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Purchasing Behavior and Sustainability: A Study in a Brazilian City

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Abstract

Although the consumers awakened about environmental deterioration severity and the influence purchasing behavior on the environment, studies indicate that Brazilian consumers are not yet changing their attitudes and behaviors. Their behavior consumption is inconsistent with preservation and socio-environmental development. However some studies have shown that demographic characteristics like age, education level and income influences the sustainable consumers buying behavior. The objective of this paper was to verify if the distinct demographic characteristics of the consumers from São João del Rei influences their sustainable consumers buying behavior. After a questionnaire survey, the results showed that, in general, consumers do not yet have a sustainable consumers buying behavior because they engage with socio-environmental issues when: they feel directly affected or it's more convenient for them; they have opportunities and information to be able to choose; and they are more influenced by conditional and functional values. It was also observed that income, scholar and age influence positively the higher level of sustainable consumption behavior.

Keywords: consumption, sustainability, consumers buying behavior

1. Introduction

Since the 1980s the people in the world have been increasingly concerned with intense economic growth, causing overexploitation of natural resources, global warming, depletion of the ozone layer, air and water pollution, and destruction of the natural habitat with risks to health and life. In the 1990s, it is necessary to discuss sustainable consumption as the main issue in environmental issues. Modern consumers are more concerned about the future and quality of life on the planet. They are predisposed to opting for environmentally friendly products. It is a trend not only in developed countries but also in developing countries (Oliveira and Cândido, 2010; Biswas and Roy, 2015; Khan and Mohsin, 2017).

So, many consumers are changing their buying behavior and they are choosing to buy from companies that sell sustainable products or that manufacture in a sustainable way to satisfy this new type of consumer (Oliveira *et al*., 2013). According to Brochado *et al*. (2015), consumers were aware that their behavior influences the environment and they began to worry about their behavior consumption.

On the other hand, in less developed countries such as Brazil, some studies have shown that consumers are not yet very concerned about these issues. They maintain consumption attitudes inconsistent with social and environmental preservation and development, with a dichotomy between the "attitude" (the perceived importance of action) and "behavior" (actual action). (Dinato, 1998; Lages and Neto, 2002; Ribeiro and Veiga, 2011; Resende, 2013; Barbosa and Veloso, 2014; Bossle *et al*.; 2015), they want to be seen as responsible and tend to hide behind small pro-environmental attitudes, even if it is inconsistent with their actual behavior (Viegas da Costa and Teodósio, 2011).

Therefore, studies that seek identifying consumers who knows issues about sustainable consumption and whether this awareness has effectively influenced their sustainable consumption behavior become increasingly important. Brazil is a country with a large territorial extension, so it is interesting to have studies that compare different regions of the country to identify similarities and differences about consumers buying behavior.

Considering that São João del-Rei city is one of the most important in the state of Minas Gerais, Brazil, with a population of 89.378 in 2015 (IBGE, 2010). The distinct demographic characteristics of the consumers from São João del Rei influences their consumers buying behavior?

The objective of this paper was to verify if the distinct demographic characteristics of the consumers from São João del Rei influences their consumers buying behavior.

2. Sustainable consumption and green products

The concept of sustainable development can be understood as the use of natural resources in a conscious way, seeking out balance between current and future population basics needs (CMMAD, 1991).

Sustainable development would be the balance between environmental protection, economic return and social development, which must be intrinsically interconnected to provide world quality life (Pinto-Coelho, 2009; Ivete and Takahashi, 2013). According Vellani and Ribeirão (2006), these dimensions are known the Triple Bottom Line (TBL) business's sustainability, reflecting the economic bottom line by managing profitable and value-generating companies; the social bottom line by stimulating education, culture, leisure and social justice to the community; and the environmental bottom line (ecological sustainability), by maintaining ecosystems alive, with diversity and life.

Sustainable consumption refers to reducing the natural resources consumption, changing the lifestyle and consuming more environment-friendly products to attend present and future

generations' needs (Biswas and Roy, 2015). Consumers are increasingly choosing products that do not harm the society and the environment. They seeking information about the products and services offered by the organizations and their treatment to the employees and the environment (Biswas and Roy, 2015; Khan and Mohsin, 2017).

Based on the definition of the European Community, Khan and Mohsin (2017) defined green products or environment-friendly products as those that: use less resources; have fewer impacts and risks to the environment; prevent the generation of waste in the design stage; are reusable; are recyclable; are produced without using toxic chemicals; are bio-degradable, have eco-friendly packaging; and with low detrimental environmental impact at all stages of its life-cycle with the long term goal of natural environment preservation.

The environmental crisis and the new type of sustainable consumer behavior have done entrepreneurs and managers changed their strategies (Oliveira and Cândido, 2010). For the industries, attitudes like energy saving, reduction packaging products and others actions that aim to promote environmental awareness indicate that environmental program development is attractive. However, these economies rarely decrease the price of the "green" product, because these products are sold to "green" consumers who are willing to pay more for environment-friendly products, which leads the consumers the idea that such products have a higher acquisition value (Azevêdo *et al*., 2010).

The consumers who prefer to buy of the companies that have an environmental ethical behavior are named as green consumers. These consumers, besides consider all factors that influence consumer buying behavior, they also include the environmental factors in his purchasing process. They will prefer products that do not harm the environment and the companies engaged in sustainable movements (Portilho, 2004).

Research are showing that consumers generally tend to punish companies that not act correctly with the environment, but these consumers do not reward socio-environmentally correct companies because a variety of reasons, including financial and cultural reasons (Garcia *et al*., 2008).

Therefore, although socio-environmental issues influence consumer buying behavior, all consumers have not changed their consumption habits. For example, according to de Martinho *et al*. (2017), the rate of waste collection of electrical and electronic equipment in European countries in 2016 was lower than those set by the targets, with only 9 of the 28 Member States reached this target, while for the other members the collection rate varied from 11% to 42%. These authors listed the following reasons for this outcome: informal collection process; the delay between the end-of-life equipment and the disposal because it is long stored in the offices or in the houses; weak collection infrastructure; reduced municipal involvement that difficult the participate citizens in the recycles projects; misinformation; and the default of economic incentives, education and communication.

It is therefore necessary to have a better understanding of the reasons why consumers are adopting environment-friendly behavior (Martinho *et al*., 2017). The consumer can act in an environmentally correct way when he has an opportunity or there are environmental problems that affect him (Ertz *et al*., 2016). Martinho *et al*. (2017) in their study have identified that despite low consumer participation in recycling projects, they responded that the most convenient way of disposing smartphones and tablets, such as stores offering discounts / cash back for the purchase of a new device, convenient places for delivery, collection service at home by request and delivery to the stores and waste deposal are actions that can further encourage the return of waste from these equipments (Martinho, 2017).

However, according Biswas and Roy (2014) and Khan and Moshin (2017), it is not only functional or conditional values that affect sustainable buying behavior, but there are also social, environmental, emotional, and knowledge values. Functional value refers to the utility, functionality and performance that consumers consider at the time of purchase, such as

price, quality, durability, safety and reliability. Conditional value means the opportunities perceived in the purchase derived from a given situation or set of situations, for example, discounts, subsidies and promotions. Social value is related to self-image, that is, how the individual would like to be recognized in the relationship groups. Environmental value is the consumer's concern with environmental issues. Emotional value means arousing feelings or affective states in the consumers' actions. Finally, the knowledge value or epistemology means the consumer knowledge level influences the product consumption (Biswas and Roy, 2015; Khan and Mohsin, 2017).

Sangroya and Nayak (2017), for example, identified in their study that despite the greater influence of the conditional and functional values, respectively, on green energy use, the emotional and social benefits combined with the functional benefits stimulated even more the consumption of this type of energy. Therefore, suppliers should inform consumers more about the functional benefits for using green energy, but it is not only the financial aspects that lead consumers to decide on adoption of green energy; consumers are also driven by emotional and social considerations.

Although the importance of government regulation in promoting and encouraging consumption green energy, it cannot be enough to encourage changes. The consumer involvement and the desire are essential to adopting green energy. Therefore, there must be a combination of government green energy policies and environmental concerns by users that contribute to the development of the green energy market (Sangroya and Nayak, 2017).

In the study by Biswas and Roy (2014) was identified that the social parameter was the dominant value that influenced behaviors buying. Khan and Moshin (2017) concluded in their study that emotional value had a significant moderating effect on functional, social, conditional, knowledge and environmental values. Thus, to encourage the sustainable products purchase in developing countries such as Pakistan, it is necessary to consider the consumers emotions to encourage them to buy such products. Emotions allow consumers to reevaluate and recreate the links between consumption values - functional, social, conditional, epistemic and environmental - and green product consumer choice behavior. That is, emotional value has the power to alter the relationship between other consumption values and green product choice behavior (Khan and Mohsin, 2017).

3. Brazil Sustainable Consumption Behavior

Moreover, "emerging" consumers such as Brazilians demand products that give them the idea of social inclusion; they want to be recognized in society (Resende, 2013; Barbosa and Veloso, 2014). In this way, it is necessary to understand all characteristics that lead a consumer to buy products considering social issues.

According Barbosa and Veloso (2014), when Brazilian consumers cleaning, cooking and using electrical appliances they do these activities influenced by the cultural that incentives environment negative impact. They think that the resources are not scarce, using many resources and acquiring new habits that often increase rather than decrease energy consumption and waste generation.

Medeiros *et al* (2015), interviewing 100 subjects in Porto Alegre City from Brazil to study perceived value of green products for automobiles and furniture, they identified that although the perceived value of green products increases willingness to pay in the purchasing decision, explicit attributes related to environmental sustainability were deemed less relevant during a typical purchase decision process.

Lescura (2013) also pointed out that Brazilian culture is characterized by a high power distance, that is, the relations between individuals are hierarchical and unequal. People consider themselves in superiority or inferiority position of in relation to another, and

therefore the consumption of certain products can "empower" them to assume higher social positions in society.

In addition, according to Barbosa and Veloso (2014), because the practices linked to moral values, such as stereotypes about "good housewife" or status symbols, for example, the less poor becomes a person cleaner it should be, reinforce adherence to these negative environmental practices by Brazilians.

Moreover, "emerging" consumers such as Brazilians demand products that give them the idea of inclusion, of a sense of belonging (Resende, 2013).

Consumer behavior began to be studied as a line of marketing research in the late 1950s, bringing a greater understanding of consumer satisfaction (Lopes and Silva, 2011).

Consumer buying behavior is the study of the ways of buying and disposing of goods, services, ideas or experiences by the individuals, groups and organizations in order to satisfy their needs and wants (Solomon, 2011). So, it is very important for companies and their marketers to be involved in this research because it results in information for the products and services development that satisfy consumers.

In this way, it is easy to understanding that there is an extensive universe of research focused on consumer behavior. The more one knows about consumer buying behavior, the more knowing is obtained to try influence consumers' purchasing attitudes, especially considering the importance of the sustainable consumption (Vieira, 2002).

3.1 Hypothesis Formulation

3.1.1 Education level

Some studies statements that there is a positive relationship between educational level and environmental concern (Lages and Neto, 2002; Bossle *et al*.; 2015). Borinelli *et al*. (2011) in their research observed that 71% of the undergraduate interviewed declared that they always or sometimes consider the environmental impact of a product at the time of purchase, in contrast only 39% of the interviewees who have elementary degree incomplete schooling responded that they always or sometimes consider the environmental impact in by products. The income and education of the Brazilian are still low, so the consumer does not yet have an environmental awareness (Resende, 2013). Given these arguments, the following hypothesis can be drawn.

Hypothesis 1. the lower the education level consumers, the lower is their sustainable buying behavior.

3.1.2 Income

In their research, Bossle *et al*. (2015, p. 81) state that peoples in the higher income brackets are more able to purchase these products. Resende (2013), analyzing the results of some specific studies, observed that green products consumption in Brazil is inhibited because they cost more than conventional ones, so income also positively influences environment-friendly behavior. Individuals with higher incomes are willing to pay more for the costs associated with environmental causes (Lages and Neto, 2002).

Borinelli *et al*. (2011) state that there is a concern of consumers regarding environmental issues, but for low-income consumers, price is still the most important factor at the time of purchase.

Medeiros *et al* (2015) in their research identified interaction between ecological appeal and income. The growth in declared preference for those in the higher income level was more intense that the growth observed for those in the other three income levels.

This study proposes the hypothesis below.

Hypothesis 2. the lower income consumers, the lower is their sustainable buying behavior.

3.1.3 Age

Research by Oliveira *et al*. (2013) and Garcia *et al*. (2008) have reached a significant result regarding environmental behavior by young people, but their research was applied only in young students.

However, Queiroga *et al* (2005), studying the environmental concern factor, identified positive significant correlation in the age variable. The older the people the more considered environmental issues in buy deciding. In the research of Medeiros *et al* (2015), when was ecological appeals to sell car and furniture, the growth in declared preference for those in the higher age group was more intense than the same growth for those in the lower age group.

Therefore, this study proposes the following hypothesis.

Hypothesis 3. the younger consumers are, the lower their sustainable buying behavior.

4. Methods

4.1 Questionnaire

After review literature about consumer behavior and sustainable consumption behavior, some types of questionnaires were observed. The most used refers is the ECCB (Ecologically Conscious Consumer Behavior) scale created by Roberts (1996), where the author characterizes as an ecologically conscious consumer those who buy products and / or services that believe to have a positive impact or less negative impact on the environment.

Sudbury-Riley and Kohlbacher (2016) assert that Roberts's scale is one that regards ethical consumption from an environmental and social perspective. The ECCB scale is composed of 30 questions that were obtained through existing studies and others developed to observe the change in the characteristics of ecologically conscious consumers. The original scale was applied in a sample of 582 adult American consumers and the answers presented five-point scale that ranged from Never true (1) to Always true (5).

Subsequently Straughan and Roberts (1999) reapplied these questionnaires in a sample of 235 university students from the United States. The ECCB was also used by Brazilian researchers such as Lages and Neto (2002), Queiroga *et al* (2005), Garcia *et al* (2008), Azevêdo *et al* (2010) and Ribeiro and Veiga (2011).

Thus, it was also chosen to use the ECCB scale in this study, in addition to other questions taken or inspired by Webb *et al*. (2008), Barbosa and Veloso (2014) and Brochado *et al*. (2015) researches.

Ribeiro and Veiga (2011) in their study consider the entire cycle of consumption (acquisition, use and disposal), as well as the concern about save natural resources, support ecologically responsible companies and the propensity to adopt a lifestyle that is environmentally less detrimental. According Dias (2007), to approach consumer behavior, it necessary to include three main stages of the product life cycle (before, during and after purchase), which this author divides into pre-use, use and post-use. Sudbury-Riley and Kohlbacher (2016) further point out that it is difficult to find consumer behavior scales that use both ecological and social issues.

Studying these articles, this work follows the same method, so the questionnaire elaborated has questions that involve the consumption and products cycle life. It results in understanding the aspect of sustainable consumption behavior. These questions can be seen in Appendix.

The questionnaire was structured in four parts: the first part of the questionnaire have 53 closed questions with a scale of 1 to 5 (1 - never, 2 - almost never, 3 - moderate, 4 - almost

always, 5 - always) that analyzed if the consumer buyer behavior is more favorable to social and environmental issues; the second part contains 4 closed questions (1 - fully agree, 2 - agree, 3 - indifferent, 4 - disagree, 5 - totally disagree) to know if functional attributes' price and quality is more important to the consumers than the environment issues and safe labor relations on the companies; the third part of the questionnaire was devoted to 5 respondent demographic aspects such gender, income, age, educational level and marital status; and the fourth part contains only one open question for respondents to give their opinion. This open question was analyzed by content analysis that contributes for additional information.

4.2 Data collection and sample

The non-probabilistic convenience sample collected consisted in 125 residents in São João Del Rei city who accepted to participate in the survey. The questionnaires available online were answered by 61 people and 64 were personally applied with randomly selected residents in São João Del Rei.

4.3 Descriptive statistics and data analysis

Questionnaires were analyzed using Microsoft® Excel, and statistical analysis was done by SPSS 20.

First, the simple frequency analysis of the demographic variables was performed with the percentage levels (Table 1). From the variables on sustainable consumer purchasing behavior, the mean, median and mode of each variable were calculated (Table 2) and the student t test for the mean of 5 and 4, to know if statistically the consumers would have more favorable consumption behaviors to the environment.

Finally, two techniques of multivariate analysis were performed which refer to the analysis of multiple variables in a single relationship or set of relationships (Hair *et al*., 2005). The multivariate analysis techniques used were factorial and cluster analyses.

The factor analysis was necessary in this work due to the high number of variables (57). Factor analysis provides basis to creation new set of variables that lodge character and nature of the original variables using a smaller number of new variables, representative variables, factor scores or multiple scales (Hair *et al*, 2005). In this way, it possible to reduce the large number of variables or their high inter-correlation problems.

Factorial analysis is a multivariate parametric statistical technique used to study the interrelation in variables set, all variables can be observed simultaneously and grouped according certain similarities. Each grouping is named as a factor (Mattar, 1998)). In this paper the factorial analysis was performed through the Varimax rotation where the original variables were reduced and the degree of correlation between the independent variables was verified. The Kaiser-Meyer-Olkin (KMO) - Measure of sampling adequacy test was used to measure the matrix correlation, for this paper the test give a KMO = 0.874, which proves adequate factorial analysis. According Malhotra (2006), high KMO values (between 0.5 and 1.0) indicate that the factorial analysis is appropriate, whereas values below 0.5 indicate that the factorial analysis may be inadequate. The Bartlett test is used to measure whether or not the matrix is identity. For this test, an appropriate value of significance 0.000 was generated.

The second multivariate analysis technique used in this study was the Cluster Analysis. For Malhotra (2006), Cluster Analysis is used to classify objects or cases in relatively homogeneous groups, called clusters or conglomerates. The individual in a cluster tends to be similar to the others in the same cluster and different from the individuals of different clusters. Hair *et al* (2005) say that Cluster Analysis has as main objective to form homogeneous groups following predetermined characteristics. In this way instead of analyzing all observations as unique, they can be seen as a group defined by its general characteristics.

In the Cluster Analysis, the researcher is the one who should judge which is the best final solution, even if there are methods that assist in the evaluation of the clusters; it is the researcher who will make the final decision regarding the cluster number.

5. Results And Discussions

5.1 Demographics dates

The majority of respondents (65.6%) were female, 63.2% single, 51.2% 18 to 25 years old, 48% higher education and 32% income between R$ 1762.00 and R$ 2,642.00 (Table 1).

Table 1

Demographic characteristics of respondents

Characteristics	Frequency	%	Characteristics	Frequency	%
Gender			**Education**		
Women	82	65.6%	Elementary/Middle Scl	7	5.6%
Men	43	34.4%	High school	43	34.4%
Civil status			Undergraduate	60	48%
Marriage	45	36%	Postgraduate	8	6.4%
Single	79	63.2%	Master's / doctorate	7	5.6%
Divorced/separated	1	0.8%	**Income (Reais)**		
Age (years)			Up to 880,00	2	1.6%
Less than 18	6	4.8%	881,00 - 1.761,00	27	21.6%
18 – 25	64	51.2%	1.762,00 - 2.642,00	40	32%
26 – 33	28	22.4%	1.763,00 - 3.523,00	21	16.8%
34 – 41	12	9.6%	3.524,00 - 4.404,00	12	9.6%
42 – 49	3	2.4%	Above 4.404,00	23	18.4%
50 or more	12	9.6%			

Regarding the consumption behavior of the consumers interviewed and their opinions about the companies, 57 questions only 11 presented the mode value equal to 5 and the student's t test for the values of the averages, none of them was statistically equal to 5. Only 7 observations were equal to 4 (Appendix).

Interestingly note the variable that presents the highest mean, median and mode values: "*I use appliances and equipment brands that consume less energy*"; and others that had their averages significantly equal to 4: "*I close the sink or shower taps when I am soaping objects, body or hands*", "*I buy refill products to use containers that I already have*", demonstrate attitudes that can also provide economic benefits to the consumers, which corroborates with Ertz *et al.* (2016) that consumers engage with socio-environmental issues when it result a problem that directly affects them, and also to Sangroya and Nayak's (2017) statements, which identified the major influence of conditional and functional values, respectively, on the use of green energy.

Two other responses that have highest value of the concentration measures: "*When possible, I buy products in reusable packaging*", "*When I have the opportunity to choose a store that helps some school, hospital, day care, etc., I choose it*"; it corroborate with the studies of Ertz *et al.* (2016) and Martinho *et al.* (2017) because consumers get more involved with social and environmental issues when they have opportunities, it is more convenient or they have information to choose from.

On open questions some respondents answered that they are not always able to obtain information about environmental and social business strategies and therefore they do not consider these issues when they by. Some also said that they do not have time, but they would like to participate more and others said that they do not have access that most respondents are unaware of collection schemes, an outcome also found in Martinho *et al.* (2017) research.

It was also observed that consumers avoid buying from companies that hire children, exploit minorities and discriminate against women, which shows consumer awareness about these social issues, very evident in Brazilian society from the 2000s.

The mean values of means, medians and mode were found to be 3.08, 3.17 and 3.03, respectively, that is, the answers tend to be in the reasonable or indifferent option within the range of points.

5.2 The influence of demographic variables on consumer buying behaviors

Through the rotated matrix Varimax it was observed that the 57 variables were grouped into 13 factors, which were named according to the variables that composed each factor.

Factor 1:	consumer's importance degree that the companies have a favorable environmental behavior;
Factor 2:	consumer's importance degree that the companies have a favorable social behavior;
Factor 3:	consumer's buying decision considers the environmental and social behavior of the companies;
Factor 4:	when consumers choose higher quality or lower price products regardless social or environmental reasons;
Factor 5:	consumers' recycle packaging;
Factor 6:	consumers do not buy companies that discriminate against minorities;
Factor 7:	consumer´s concern about companies' ethical issues and consumers' ethical issues;
Factor 8:	consumer's concern about avoid buying products from companies that harm children, animals or plants;
Factor 9:	consumer prioritizes the re-use and recycling of products;
Factor 10:	consumer does not use unnecessary packaging and agrees to reward environmentally responsible companies;
Factor 11:	consumers who care about air pollution;
Factor 12:	environmentally correct behavior every day;
Factor 13:	consumer reuses used or damaged products.

Factors 1 and 2 show the importance that the consumer consider about companies environmental and social behavior, that is, they believe that companies should consider social and environmental security. Factor 3 shows how effectively consumers change their buying behavior, if they really buy from these companies.

Factor 4 shows the opposite behavior, that is, when price and quality issues, functional and conditional values, are deterministic factors at the time of purchase without considering any kind of either environmental or social care.

The other Factors expose consumers' environmental and social behavior in their daily actions and how these consumers are aware about these issues.

After factorial analysis, it was done the Cluster Analysis and two clusters were extracted because the objective one of this paper was to verify if distinct demographic characteristics encourage behavior consumers. So, it was necessary to observe cases of consumers with sustainable behavior and the opposite.

To analyze the profile of each cluster, a descriptive statistical analysis was done with a Cross-Reference Table using the demographic data of the research. It can be observed that Cluster 1 the majority of respondents have income between R$ 881.00 and R$ 1,761.00, in Cluster 2 the majority of respondents have income range from R$ 1,762.00 to R$ 2,642.00.

About age variable, more than half of Clusters 1 respondents have between 18 to 25 years old and in Cluster 2 the highest respondents have between 26 to 33 years old.

Regarding schooling, in both clusters the majority are done high school and undergraduate, but in Cluster 2 there is a relatively higher number of people with postgraduate and master's / doctorate degrees.

Finally, in the civil status variable the Cluster 1 is composed mostly of singles (73%) and the Cluster 2 there is both married and single, almost 50% of each.

The most part of the Cluster 1 is composed by lower income, lower age and lower education consumers level than the Cluster 2. From these results, descriptive statistical analyzes were done again with Cross Reference Table, using the main variables of each 13 factors found in the Factorial Analysis and crossing with the two clusters obtained in the Cluster Analysis, to try to answer the hypotheses raised in this work.

Table 2

Crossing between the Clusters with the main variables of Factor 1

	Never	Almost never	Moderate	Almost always	Always	Total
Environmental preservation practices influence my purchase decision.						
Cluster 1	36.8%	33.8%	14.7%	7.4%	7.4%	68
Cluster 2	8.8%	17.5%	31.6%	29.8%	12.3%	57
The company environmental certification influences my purchase decision.						
Cluster 1	36.8%	26.5%	25.0%	8.8%	2.9%	68
Cluster 2	12.3%	10.5%	22.8%	31.6%	22.8%	57
In my purchase decision I note whether the store has an environmentally correct posture.						
Cluster 1	39.7%	29.4%	19.1%	8.8%	2.9%	68
Cluster 2	8.8%	17.5%	29.8%	33.3%	10.5%	57

Three main variables of the Factor 1 identified in the factorial analysis were used (Table 2), being identified that in the Cluster 1, 36.8% of the respondents say that environmental preservation never influence their purchase decision and 33.8% almost never interfere. 36.8% of the respondents stated that environmental certification never influence their purchase decision and 26.5% almost never. 39.7% of the respondents never note whether the store has an environmentally correct posture and 29.4% almost never.

On the other hand, to Cluster 2, 29.8% of the respondents almost always preservation practices interfere their purchase decision and 12.6% always. 31.6% of the respondents stated that environmental certification almost always influences in the purchase decision and 22.8 always. About environmentally correct posture, 33.3% of the respondents almost always considers it and 10.5% always. In this way, it is clear that the two clusters have opposite answers regarding the variables of Factor 1.

On the other hand, there were no significant differences between the two clusters with respect to Factor 2, there were no significant differences between Cluster 1 and Custer 2, that is, the education, income and age were not differentiating consumers' purchasing behavior from the social welfare posture practiced by the companies.

There were no significant differences between Cluster 1 and Cluster 2 about the factors 3, 4, 6, 7, 8, 9, 11, 12 and 13, that is, within these variables both Cluster 1 and Cluster 2 obtained basically the same results.

Regarding Factor 5, it was observed that 62.8% of Cluster 1 responded that they never separate metal objects and 19.1% almost never (Table 3). 58.8% of the respondents never separate packaging for recycling and 23.5% of them almost never.

For Cluster 2 respondents, 22.8% always separate metal objects and 14.0% almost always. 21.1% of these respondents always separate packaging for recycling and 10.5% almost always. Therefore, consumers with less schooling, less older people and less income have less concern in recycling packaging (Table 3).

Table 3

Crossing between Clusters with the main variables of Factor 5

	Never	Almost never	Moderate	Almost always	Always	Total
I separate metal objects.						
Cluster 1	61.8%	19.1%	10.3%	4.4%	4.4%	68
Cluster 2	26.3%	19.3%	17.5%	14.0%	22.8%	57
I separate packaging for recycling.						
Cluster 1	58.8%%	23.5%	8.8%	4.4%	4.4%	68
Cluster 2	19.3%	26.3%	22.8%	10.5%	21.1%	57

Finally, in factor 10, a difference was observed in respondents' answers from the two clusters (Table 4). In Cluster 1, 17.6% of respondents never avoid using unnecessary packaging and 35.3% almost never. 75.0% of the respondents never use reusable shopping bag.
In Cluster 2, 22.8% of the respondents always avoid the consumption of unnecessary packaging and 22.8% almost always. 10,5% of the respondents almost always use a reusable bag and 8,8% always, reinforcing, therefore, when more educated, more mature and higher income consumers more favorable is the environmentally purchasing behavior.

Table 4

Crossing between the Clusters with the main variables of Factor 10

	Never	Almost never	Moderate	Almost always	Always	Total
I avoid using unnecessary packaging						
Cluster 1	17.6%	35.3%	20.6%	16.2%	10.3%	68
Cluster 2	7.0%	17.5%	29.8%	22.8%	22.8%	57
I use a reusable shopping bag						
Cluster 1	75.0%	7.4%	10.3%	4.4%	2.9%	68
Cluster 2	49.1%	14.0%	17.5%	10.5%	8.8%	57

From these analyzes, it can be affirmed that the hypotheses H1, H2 and H3 are accepted, that is, the lower the schooling, the income and the age of the consumers, the lower the sustainable consumption behavior of these consumers.

6. Conclusion

The aim of this study was verify if the distinct demographic characteristics of the São João del Rei consumers influence their sustainable behavior purchase. It was used descriptive and statistical methods, such as factorial and cluster analysis, to differentiate this behavior in demographic terms. For this, questionnaires were applied to a sample of 125 residents of São João Del Rei and tree hypotheses were formed to be tested through the answers obtained in the questionnaires.

Most of concentration measures (mean, median and mode) presented values equal to 3, showing that the answers tend to be in the reasonable or indifferent option within the range of points. In addition, the results that presented 4 or 5 values revealing a consumer behavior more oriented to issues that affected him economically or that presented in a more convenient way, according Ertz *et al*. (2016), Sangroya and Nayak (2017) and Martinho *et al*. (2017) researchers.

After the Factorial Analysis elaboration, which regrouped a new set of 13 variables that encompassed the character and nature of the initial variables, and the Cluster Analysis, that regrouped survey respondents into two clusters, Cluster 1 with a majority of the responders were younger people, with less schooling and income and Cluster 2, older people with more schooling and income, it was possible to draw significant conclusions regarding the hypotheses formulated.

By doing the cross tabulation analysis of Clusters 1 and 2 with the main variables of factors 1, 5 and 10, it was observed that in Cluster 1 the people had a sustainable consumption behavior lower than the Cluster 2 people, being able to accept the hypotheses H1, H2 and H3.

Thus, although consumers do not have a significant sustainable behavior, education level, income and age can contribute to the sustainable behavior consumers, corroborating with the studies of Lages and Neto (2002), Queiroga *et al*. (2005), Borinelli *et al*. (2011), Resende (2013).

Considering that it is important to carry out several studies on sustainable purchasing behavior in different regions of the Brazil in order to be able to compare, then this study is important because it presents results that, despite agree with other studies, aggregate information.

Considering the above, it is concluded that the study collaborates bringing a new observation regarding the sustainable behavior purchase of the São João del Rei, and it can contribute to increase the population's environmental awareness, as well as the implementation of public and organizational policies, with a view to the importance of preserving the environment in the present day.

In future studies, a greater emphasis is suggested on the values related to sustainable consumption in Brazil and to seek samples in cities of different regions of the country.

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Appendix

Sustainable Buying Behavior

Behavior	Mean	Median	Mode
16 I use appliances and equipment brands that consume less energy.	4.08**	4	5
46 I avoid buying from company that discriminate women.	3.92**	4	5
5 I buy refill products to use containers that I already have.	3.88**	4	5
50 I avoid buying products made with children's labor.	3.88**	4	5
37 When possible, I buy products in reusable packaging.	3.74**	4	5
53 I avoid buying products that can cause animal extinction.	3.68	4	5
39 If possible, I do not use a product that can harm others.	3.67	4	5
8 I try to restore things instead throwing them in the trash.	3.64	4	5
51 I avoid buying products from companies that harm animals and plants.	3.62	4	5
40 I do not buy products from companies that advertise portraying minorities in a negative (pejorative) form.	3.54	4	5
41 I do not prefer buying from companies that discriminate against minorities.	3.54	4	5
15 I close the sink or shower taps when I am soaping objects, body or hands.	3.94**	4	4
44 When I have the opportunity to choose a store that helps some school, hospital, day care, etc., I choose it.	3.76**	4	4
22 It is important that the stores where I buy have an ethical reputation.	3.59	4	4
12 I am interested in news related to the environment.	3.51	4	4
49 When I have an opportunity, I choose brands of companies whose share of the product price goes to some donation to charity.	3.42	4	4
14 I try to influence people to be careful about the environment.	3.41	4	4
52 I avoid buying from companies that do not reduce pollution.	3.39	4	4
54 When buying a product I choose the lowest price regardless of the working conditions in the company.	2.94	3	4
45 I try to buy from companies that invest in improving working conditions.	3.53	4	3
48 I worry acquire products and services from companies that pay decent wages.	3.53	4	3
43 I try to buy from companies that hire disabilities people.	3.48	4	3
42 I try to buy from companies that help the needy people.	3.47	4	3
47 I try to buy from companies that support the victims of natural disasters.	3.38	3	3
3 I try to reuse objects.	3.34	3	3
31 I buy products that cause less pollution.	3.28	3	3
33 When I have to choose between two equal products, I always buy those that are less harmful to other people and the environment.	3.28	3	3
26 Every environmentally responsible company has to be rewarded by the consumer.	3.24	3	3
32 When I have to choose between two equal products, I always buy those that causes less pollution	3.17	3	3
35 If I perceive the potential environment damage that a product can cause, I do not buy that product.	3.02	3	3

55	When buying a product I buy higher quality products, regardless the environment impact caused by the company.	2.92	3	3
36	I do not buy products that are harmful to the environment.	2.89	3	3
56	When buying a product I chose higher quality products regardless the working conditions in the company.	2.85	3	3
13	I change brands products to buy from companies that show greater care with the environment.	2.84	3	3
23	I give preference to the companies that promote environment preservation actions next to the community.	2.82	3	3
57	When choosing a product I buy the lowest price regardless the environment impact of the company.	2.82	3	3
18	I worry if the companies that I buy products respect the environmental laws.	2.73	3	3
11	I stop buying a company that shows disrespect to the environment.	2.72	3	3
28	When I buy I prefer products from companies that use renewable resources.	2.6	3	3
6	I avoid using unnecessary packaging.	2.98	3	2
30	I recommend to my acquaintances to purchase products from companies that respect the environment.	2.77	3	2
38	I struggle to buy products made from recycled paper.	2.72	3	2
29	I stop buying products from companies when I find out that they do not promote the preservation of the environment.	2.67	3	2
20	Environmental preservation practices influence my purchase decision.	2.62	2	2
27	I prefer buying an environmentally responsible company than to a company with the lowest price.	2.55	2	2
25	It would pay more to buy products from a company that promotes environmental protection.	2.54	2	2
4	I buy used products.	2.46	2	2
17	The company environmental certification influences my purchase decision.	2.73	3	1
2	When buying products, I prefer those that use recyclable packaging.	2.68	3	1
19	In my purchase decision I note whether the store has an environmentally correct posture.	2.58	3	1
34	I have replaced products for ecological reasons.	2.39	2	1
21	It is fundamental for my purchase decision that the companies have incentive programs for environmental preservation.	2.29	2	1
1	I separate metal objects.	2.24	2	1
9	I separate packaging for recycling.	2.24	2	1
10	I often read product label to see if there is any information about caring for the environment.	2.22	2	1
24	When buying, I look for information about the environmental behavior of the company.	2.09	2	1
7	I use a reusable shopping bag.	1.82	1	1

** statistically equal to 4