reference category. Indian/Asian people tend to display a higher rates of environmental knowledge and sustainable consumption behaviour than African people, but also lower rates of environmental concern. Similarly, white people tend to have higher rates of environmental knowledge, but also lower rates of environmental concerns compared to African people. These results align with other studies that similarly show the discrepancy behind environmental perception by ethnicity [12,27]. In addition, few studies have assessed environmental perception differences by gender [28,42]. Our results show that gender is significant but only for the environmental knowledge model, where males tend to display higher rates of environmental knowledge compared to females. These results support the findings of [43] and [22]. Further examining other environmental perceptions, although other studies report a significant difference between males and females regarding environmental concern, risk perceptions and sustainable consumption behaviour [29,42,44,45], our results show no significant difference between males and females in this regard.

In terms of location, the geopolitical landscape of South Africa is an important factor driving environmental perceptions among people living in urban and rural areas. Since individuals in rural areas are more dependent on natural resources for daily substance and incomes [46], we might expect them to have higher rates of environmental concern. However the results show that those living in urban areas display higher rates of environmental knowledge, environmental concerns and behaviour intentions toward pro-environmentalism. Lastly, in terms of socioeconomic status, our results show that those with higher socioeconomic status also display higher rates of environmental knowledge. These results align with other studies such as that of [40], who showed that individuals with fewer monthly payments have lower mean knowledge scores than people with higher monthly incomes. Environmental risk behaviour, behaviour intention and sustainable consumption behaviour rates are also significantly higher among those in high socioeconomic status positions. These findings support the post-materialist hypothesis. However, environmental concern rates were lower among those with higher status positions. This finding is aligned with those of other researchers who determined that people with low incomes show higher rates of environmental concern than those with high incomes [47]. This supports the exposure to degradation hypothesis, and shows that those more exposed to environmental degradation on a daily basis have stronger views on environmental concern.

5. Conclusions

This study aimed to assess the impact that the sociodemographic factors have on environmental perceptions and sustainable consumption behavior in South Africa, a country with the highest rate of inequality in the world. The extreme levels of inequality in South Africa make South Africa a country of two nations, where a large share of the population is struggling in deep poverty, while a small share is on the top leading abundantly affluent lifestyles. This divide also depends on different social characteristics such as race, gender and location, all of which should impact the ways in which individuals perceive environmental issues and their sustainable consumption behavior. The study determined that those at the lower end of social hierarchy have deeper environmental concerns than those of a higher social standing. This supports the theory of environmental deprivation within South African setting. However, observing consumption behavior supports the affluence argument that individuals with high socioeconomic status positions tend to have higher sustainable consumption behaviour. There are some limitations to this study. Firstly, South Africa is only included in the 2010 ISSP module, meaning it is impossible to assess temporal changes in environmental perceptions or have a more updated assessment of environmental perceptions in the country. Secondly, the measures on environmental perceptions and sustainable consumption behaviour are derived from the related literature that is most

dominant in developed nations. There is a possibility that these measures do not completely fit the South African population that is heterogenous from the developed North.

However, this study's findings still provide vital insight into the environmental perceptions and sustainable consumption behaviour of individuals in a developing African nation. Overall, the results suggest that the strong environmental concerns among those at the lower end of the social stratum, possibly due to their high exposure to environmental degradation, do not have the financial resources to put environmental concerns into action through sustainable consumption behavior. From a policy perspective, environmental policymakers in South Africa could take note of the serious environmental concerns among those more vulnerable to environmental degradation daily and provide further incentives and support for sustainable consumption behavior changes that would assist in environmental protection.

Author Contributions: All authors contributed to the study's conception and design. M.E.B. performed material preparation, data collection, and analysis. F.K. wrote the first draft of the introduction, literature, and conclusion. All the authors commented on previous versions of the manuscript. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement: The paper used secondary data published by the International Social Survey Programme (ISSP). The ISSP source questionnaires are developed and pretested by international teams and discussed and approved by the ISSP General Assembly (GA), the main deliberative, decision-making, and representative organ of the ISSP. The GA approves questions based on their scientific merit, sociopolitical relevance, and ethical appropriateness.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The datasets generated during and analyzed during the current study are available in the ISSP repository (<https://www.gesis.org/en/issp/modules/issp-modules-by-topic/environment>).

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Factor loadings.

Construct	Item	Loading
Environmental knowledge	V18	0.7749
	V19	0.7772
	V37	0.2157
Environment risk perception	V39	0.5773
	V40	0.6169
	V43	0.5429
Environmental concern	V15	0.0558
	V23	0.5292
	V25	0.5154
	V36	0.2628
Behaviour intention	V29	0.8708
	V30	0.8795
	V31	0.7840
Sustainable consumption behaviour	V56	0.5496
	V58	0.6536
	V59	0.6934
	V60	0.7203

Table A2. Analysis of variance (f-statistics).

	Race	Socioeconomic Status	Gender	Location
Environmental Knowledge				
How much do you feel you know about the causes of these sorts of environmental problems?	64.40 ***	133.64 ***	20.87 ***	98.87 ***
How much do you feel you know about solutions to these sorts of environmental problems?	45.12 ***	120.08 ***	20.80 ***	82.41 ***
How much do you agree or disagree with . . . : “I find it hard to know whether the way I live is helpful or harmful to the environment”?	23.50 ***	2.46	0.02	8.14 ***
Environmental risk perception				
Air pollution caused by cars.	10.46 ***	26.68 ***	3.01 *	6.51 *
Air pollution caused by industry.	13.25 ***	27.46 ***	0.31	13.02 ***
Rise in the world’s temperature caused by climate change.	27.62 ***	53.90 ***	1.15	6.19 *
Environmental concern				
Generally speaking, how concerned are you about environmental issues?	39.99 ***	100.43 ***	2.89 *	60.05 ***
How much do you agree or disagree with each of these statements? We worry too much about the future of the environment and not enough about prices and jobs.	10.17 ***	6.12 *	1.23	2.55
People worry too much about human progress harming the environment.	9.48 ***	10.28 **	0.39	0.17
Many of the claims about environmental threats are exaggerated.	5.52 ***	8.37 **	3.27 *	0.40
Behavioural Intention (How willing would you be to . . . to protect the environment?)				
Pay much higher prices.	15.63 ***	59.28 ***	6.33 *	44.87 ***
Pay much higher taxes	8.52 ***	48.76 ***	3.55 *	26.46 ***
Accept cuts in your standard of living.	20.12 ***	51.68 ***	2.48	29.90 ***
Sustainable Consumption Behaviour (How often do you . . . (for environmental reasons)?)				
Make a special effort to buy fruits and vegetables grown without pesticides or chemicals.	16.18 ***	15.77 ***	0.86	1.45
Reduce the energy or fuel you use at home.	57.69 ***	68.23 ***	3.63 *	24.26 ***
Choose to save or re-use water.	16.44 ***	19.44 ***	0.43	1.94
Avoid buying certain products.	25.09 ***	23.34 ***	0.03	10.18

Note. *** Significant at the 1% level. ** Significant at the 5% level. * Significant at the 10% level.

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