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# ORIGINALNI NAUČNI RAD / ORIGINAL SCIENTIFIC PAPER

# SUSTAINABLE CONSUMPTION OF PRODUCTS AND CONSUMER BEHAVIOUR IN THE REPUBLIC OF SERBIA

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Abstract: Having in mind that sustainable consumption has become an important subject in today's marketing, the paper uses literature review to analyse the theoretical approaches to sustainable consumer behaviour and models that explore the factors that affect the consumer purchasing process. In addition, empirical research was conducted during April and May 2023 with the aim of identifying the factors that impact green purchasing decisions of consumers and influence their awareness of sustainability. The survey has included 171 consumers (N=171) in the Republic of Serbia who rated different statements related to sustainable consumption and purchasing behaviour. The questionary was consisted of 28. variables referring to consumers' purchasing decisions, post-purchasing behaviour, environmental awareness, and concern. The research has also included an analysis of sustainable consumption in the context of the respondents' gender. Data processing and presentation of results were performed based on the application of descriptive statistics, t- test and factor analysis.

Keywords: sustainable consumption, green purchasing behaviour, sustainable business, consumer behaviour.

JEL Classification: M0, M3.

# INTRODUCTION

The paper explores the consumer behaviour related to sustainable consumption in contemporary environment. The concept of sustainable consumption has been widely recognised as a significant aspect of contemporary marketing and business.

In the earliest conceptual definitions, the term sustainable consumption was directly linked to production processes in organisations. Norwegian Ministry of Environment has made one of the first definitions of this term, indicating that "sustainable consumption and production is the use of services and related products, which respond to basic needs and bring a better quality of life while minimising the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardise the needs of further generations" (Norwegian Ministry of Environment, 1994). Another important contribution to the concept was made at the World Summit on Sustainable Development in 2002, when it was noted as "one of the key objectives of sustainable development that promotes resource and energy efficiency" (Unated Nations, 2002). Moreover, sustainable consumption is one of the most important Sustainable Development Goals (SDGs) defined by United Nations in 2015, within The 2030 Agenda for Sustainable Development (Unated Nations, 2015).

In marketing literature, the term sustainable consumption has been given a wider meaning that includes "the process of decisions and actions regarding purchasing, product use, and the handling of any remaining tangible product after use" (Peattie, 2009). In addition, a study provided by Perčić et al. explained the marketing context of sustainable consumption in terms of adding a sustainable value to the brand (Perčić, 2023).

The starting point in this study arose from the need to provide insight into the patterns of (un)sustainable consumption due to the research gap that exists when it comes to the application of certain models and instruments for measuring consumers' attitudes towards sustainable consumption.

Regarding that sustainable consumption has become an important subject in marketing, the aim of this study was to identify the factors that influence green purchasing decisions of consumers and affect their awareness of sustainability. To answer this research question, an empirical study was conducted based on a questionnaire developed by Testa et al. within the programme of European Union (Testa, 2020). The survey has included 171 consumers (N=171) in the Republic of Serbia who rated different statements related to sustainable consumption and purchasing behaviour. The questionary was consisted of 28 variables referring to consumers' purchasing decisions, post-purchasing behaviour, environmental awareness, and concern. The research has also included an analysis of sustainable consumption in the context of the respondents' gender and age categories. Data processing and presentation of results were performed based on the application of descriptive statistics, t- test and factor analysis.

# LITERATURE OVERVIEW

In early studies, the term sustainable consumption was often observed in the context of ecological modernization of production, with a focus on domestic consumption and individual consumer decisions related to environmental issues (Martens, 2005); (Welch, 2015). However, the practice has shown that dealing with unsustainable consumption patterns must also include holistic and systematic point of view and cannot be overcome with only an individual perspective of consumers. Jaeger-Erben & Offenberger have also indicated that sustainable consumption should be considered from a broader context that would include the framework of individual consumption patterns in combination with specific socio-cultural and socio- technical factors (Jaeger-Erben, 2014). An even broader approach to the study of sustainable consumption was made by Govindan who analysed the supply chains on the example of food industry and emphasised the necessity of stakeholder approach in addressing the sustainability issues (Govindan, 2018). Other significant scientific studies (Anantharaman, 2018); (Corsini,

2019) have pointed out the importance of individual behaviour change and sustainable consumption as main elements of engendering more sustainable societies, as well as their interdependence of social conditions. Studying the consumer perspective of sustainable consumption, Geiger et al. have recognised that the process takes place in "different areas (e.g., food, clothing, mobility) and different phases (e.g., acquisition, usage, disposal)" (Geiger, 2018).

The concept of sustainable consumption has been explored from diverse theoretical approaches, and it has been widely recognised by academicians, policymakers, and practitioners (Quoquab, 2020); (Haider, 2022); (Koval, 2023); (Maduku, 2024). However, the scientific research on this topic is still in its infancy when it comes to the implementation of instruments and models which explore the factors that affect consumer behaviour and their buying decisions regarding sustainability. According to literature review, a few scientific studies were based on the application of certain models in the examination of sustainable consumption and green marketing. For instance, Mc-Donald & Oates provided an empirical test of 40 sustainability activities of consumers that affect environment (McDonald, 2006). Furthermore, a study conducted by Young et al. demonstrated the purchasing process for green consumers regarding consumer technology products in the United Kingdom (UK) (Young, 2010). In addition, Do Paço et al. have developed a model for testing the relationships between consumer environmental values, attitudes, and behaviours (Do Paço, 2013). The model was successfully applied in England, Germany, Portugal, and Spain. A significant scientific contribution was made by Chekima et al. who analysed the influence of environmental knowledge, cultural values, environmental advertising as well as consumers' demographic factors on their purchasing decisions and sustainable consumption (Chekima, 2016). Lim has developed a "theoretical toolbox" that marketing and consumer behaviour researchers can use in further explorations of sustainable consumption and ecological marketing (Lim, 2017). Another significant study made by Torres-Ruiz, Vega-Zamora & Parras-Rosa was investigating sustainable consumptions of organic food in Spain (Torres-Ruiz, 2018). The authors have proposed an operational model that illustrated the purchasing process and analysed all the steps along the way. Bearing in mind the aim of this study, it is useful to state the findings of a research conducted by Testa et al. who recognised the following seven drivers of green consumptions: "behavioural factors, socio-demographic variables, intrapersonal values—environment, intrapersonal values—non environment, personal capabilities, products and producers-related factors and context-related factors" (Testa F. P., 2021). A special contribution of this study is that the survey was tested in different countries in Europe, such as France, Spain, Italy, Germany, and the United Kingdom.

#### **METHODOLOGY**

The theoretical propositions in the study are based on the application of literature review, as a basic research method that aimed to chronologically analyse and compare different approaches to the concept of sustainable consumption. Starting from the relevant studies presented in the literature review, the following research questions were defined.

RQ1 What are the main factors that influence consumer decisions in sustainable consumption and affect their awareness of sustainability?

RQ2 Is there a difference in consumer behaviour and attitudes towards sustainable consumption between genders?

To address the stated research questions an instrument developed by Testa et al. was used in this study (Testa F. I., 2020). Regarding that the research instrument was successfully tested in five different countries in Europe, the questionnaire was considered suitable for applying in Serbia on a selected sample of 171 consumers. The original survey made by Testa et al. has included different variables that have been assumed to affect green consumption, such as: purchasing and post-purchasing intentions, psychographic dimensions of consumers, trust, and greenwashing, ecolabeling and information on green products. Similar variables were also tested in a research conducted on a large sample of 700 participants in Italy in Sweden (Siminelli, 2017). The authors explored the relations between variables such as consumers' decisions in purchase, utilisation, and disposal of products with personal lifecycles. In the study presented in this paper, three dimensions of sustainable consumption were investigated. The questionary was consisted of 28 variables referring to consumers' purchasing decisions, post-purchasing behaviour, environmental awareness and concern. The respondents used a five-point scale (0=totally disagree; 1 = disagree; 2= somewhat disagree; 3= somewhat agree; 4=agree; 5=totally agree) for assessing the statements. Data processing and presentation of results were performed by descriptive statistics and factor analysis. Cronbach's Alpha scores for all three dimensions of sustainable consumption were a>0.8 indicating high reliability of the research instrument (table 1).

**Table 1.** Cronbach's Alpha scores for three dimensions of sustainable consumption

Cronbach's Alpha Variables related to purchasing decisions (Var 1- Var 9)		N of Items
	.944	9
Cronbach's Alpha		
Variables related to post - purchasing behaviour (Var 10 – Var 18)		
	.922	9
Cronbach's Alpha		
Variables related to consumers' environmental awareness, and concern (Var 19 – V	/ar 28)	
	.896	10

Source: Authors' calculations in SPSS

# **RESULTS AND DISCUSSION**

The survey was conducted on a sample of 171 consumers (N=171) in the Republic of Serbia, during April and May 2023. Respondents of different age categories were represented in the sample (table 2). However, most of the consumers (27.5%) belonged to the 35-44 age group.

Cumulative Frequency **Percent** Valid Percent Percent Valid 18-24 6.4 6.4 11 6.4 25-34 22.2 22.2 28.7 35-44 47 27.5 27.5 56.1 45-54 19.9 76.0 34 19.9 55-64 17.5 17.5 93.6 30 65-80 11 6.4 6.4 100.0 Total 171 100.0 100.0

**Table 2.** Age categories of respondents – descriptive statistics

**Source:** Authors' calculations in SPSS

The gender structure of the sample is shown in table 3, which indicates that male respondents were in the majority of 53.8% compared to 46.2% of female respondents.

**Table 3.** Gender structure of the sample

		Frequency	Percent	Valid Percent	<b>Cumulative Percent</b>
Valid	Male	92	53.8	53.8	53.8
	female	79	46.2	46.2	100.0
	Total	171	100.0	100.0	

**Source:** Authors' calculations in SPSS

Furthermore, the research has included factor analysis of the examined variables. The data was tested with Kaiser-Meyer-Olkin (KMO) test to indicate the suitability for structure detection. Bearing in mind that the result was 0.796, (p= 0.00 <0.05) which was higher than the proposed minimum of 0.6 it was concluded that the data was suitable for the factor analysis.

Table 4. KMO and Bartlett's Test

KMO and Bartlett's Test									
Kaiser-Meyer-Olkin Measure of Sampling Adequacy									
Bartlett's Test of Sphericity	Approx. Chi-Square	9063.285							
	Df	378							
	Sig.	.000							

Source: Authors' calculations in SPSS

The application of factor analysis with the extraction method of principal component analysis provided the table of communalities before and after extraction. In principal component analysis it is assumed that the communalities are initially 1. According to the results presented in table 5, the values of communalities after extraction for 27 variables were high, between 0.769 and 0.947. The lowest value (0.648) is recorder for Var 26: I know the meaning of the term "recycled".

**Table 5.** Communalities

	Initial	Extraction
Var 1:When buying food, I carefully evaluate the amount I need to avoid waste	1.000	.776
Var 2:When I buy vegetables, I look for local produce	1.000	.931
Var 3:When I buy paper products, I always choose the ones made with recycled paper	1.000	.946
Var 4:When I buy bottled beverages, I look for recycled packaging	1.000	.928
Var 5: When I buy groceries, I choose food with a low environmental impact	1.000	.797
Var 6: When I buy biscuits or similar products, I choose the ones with recyclable packaging	1.000	.887
Var 7:When I buy a laundry detergent, I choose the one with the lowest environmental impact	1.000	.900
Var 8: When I buy soap for personal care, I choose the one with the lowest environmental impact	1.000	.816
Var 9: I usually buy food closer to its expiration date to help supermarkets avoid waste	1.000	.856
Var 10: If I have a product that is closer to the expiration date, I eat it first	1.000	.888
Var 11: When I prepare my meals, I carefully evaluate	1.000	.911
Var 12: When I do my laundry, I use the recommended dosage on the detergent packaging	1.000	.890
Var 13: When I finish a shower-gel I recycle its bottle	1.000	.805
Var 14:When I finish a packaged food product, I carefully separate the packaging for recycling	1.000	.769
Var 15: When I use a shampoo, I use the amount indicated on its packaging	1.000	.789
Var 16: When I finish a liquid hand-soap I usually refill its bottle	1.000	.922
Var 17: I eat food even after the "best before" date	1.000	.814
Var 18:When I finish a packaged food product, I try to reuse the packaging if possible	1.000	.777
Var 19: I recycle my paper, plastic, and metallic waste	1.000	.853
Var 20: I try to save water and energy in my house	1.000	.825
Var 21: I do my best to buy local products	1.000	.887
Var 22: I buy products which have a low impact on the environment	1.000	.919
Var 23: I buy products made in safe and healthy workplaces	1.000	.913
Var 24: I frequently change my preferences in shopping	1.000	.947
Var 25: As a consumer, it is worth making efforts to protect and improve the environment	1.000	.836
Var 26: I know the meaning of the term "recycled".	1.000	.648
Var 27: I know the meaning of the term "organic".	1.000	.920
Var 28: I know the meaning of the term "energy-efficient".	1.000	.901

Extraction Method: Principal Component Analysis.

The table of Total Variance Explained (table 6) demonstrates that five factors have eigenvalues higher than 1. Together they account more than 85% of the variability in the original variables.

Table 6. Total Variance Explained

Component         Initial Eigenvalue         Extraction Sums of Squared Loadings           1         14.492         51.756         51.756         14.492         51.756         51.756         14.492         51.756         51.756           2         4.180         14.928         66.684         4.180         14.928         66.684           3         2.468         8.813         75.497         2.468         8.813         75.497           4         1.725         6.162         81.659         1.725         6.162         81.659           5         1.189         4.247         85.907         1.189         4.247         85.907           6         .904         3.230         89.136         89.131         89.136         89.136         89.133         89.136         89.133         89.136         89.136	Total Variance Explained											
Total         % of Variance         Cumulative %         Total         % of Variance         Cumulative %           1         14.492         51.756         51.756         51.756         51.756         51.756         51.756           2         4.180         14.928         66.684         4.180         14.928         66.684           3         2.468         8.813         75.497         2.468         8.813         75.497           4         1.725         6.162         81.659         1.725         6.162         81.659           5         1.189         4.247         85.907         1.189         4.247         85.907           6         .904         3.230         89.136         7         .749         2.675         91.811           8         .572         2.041         93.852         9         .355         1.269         95.921           10         .241         .860         95.981         95.981         95.981         96.644           12         .160         .572         97.216         97.715         98.134         98.17         98.134         98.758         98.758         99.217         99.029         99.818         99.217         99.029	Component		Initial Eigenva	lues	Extrac	tion Sums of Squ	ared Loadings					
2     4.180     14.928     66.684     4.180     14.928     66.684       3     2.468     8.813     75.497     2.468     8.813     75.497       4     1.725     6.162     81.659     1.725     6.162     81.659       5     1.189     4.247     85.907     1.189     4.247     85.907       6     .904     3.230     89.136       7     .749     2.675     91.811       8     .572     2.041     93.852       9     .355     1.269     95.121       10     .241     .860     95.981       11     .186     .663     96.644       12     .160     .572     97.216       13     .140     .499     97.715       14     .117     .419     98.134       15     .096     .342     98.477       16     .079     .281     98.758       17     .076     .271     99.029       18     .053     .188     99.217       19     .046     .163     99.380       20     .039     .138     99.518       21     .031     .109     99.627       22     .026     .094 <td< th=""><th>Component</th><th>Total</th><th>% of Variance</th><th>Cumulative %</th><th>Total</th><th>% of Variance</th><th>Cumulative %</th></td<>	Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %					
3       2.468       8.813       75.497       2.468       8.813       75.497         4       1.725       6.162       81.659       1.725       6.162       81.659         5       1.189       4.247       85.907       1.189       4.247       85.907         6       .904       3.230       89.136           85.907         6       .904       3.230       89.136            85.907         6       .904       3.230       89.136            85.907         6       .904       3.230       89.136           85.907	1	14.492	51.756	51.756	14.492	51.756	51.756					
4     1.725     6.162     81.659     1.725     6.162     81.659       5     1.189     4.247     85.907     1.189     4.247     85.907       6     .904     3.230     89.136       7     .749     2.675     91.811       8     .572     2.041     93.852       9     .355     1.269     95.121       10     .241     .860     95.981       11     .186     .663     96.644       12     .160     .572     97.216       13     .140     .499     97.715       14     .117     .419     98.134       15     .096     .342     98.477       16     .079     .281     98.758       17     .076     .271     99.029       18     .053     .188     99.217       19     .046     .163     99.380       20     .039     .138     99.518       21     .031     .109     99.627       22     .026     .094     99.721       23     .025     .090     99.811       24     .018     .064     99.875       25     .015     .053     99.928       <	2	4.180	14.928	66.684	4.180	14.928	66.684					
5     1.189     4.247     85,907     1.189     4.247     85,907       6     .904     3.230     89,136       7     .749     2.675     91,811       8     .572     2.041     93,852       9     .355     1.269     95,121       10     .241     .860     95,981       11     .186     .663     96,644       12     .160     .572     97,216       13     .140     .499     97,715       14     .117     .419     98,134       15     .096     .342     98,477       16     .079     .281     98,758       17     .076     .271     99,029       18     .053     .188     99,217       19     .046     .163     99,380       20     .039     .138     99,518       21     .031     .109     99,627       22     .026     .094     99,721       23     .025     .090     99,811       24     .018     .064     99,875       25     .015     .053     99,928       26     .012     .042     99,969       27     .006     .023     99,9	3	2.468	8.813	75.497	2.468	8.813	75.497					
6       .904       3.230       89.136         7       .749       2.675       91.811         8       .572       2.041       93.852         9       .355       1.269       95.121         10       .241       .860       95.981         11       .186       .663       96.644         12       .160       .572       97.216         13       .140       .499       97.715         14       .117       .419       98.134         15       .096       .342       98.477         16       .079       .281       98.758         17       .076       .271       99.029         18       .053       .188       99.217         19       .046       .163       99.380         20       .039       .138       99.518         21       .031       .109       99.627         22       .026       .094       99.721         23       .025       .090       99.811         24       .018       .064       99.875         25       .015       .053       99.928         26       .012       <	4	1.725	6.162	81.659	1.725	6.162	81.659					
7       .749       2.675       91.811         8       .572       2.041       93.852         9       .355       1.269       95.121         10       .241       .860       95.981         11       .186       .663       96.644         12       .160       .572       97.216         13       .140       .499       97.715         14       .117       .419       98.134         15       .096       .342       98.477         16       .079       .281       98.758         17       .076       .271       99.029         18       .053       .188       99.217         19       .046       .163       99.380         20       .039       .138       99.518         21       .031       .109       99.627         22       .026       .094       99.721         23       .025       .090       99.811         24       .018       .064       99.875         25       .015       .053       99.928         26       .012       .042       99.969         27       .006       <	5	1.189	4.247	85.907	1.189	4.247	85.907					
8     .572     2.041     93.852       9     .355     1.269     95.121       10     .241     .860     95.981       11     .186     .663     96.644       12     .160     .572     97.216       13     .140     .499     97.715       14     .117     .419     98.134       15     .096     .342     98.477       16     .079     .281     98.758       17     .076     .271     99.029       18     .053     .188     99.217       19     .046     .163     99.380       20     .039     .138     99.518       21     .031     .109     99.627       22     .026     .094     99.721       23     .025     .090     99.811       24     .018     .064     99.875       25     .015     .053     99.928       26     .012     .042     99.969       27     .006     .023     99.992	6	.904	3.230	89.136								
9       .355       1.269       95.121         10       .241       .860       95.981         11       .186       .663       96.644         12       .160       .572       97.216         13       .140       .499       97.715         14       .117       .419       98.134         15       .096       .342       98.477         16       .079       .281       98.758         17       .076       .271       99.029         18       .053       .188       99.217         19       .046       .163       99.380         20       .039       .138       99.518         21       .031       .109       99.627         22       .026       .094       99.721         23       .025       .090       99.811         24       .018       .064       99.875         25       .015       .053       99.928         26       .012       .042       99.969         27       .006       .023       99.992	7	.749	2.675	91.811								
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15       .096       .342       98.477         16       .079       .281       98.758         17       .076       .271       99.029         18       .053       .188       99.217         19       .046       .163       99.380         20       .039       .138       99.518         21       .031       .109       99.627         22       .026       .094       99.721         23       .025       .090       99.811         24       .018       .064       99.875         25       .015       .053       99.928         26       .012       .042       99.969         27       .006       .023       99.992	13	.140	.499	97.715								
16       .079       .281       98.758         17       .076       .271       99.029         18       .053       .188       99.217         19       .046       .163       99.380         20       .039       .138       99.518         21       .031       .109       99.627         22       .026       .094       99.721         23       .025       .090       99.811         24       .018       .064       99.875         25       .015       .053       99.928         26       .012       .042       99.969         27       .006       .023       99.992	14	.117	.419	98.134								
17     .076     .271     99.029       18     .053     .188     99.217       19     .046     .163     99.380       20     .039     .138     99.518       21     .031     .109     99.627       22     .026     .094     99.721       23     .025     .090     99.811       24     .018     .064     99.875       25     .015     .053     99.928       26     .012     .042     99.969       27     .006     .023     99.992	15	.096	.342	98.477								
18       .053       .188       99.217         19       .046       .163       99.380         20       .039       .138       99.518         21       .031       .109       99.627         22       .026       .094       99.721         23       .025       .090       99.811         24       .018       .064       99.875         25       .015       .053       99.928         26       .012       .042       99.969         27       .006       .023       99.992	16	.079	.281	98.758								
19       .046       .163       99.380         20       .039       .138       99.518         21       .031       .109       99.627         22       .026       .094       99.721         23       .025       .090       99.811         24       .018       .064       99.875         25       .015       .053       99.928         26       .012       .042       99.969         27       .006       .023       99.992	17	.076	.271	99.029								
20       .039       .138       99.518         21       .031       .109       99.627         22       .026       .094       99.721         23       .025       .090       99.811         24       .018       .064       99.875         25       .015       .053       99.928         26       .012       .042       99.969         27       .006       .023       99.992	18	.053	.188	99.217								
21       .031       .109       99.627         22       .026       .094       99.721         23       .025       .090       99.811         24       .018       .064       99.875         25       .015       .053       99.928         26       .012       .042       99.969         27       .006       .023       99.992	19	.046	.163	99.380								
22     .026     .094     99.721       23     .025     .090     99.811       24     .018     .064     99.875       25     .015     .053     99.928       26     .012     .042     99.969       27     .006     .023     99.992	20	.039	.138	99.518								
23     .025     .090     99.811       24     .018     .064     99.875       25     .015     .053     99.928       26     .012     .042     99.969       27     .006     .023     99.992	21	.031	.109	99.627								
24     .018     .064     99.875       25     .015     .053     99.928       26     .012     .042     99.969       27     .006     .023     99.992	22	.026	.094	99.721								
25     .015     .053     99.928       26     .012     .042     99.969       27     .006     .023     99.992	23	.025	.090	99.811								
26     .012     .042     99.969       27     .006     .023     99.992	24	.018	.064	99.875								
27 .006 .023 99.992	25	.015	.053	99.928								
	26	.012	.042	99.969								
28 .002 .008 100.000	27	.006	.023	99.992								
	28	.002	.008	100.000								

Extraction Method: Principal Component Analysis.

Table 7 presents the Component Matrix with the loadings of 28 variables on the five factors extracted. The components can be interpreted as the correlation of each item with the components. According to the presented results, the first factor is highly associated with the variables related to consumers' purchasing and post -purchasing behaviour. The second factor is highly associated with the variables related to consumers' environmental awareness and concern.

Table 7. Component Matrix

	Component						
-	1	2	3	4	5		
Var 1:When buying food, I carefully evaluate the amount I need to avoid waste	.803	249	.051	.109	232		
Var 2:When I buy vegetables, I look for local produce	.899	093	.288	.038	174		
Var 3:When I buy paper products, I always choose the ones made with recycled paper	.909	090	.292	.050	157		
Var 4:When I buy bottled beverages, I look for recycled packaging	.901	089	.289	.014	156		
Var 5: When I buy groceries, I choose food with a low environmental impact	.831	032	.295	.046	.130		
Var 6: When I buy biscuits or similar products, I choose the ones with recyclable packaging	.876	.300	.143	050	087		
Var 7:When I buy a laundry detergent, I choose the one with the lowest environmental impact	.892	295	025	020	127		
Var 8: When I buy soap for personal care, I choose the one with the lowest environmental impact	.864	175	.000	050	190		
Var 9: I usually buy food closer to its expiration date to help supermarkets avoid waste	.346	.644	.320	168	736		
Var 10: If I have a product that is closer to the expiration date, I eat it first	.683	.109	142	486	.391		
Var 11: When I prepare my meals I carefully evaluate	.833	.007	144	442	002		
Var 12: When I do my laundry, I use the recommended dosage on the detergent packaging	.766	.073	122	471	.247		
Var 13: When I finish a shower-gel I recycle its bottle	.820	006	.061	359	027		
Var 14:When I finish a packaged food product, I carefully separate the packaging for recycling	.732	056	.155	.446	.084		
Var 15: When I use a shampoo, I use the amount indicated on its packaging	.744	088	445	.157	.070		
Var 16: When I finish a liquid hand-soap I usually refill its bottle	.875	126	341	.140	065		
Var 17: I eat food even after the "best before" date	.850	149	076	.087	235		
Var 18:When I finish a packaged food product, I try to reuse the packaging if possible	.626	.130	558	.121	.208		
Var 19: I recycle my paper, plastic, and metallic waste	.567	.705	116	.009	143		
Var 20: I try to save water and energy in my house	.247	.848	.094	.077	.171		
Var 21: I do my best to buy local products	.707	002	421	.747	.103		

			-		
Var 22: I buy products which have a low impact on the environment	.805	429	248	.143	076
Var 23: I buy products made in safe and healthy workplaces	.388	.751	286	.339	.026
Var 24: I frequently change my preferences in shopping	.137	.924	020	.240	.129
Var 25: As a consumer, it is worth making efforts to protect and improve the environment	.805	.120	088	335	.231
Var 26: I know the meaning of the term "recycled".	.084	.620	.504	043	.003
Var 27: I know the meaning of the term "organic".	.463	220	.757	.261	.397
Var 28: I know the meaning of the term "energy-efficient".	.567	343	.501	.211	.708

Extraction Method: Principal Component Analysis.

5 components extracted.

Source: Authors' calculations in SPSS

Bearing in mind the results of factor analysis, the further part of this study has included the testing of 19 variables that were highly associated with the first component. To answer the Research Question 2, t test was applied with the purpose of finding the difference in answers between male and female respondents. The issue of gender equality and different attitudes towards the concept of sustainability in consumption between men and women is recognised as a very important topic, which was pointed out by many authors (Dzialo, 2017); (Kennedy, 2018); (Godin, 2021). Moreover, MacGregor explains the gender gap in understanding the sustainable consumption by underlining "the connection that exists between women's caring and ecological politics" (MacGregor, 2006). Similar, Brough, Wilkie & Isaac pointed out scientific evidence showing that concepts of greenness and femininity are cognitively connected (Brough, 2016). Other authors (Fathallah, 2020) have recognised that there is lack of studies dealing with differentiation between genders in energy studies. According to findings presented in this study (table 8), the higher means were registered in female answers for all 19 tested variables. However, an Independent Sample test demonstrated that the difference in male and female answers were statistically significant (p= 0.00 < 0.05 ) for the following variables: Var 2: When I buy vegetables, I look for local produce, t(169) = -5.311; Var 3:When I buy paper products, I always choose the ones made with recycled paper, t(169)= -5.114; Var 4: When I buy bottled beverages, I look for recycled packaging, t(169) = -5.237; Var 8: When I buy soap for personal care, I choose the one with the lowest environmental impact, t(169)= -7.335; Var 10: If I have a product that is closer to the expiration date, I eat it first, t(169) = -2.264; Var 11: When I prepare my meals I carefully evaluate, t(169)= -3.529; Var 12: When I do my laundry, I use the recommended dosage on the detergent packaging, t(169) =-2.256; Var 13: When I finish a shower-gel I recycle its bottle, t(169)= -2.431; Var 15: When I use a shampoo, I use the amount indicated on its packaging, t(169) = -6.535; Var 16: When I finish a liquid hand-soap I usually refill its bottle, T(126)= -6.837; Var 21: Var 21: I do my best to buy local products, t(126) = -4.122. The highest means in female answers were registered for variables: Var 22: I buy products which have a low impact on the environment (M=4.62) and Var 25: As a consumer, it is worth making efforts to protect and improve the environment (M=4.03).

**Table 8.** Group statistics in male and female answers related to sustainable consumption

G	roup Statist	tics			
	Gender	N	Mean	Std. Deviation	Std. Error Mean
Var 1:When buying food, I carefully evaluate	male	92	2.8370	.73045	.07616
the amount I need to avoid waste	female	79	3.6582	.65801	.07403
Var 2:When I buy vegetables, I look for local	male	92	2.9457	.65237	.06801
produce	female	79	3.4937	.69565	.07827
Var 3:When I buy paper products, I always	male	92	2.9565	.64473	.06722
choose the ones made with recycled paper	female	79	3.4810	.69542	.07824
Var 4:When I buy bottled beverages, I look for	male	92	2.9565	.64473	.06722
recycled packaging	female	79	3.4937	.69565	.07827
Var 5: When I buy groceries, I choose food with	male	92	3.1196	.64352	.06709
a low environmental impact	female	79	3.5190	.61729	.06945
Var 6: When I buy biscuits or similar products, I	male	92	2.946	.6353	.0662
choose the ones with recyclable packaging	female	79	3.063	.5393	.0607
Var 7:When I buy a laundry detergent, I choose	male	92	2.9891	.60209	.06277
the one with the lowest environmental impact	female	79	3.8354	.58683	.06602
Var 8: When I buy soap for personal care, I	male	92	3.0000	.59300	.06182
choose the one with the lowest environmental impact	female	79	3.6962	.64757	.07286
Var 10: If I have a product that is closer to the	male	92	3.8152	.64500	.06725
expiration date, I eat it first	female	79	4.0000	.35806	.04028
Var 11: When I prepare my meals I carefully	male	92	3.6304	.65829	.06863
evaluate	female	79	3.9367	.43388	.04882
Var 12: When I do my laundry, I use the	male	92	3.7717	.63077	.06576
recommended dosage on the detergent packaging	female	79	3.9620	.43686	.04915
Var 13: When I finish a shower-gel I recycle its	male	92	3.6304	.76629	.07989
bottle	female	79	3.8861	.57707	.06493
Var 14:When I finish a packaged food product, I	male	92	2.8587	1.10525	.11523
carefully separate the packaging for recycling	female	79	3.3165	1.09245	.12291
Var 15: When I use a shampoo, I use the	male	92	3.2826	.70049	.07303
amount indicated on its packaging	female	79	3.8987	.49601	.05581
Var 16: When I finish a liquid hand-soap I	male	92	3.2065	.67185	.07005
usually refill its bottle	female	79	3.8481	.53322	.05999
Var 17: I eat food even after the "best before"	male	92	3.0870	.87269	.09098
date	female	79	3.7342	.82755	.09311
Var 21: I do my best to buy local products	male	92	3.0652	.98119	.10230
Von 22.1 h one director which have a law.	female	79	3.6203	.73909	.08315
Var 22: I buy products which have a low impact on the environment		92	3.3043	.76660 .77300	.07992
Var 25: As a consumer, it is worth making	female male	79 92	<b>4.6203</b> 3.7717	.69698	.08697
efforts to protect and improve the environment	female	79	4.0380	.33753	.03797

 Table 9. Independent Samples Test

	Independent Samples Test										
		Levene for Equ Varia				t-test	for Equali	ty of Mear	ns		
		F	Sig.	t	Df	Sig. 2-tailed)	Mean Difference	Std. Error Difference	Interva	nfidence al of the rence	
						(2	jį	St	Lower	Upper	
	Equal variances assumed	.208	.649	-7.671	169	.000	82127	.10706	-1.03261	60993	
Var 1	Equal variances not assumed			-7.733	168.599	.000	82127	.10621	-1.03094	61160	
	Equal variances assumed	13.888	.000	-5.311	169	.000	54802	.10318	75171	34433	
Var 2	Equal variances not assumed			-5.285	161.396	.000	54802	.10369	75278	34325	
	Equal variances assumed	15.681	.000	-5.114	169	.000	52449	.10256	72695	32204	
Var 3	Equal variances not assumed			-5.085	160.628	.000	52449	.10315	72819	32079	
	Equal variances assumed	15.720	.000	-5.237	169	.000	53715	.10257	73964	33466	
Var 4	Equal variances not assumed			-5.206	160.605	.000	53715	.10317	74089	33341	
	Equal variances assumed	7.829	.006	-4.123	169	.000	39942	.09687	59066	20819	
Var 5	Equal variances not assumed			-4.136	166.914	.000	39942	.09656	59007	20878	

	Equal variances assumed	1.275	.261	-1.294	169	.198	1176	.0909	2972	.0619
Var 6	Equal variances not assumed			-1.310	168.981	.192	1176	.0898	2950	.0597
	Equal variances assumed	1.604	.207	-9.272	169	.000	84631	.09128	-1.02651	66612
Var 7	Equal variances not assumed			-9.290	166.286	.000	84631	.09110	-1.02618	66645
	Equal variances assumed	13.567	.000	-7.335	169	.000	69620	.09491	88357	50883
Var 8	Equal variances not assumed			-7.286	159.768	.000	69620	.09555	88491	50749
	Equal variances assumed	19.174	.000	-2.264	169	.025	18478	.08163	34592	02364
Var 10	Equal variances not assumed			-2.357	146.085	.020	18478	.07839	33971	02986
	Equal variances assumed	30.021	.000	-3.529	169	.001	30627	.08680	47763	13492
Var 11	Equal variances not assumed			-3.637	158.913	.000	30627	.08422	47261	13994
	Equal variances assumed	12.936	.000	-2.256	169	.025	19029	.08434	35678	02379
Var 12	Equal variances not assumed			-2.318	162.063	.022	19029	.08210	35241	02816
	Equal variances assumed	14.456	.000	-2.431	169	.016	25564	.10514	46321	04808
Var 13	Equal variances not assumed			-2.483	166.278	.014	25564	.10295	45889	05239

	Equal variances assumed	.042	.838	-2.715	169	.007	45776	.16863	79065	12487
Var 14	Equal variances not assumed			-2.717	165.670	.007	45776	.16848	79040	12512
	Equal variances assumed	19.367	.000	-6.535	169	.000	61613	.09428	80224	43002
Var 15	Equal variances not assumed			-6.703	163.329	.000	61613	.09191	79761	43464
	Equal variances assumed	4.554	.034	-6.837	169	.000	64158	.09384	82683	45633
Var 16	Equal variances not assumed			-6.957	168.004	.000	64158	.09222	82365	45951
	Equal variances assumed	.044	.834	-4.952	169	.000	64722	.13071	90526	38919
Var 17	Equal variances not assumed			-4.972	167.317	.000	64722	.13018	90423	39021
	Equal variances assumed	4.471	.036	-4.122	169	.000	55504	.13464	82083	28924
Var 21	Equal variances not assumed			-4.210	166.287	.000	55504	.13183	81531	29476
	Equal variances assumed	.041	.840	-11.148	169	.000	-1.31591	.11804	-1.54893	-1.08288
Var 22	Equal variances not assumed			-11.141	164.694	.000	-1.31591	.11812	-1.54912	-1.08269
	Equal variances assumed	27.162	.000	-3.097	169	.002	26624	.08597	43596	09652
Var 25	Equal variances not assumed			-3.247	135.686	.001	26624	.08199	42838	10409
				C	Authors' ca	1 1 22	: CDCC			

Considering the presented findings, it can be concluded that female respondents from the sample showed higher levels of sustainable consumption intentions in all three dimensions of behaviour: purchasing, post-purchasing and environmental awareness and concern. According to literature review, the similar study was conducted by Bulut, Kökalan & Doğan on a sample of 393 participants in Turkey. The authors indicated that women demonstrated a higher level of "sustainable consumption behaviour both in overall behaviour and tendency to reuse products" (Bulut, 2017). Similar, Grau-Berlanga et al. have stated that women show higher levels of sustainable consumption and presented the practical implications of these findings (Grau-Berlanga, 2023). However, different conclusions and results were demonstrated in a study conducted by Booi-Chen & Teck-Chai, who did not find significant differences between male and female consumers (Booi-Chen, 2009). Another significant study that was conducted on a large sample of 3.000 households in France (Lazaric, 2020) has also showed the importance of age and gender for spurring sustainable consumption. In addition, an experimental study that was carried out by Costa Pinto, Herter, Rossi & Borges has shown that gender sustainable intentions depend on personal and social identity (Costa Pinto, 2014). According to their findings when personal identity was salient, female participants demonstrated higher levels of sustainable consumption compared with male participants. On the contrary, if the social identity was salient, the levels of sustainable consumption within men population have increased at the same levels as female respondents' attitudes. The presented findings in this research may be also compared with the study conducted by Siminelli who demonstrated that female participants positively influenced sustainable behaviours in the survey (Siminelli, 2017).

# CONCLUSION

The findings presented in this paper has provided an additional insight into scientific research of sustainable consumption behaviour on the example of the Republic of Serbia.

However, certain limitations should be considered when interpreting the results, such as the systemic perspective of sustainable consumption, given that social and cultural factors were not regarded in this empirical research. However, the study has a particular scientific and practical contribution, which is reflected in the fact that a research instrument that has already been successfully tested in European countries, was applied in examining sustainable consumption behaviour in the Republic of Serbia. The testing of this instrument was further expanded through the analysis of the attitudes of respondents belonging to different genders.

The survey was consisted of 28 variables referring to consumers' sustainable behaviour in consumption that were reduced by factor analysis on 19 variables, which were further explored regarding the respondents' gender differences. The largest number of selected variables referred to consumers' purchasing decisions and post-purchasing behaviour, while a slightly smaller number of variables included attitudes towards sustainable awareness and concern. The results of the study indicated that there is a significant statistical difference in consumer behaviour and attitudes towards sustainable consumption between genders, in favour of female respondents who demonstrated higher levels of sustainable behaviour in all three dimensions that were tested in this survey: purchasing behaviour, post-purchasing decisions, environmental aware-

ness and concern.

The results of this study can be used for future research on sustainable consumption, as well as for defining guidelines for the effective practice of consumer behaviour that will be in accordance with the principles of sustainable development.

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