

DETERMINANTS OF ADOPTING A ZERO WASTE CONSUMER LIFESTYLE

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ABSTRACT

As of 2019, Euromonitor International predicted that one of the most emerging consumer trends would be the aspiration and acting for a plastic-free world. The concept of Zero waste has been widely discussed in production technology and waste management literature, however, in recent years environmentally conscious consumers also decided to get more involved in concrete - and sometimes radical - waste reduction actions, even lifestyle changes. These initiatives were also supported by the authorities by banning certain single-use plastic items in the European Union by 2021. Media and social media personalities also have thematized the waste pollution problem and have brought closer to the population the principles of zero waste lifestyle. While the environmentally conscious consumer behavior has been researched widely before, the diffusion of zero waste principles at household level has not been in the researchers' focus. The present study aims to conceptualize and then identify the dimensions and the determinants of a zero waste consumer lifestyle. Questionnaire-based research has been delivered on a sample of 378 people active in zero waste social media groups in Hungary. Our results reveal that the waste reduction initiatives are the most important components of the zero waste behavior; however, dimensions of reusing and recycling products, packages or waste are also identified. The zero waste consumer is driven by altruistic motivations, is nonconformist, guided by his own values and convictions, shows positive attitude towards zero wasters' efforts, follows social media influencers' videos in zero waste matters and is active in social media groups.

Keywords: zero waste, consumer lifestyle, TRA, 3R, social media

INTRODUCTION

On a daily basis we receive shocking information and pictures on the damages caused by unstoppable plastic pollution and other waste issues. Solid waste has become one of the largest global environmental issues (Minelgaitė and Liobikiėnė, 2019). The European Commission proposed a circular economy vision and the introduction of a zero waste strategy (European Commission, 2014), in order to increase the more efficient use of the resources, to reduce the waste generation and leakage and to promote an economically and environmentally sustainable growth. A zero waste strategy provides benefits to the community, changes the people's lifestyle about consumption patterns and their attitudes towards waste disposal, ensures economic and financial benefits, environmental benefits and also specific benefits for industries and their stakeholders (Pietzsch et al., 2017).

The waste generated during the whole value chain has become a global and collective issue. Some environmentally sensitive consumers feel that they would take control, and initiate a bottom-up changing. For the year 2019, Euromonitor International predicted that one of the most sharply emerging consumer trends would be the aspiration and acting for a plastic-free world (*Angus and Westbrook, 2019*). Zero waste is becoming a trend and creating a buzz across Europe and beyond (*Zero Waste Europe, 2019*). Social media can amplify this buzz and helps to propagate the movement.

The zero waste concept traditionally was developed in production and supply chain management on the company level, and in the waste management on city or community level (*Lehmann, 2011b*). It is a holistic concept of the waste handling problem in the twenty-first century (*Zaman, 2015*). However, several studies on the zero waste principles neglect the demand side of the waste problem and the willingness and forms of the consumers' participation in zero waste value chains (*Kirchherr et al., 2017*). The zero waste lifestyle re-frames the practice of shopping, consumption and disposal of the waste. For example, to perform package-free shopping, consumers have to learn new competences and knowledge, need to develop own buying and storage infrastructure (*Fuentes et al., 2019*). Even so, recently the consumer awareness towards environmentally friendly consumer behavior has been emerging more than ever. The zero waste consumer movement is at the intersection of the two different topics: the zero waste management practices developed on the organization level and the environmentally friendly behavior on the individual or household level.

While the environmentally conscious consumer behavior has been researched widely before in literature, the diffusion of zero waste principles on individual and household level has not been in the researchers' focus. Therefore, the aim of this study is to conceptualize the zero waste lifestyle, to identify its dimensions, and to explore the determinants of a zero waste lifestyle adoption.

Conceptualization zero waste consumer lifestyle

Zero waste (ZW) was one of the most studied topics in the past decade in waste management (*Zaman, 2016*). Being at the intersection of several disciplines, it is also a controversial subject. The term "zero waste" was first used by Dr. Paul Palmer in 1973 for recovering resources from chemicals (*Zaman, 2015*). According to the most recent definition of the ZW, formulated by the Zero Waste International Alliance, ZW is "The conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health." (*ZWIA, 2018*). This definition is more operational and task-oriented, in comparison with the older one, which defined ZW as an "ethical, economical, and efficient and visionary [goal], to guide people in changing their lifestyles and practices to emulate sustainable natural cycle, where all discarded materials are designed to become resources for others to use [...]" (*ZWIA, 2018*).

In the ZW concept, the waste is seen as a resource created at the different stages of a product's value chain, including production and consumption (*Zaman, 2016*) that

should be used again, instead of incinerating or disposed of in a landfill. In this chain the waste should be reintroduced in the production process through reuse, recycle, reassemble, resell, redesign or reprocess. Thus, the ZW principles contribute to the circular economy (Lehmann, 2011a; Zaman, 2016; Pietzsch et al., 2017). Kirchherr et al. (2017) provide a definition for the circular economy similar to the ZW principles. I.e. the circular economy, as an economic system that replaces the 'end-of-life' concept with reducing, reusing, recycling and recovering materials in production, distribution and consumption phase of their life cycle (Kirchherr et al., 2017).

In a circular economy, waste reducing, reusing, and recycling (3R waste hierarchy) behaviors play central roles, 3R theory being a widely accepted tool of waste management (Ma et al., 2017). The waste hierarchy shows how waste avoidance is preferred in the first place, above reuse and recycling (Lehmann, 2011a). On the other hand, this waste hierarchy on the household level contributes towards achieving sustainable consumption (Pandley et al., 2017).

The Reduction principle refers to minimizing the amount of waste through the improvement of efficiency in production and reducing consumption. This could be realized e.g. using more efficient technologies, less packaging or a simpler lifestyle. The Reuse principle stands for using again a product or a component/material of the product according to the original purpose (European Parliament 2008). On the consumer side this consists of choosing reused and remanufactured products, preferring durable products (Prendeville et al., 2014). The Recycle principle refers to the recovery operation when waste is reprocessed into products or materials, it could happen for the original or other purposes. It includes the reprocessing of organic materials, too (European Parliament, 2008). Minelgaitė and Liobikiėnė (2019) in their study also use the 3R principles as the dimensions of waste management.

According to Kirchherr et al. (2017), the circular economy strategy involves micro level agents, such as companies or consumers, meso level economic and social ecosystems and macro level entities such as cities, geographic regions, countries. The emergence of the circular economy drives the development of new business models and responsible consumer behavior patterns (Kirchherr et al., 2017).

The concept of ZW is continuing to be adopted by individuals, families on the household level (Zaman, 2016; Hannon and Zaman, 2018). While the value chain ends at the consumer, the consumer should be included in the waste management strategies, and some of the tasks should be delegated to the consumers. Zaman (2015) put the proposed waste avoidance strategy into consumers' responsibilities, which means avoiding over-consumption and promoting sustainable consumption. The Planet Aid (2016) organization defines the ZW as "a lifestyle where people aim to eliminate their trash output completely. This means no plastic, no wrappers, no garbage".

The consumer's involvement in several ecologically friendly behavior in every stage of the consumption process became crucial in solving several environmental problems (Onel and Mukherjee, 2017). The 3R strategy has been developed at a meso or macro level, but is there a possibility to apply at the household level? The environmentally conscious consumer behavior and consumer profile have been researched for decades (Webster, 1975). For example, Webster (1975) found that recycling behavior is part of the socially conscious behavior. Zimmer et al. (1994)

identified seven dimensions of environmental concern, including concern for waste (waste control, landfills, recycling, etc.), concern for wildlife (wildlife, habitat protection, deforestation, etc.), concern for the biosphere (biosphere protection, ozone depletion, etc.), concern for popular issues (labeling, environmental education, etc.), concern for health (water, air pollution, etc.), energy awareness (clean energy, energy conservation, etc.), and concern for environmental technology (biotech, composting etc.). *Robert and Bacon* (1997) identified six factors of the environmentally conscious consumer behavior, such as products from recycled paper, saving (fossil) energy, waste recycling issues, eco-conscious decision making, increasing energy efficiency and reducing electricity consumption. *Li et al.* (2019) also identified a series of operationalized pro-environmental behavior, such as recycling waste, other waste management issues, energy consumption, transport usage, purchasing green products or purchasing eco-friendly appliances (*Li et al.*, 2019).

Besides the more holistic approaches of environmentally conscious consumer behavior studies, several specific topics that involve the consumer have been investigated in the consumer literature. In trying to identify the 3R model components in case of the environmentally conscious consumer behavior, it can be concluded that Reducing and Reusing behavior appear implicitly in the waste concerns, while the Recycling gains special attention and place in consumers' environmental concerns.

As part of the environmentally conscious consumer behavior, the Recycling behavior of consumers and its antecedents have been widely researched in consumer literature (*Davies et al.*, 2002; *Izagirre-Olaizola et al.*, 2015; *Kirchherr et al.*, 2017; *Onel and Mukherjee*, 2017; *Pandley et al.*, 2017; *Minelgaitė and Liobikienė*, 2019;). Recently, some studies have also mentioned reducing behavior issues (*Graham-Rowe et al.*, 2014; *Mintz et al.*, 2019). Reusing aspects, such as second-hand shopping, donation or resell appears in several fashion and clothing related researches (*Weber et al.*, 2016).

Thus, we consider that ZW lifestyle is a subset of environmentally friendly, or green consumer behavior, which manifests in a concrete and much-focused strategies and actions undertaken by consumers regarding waste management on the household level. It is focused on reducing solid waste, reusing the discarded products and recycling the incidentally created waste at the end of the product's life cycle. It can be applied at any segment of the life, regarding food, clothing, electronic products, etc. and all related services (food service, cleaning, etc.) or in any steps of the purchasing and consuming journey. In order to identify the components of the ZW lifestyle, we formulate the following research question:

RQ1 - Which are the dimensions of the zero waste consumer lifestyle?

Determinants of the Zero waste consumer lifestyle

The determinants of the pro-environmental consumer behavior have been researched widely before. While the environmentally friendly behavior is a wider concept, encompassing several aspects of the reduction of pollution, the ZW is focused mainly on solid waste issues on household level regarding food, cosmetics, hygienic and household products and textile waste management. The majority of

the studies related to one or more aspects of the ZW investigate the recycling behavior (Davies et al., 2002; Khan et al., 2019), the other dimensions of the 3R model are rarely examined (Mintz et al., 2019).

A lot of the environmentally conscious consumer studies are developed either on the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975) or on the Theory of Planned Behavior (TPB) by Ajzen (1991) (Liobikiene et al., 2016; Khan et al., 2019; Li et al., 2019). According to these theories, the attitude towards the action and the social pressure are significant predictors of the intention to act. In addition to these two determinants, the TPB also includes the perceived behavioral control as an important predictor of the behavioral intention (Ajzen, 1991).

The *attitude towards the action* is in the center of several environmentally friendly behavior studies. The attitude reflects how favorable it is perceived by the consumer to perform the behavior (Ajzen, 1991). In several environmentally conscious behavior studies it has been found that a more positive attitude results in higher likelihood to be involved in a recycling action (Davies et al., 2002; Ma et al., 2017).

While the *subjective norm* is one of the major predictors of the intention to behave in a certain way, and indirectly of the actual behavior, the results of the studies are divergent. Subjective norm refers to consumers' perceived social pressure to whether to perform or not the behavior (Li et al., 2019). While some authors found that subjective norm is an important predictor of the recycling behavior (Khan et al., 2019) or on the purchasing green products (Liobikiene et al., 2016), others have not identified its significant impact on the recycling behavior (Davies et al., 2002; Ma et al., 2017). In an international setting Mintz et al. (2019) found that social norms predict in Germany the waste minimization and recycling in every condition but in Israel social norm was significant in waste minimization and recycling only when it was easy to do it.

When it comes to the ZW consumer behavior, it is important to define who are the reference persons of the subjective norm: the non-ZW individuals or the ZW individuals, whereas the plastic-free lifestyle ideas are considered as niche behavior, yet (Angus and Westbrook, 2019). Therefore, in completion of the subjective norm, meaning following others, the *personal norm* could also be investigated as a possible predictor of the ZW lifestyle adoption. Personal norm is an important individual difference that reflects the sense of personal obligation towards self-standards (White et al., 2019). It has been found that a stronger personal norm increases the attention to the environmental friendliness of packaging during the buying decision process (Thøgersen, 1999).

Motivations of waste management issues is a quite complex system (Moisander, 2007). Li et al. (2019) mark motivation as one of the factors which influences the pro-environmental behavior. Exploring the motivations behind waste reduction is an essential step to designing effective solutions for the waste problem (Graham-Rove et al., 2014). The bipolar interpretation of the motivation in an environmentally conscious context is a common approach, implying individual vs. collective motivation (Moisander, 2007) or altruistic vs. egoistic motivation (McDougle et al., 2011). *Altruistic motivations* are a significant predictor of engagement in recycling (Izagirre-Olaidola et al., 2015). On the other hand, *egoistic motivation* has a negative impact on environmental concern (Onel and Mukherjee, 2017). Egoistic

motivation means self-concern, consumer calculating the personal cost and the benefit of the action.

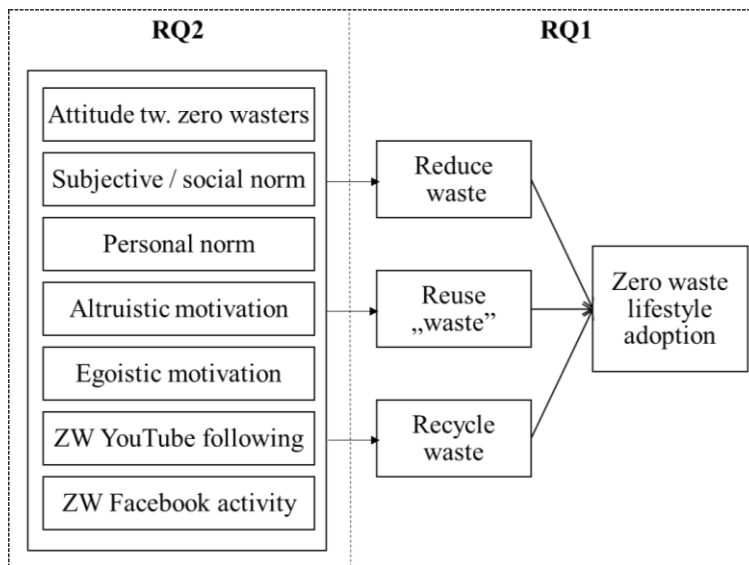
Conscious consumers are influential, and they are more likely to spread information to others (Angus and Westbrook, 2019). Social media and online influencers could be seen as a booster of the ZW principles on the household level. Bedard and Tolmie (2018) found a positive relationship between levels of social media usage and levels of green purchase intentions. They also found that online interpersonal influence has an impact on green purchase intentions. Instagram accounts focusing on zero waste are important sources of inspiration and show that pro-environmental principles can be incorporated into our lifestyle. This motivates the social media consumers to follow the zero waste influencers' example (Fuentes et al., 2019).

The research sought to examine the influence of the classical TRA variables on the ZW behavior extended with motivational factors and the impact of social media usage. The conceptual model behind the research design is represented in Figure 1. In the model, in the case of the Reuse dimension, the waste is enclosed in quotation marks because, according to the circular economy concept, the reusable waste is not waste anymore, but it is a valuable input for other activities. We formulate the following research question in order to investigate the antecedents of the ZW lifestyle:

RQ2 - Which are the determinants of the zero waste lifestyle adoption on the consumer level?

Figure 1

Conceptual framework



MATERIALS AND METHODS

The data collection was undertaken in June-August 2019 through an online questionnaire. The distribution channels of the questionnaire were four different

Facebook groups for zero wasters in Hungary. We used these channels because of the easiness to reach those who consume social media content in this topic and can express their opinion on this issue. On the other hand, these groups bring together a huge number of green consumers (one of the groups has 24 000 members, the others have between 900-3,000 members). In addition to this, social media is the main channel for zero wasters to share information about this lifestyle.

Table 1

Sample's characteristics

Variable	Category	Frequency	Percent
Gender	female	333	88%
	male	43	11%
	no answ.	2	1%
Age	18-25 years	148	39%
	26-35 years	128	34%
	36-45 years	70	19%
	above 46 years	32	8%
Location	capital	106	28%
	other city	204	54%
	rural	68	18%
Education	General school	4	1%
	High school	50	13%
	Undergraduate student	101	27%
	University/college graduate	223	59%
Marital status	Married with child	133	35%
	Couple without child	131	35%
	Single	80	21%
	Married without child	34	9%
	Total	378	100%

We received 378 responses, more than 88% of the respondents were female, 54% of them live in cities outside the capital, and 73% of them are aged between 18-35 years (Table 1). Women are overrepresented in this sample, but this shows that the zero waste thinking influences mostly the household choices which are mostly headed by women (Straughan and Roberts, 1999), and also they are more open to this lifestyle (Laroche et al., 2001).

The adoption of the ZW lifestyle (ZW life adopt) variable was measured by a single-item Likert-scale, the Reducing, Reusing and Recycling dimensions were measured by 25 items Likert scales, derived from literature (Straughan and Roberts, 1999) and from ZW blog and video recommendations. The altruistic (ALTRmot) and egoistic (EGOmot) motivation also were measured by 8 item Likert scales. The

subjective norm (SN), the personal norms (PN) and the attitude towards zero wasters (ZWatt) were measured by two-item Likert scales each, while the social media activity including watching ZW YouTubers (ZW YT watching) and being active on ZW Facebook groups (ZW FB activity) were measured by 3-point scales on frequency (never - often).

The data were analyzed with IBM SPSS – 23 statistic program. For the multi-item construct such as the Reducing, Reusing and Recycling dimensions, respectively for the altruistic and egoistic motivation Exploratory Factor Analyses were performed using the Principal Component Analysis method, with Varimax rotation. Factors with eigenvalue above 1 were extracted. After that, for each factor created, the arithmetic mean of the factor items was calculated. The central result of the factor analysis is presented in the result section. Then a Multiple Linear Regression procedure was applied, first for each three ZW dimension, as dependent variables, then for the general ZW lifestyle adoption as dependent, and Reducing, Reusing and Recycling as independent variables.

RESULTS AND DISCUSSION

According to the factor analysis, the original list of the 25 ZW behavior items was reduced to 16 items. The eliminated items were not representative for our sample, such as bamboo toothbrush or textile napkin usage, and they got very low general scores, or they did not correlate well with the other factor items. The exploratory factor analysis then returned three factors which explain 52.8% of the total variance. All the factor loadings were above the 0.5 value (*Table 2*), which is acceptable for this sample size (*Sajtos and Mitev, 2007*).

Table 2

ZW lifestyle dimensions factors

Dimension	Item	Mean	Std. Dev.	Factor Loading*	Cronbach's alpha
Reduce	Own shopping bag	4.53	0.87	0.712	0.856
	Own textile bag for vegetables	3.67	1.49	0.668	
	Own water bottle	4.29	1.10	0.655	
	No straw	4.06	1.31	0.639	
	Avoid plastic	3.95	1.06	0.631	
	Textile bag patisseries	3.71	1.34	0.619	
	Seek package-free	3.79	1.16	0.605	
	No printing	3.55	1.42	0.583	
	No disposable tools	3.89	1.08	0.547	
Own food box	2.99	1.47	0.532		

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Reuse	Second-hand or sustainable clothes	2.97	1.30	0.844	0.722
	Second-hand products	3.19	1.27	0.769	
	Natural fiber clothes	3.56	1.19	0.572	
	Products from recycled material	3.17	1.26	0.514	
Recycle	Compost/Rot	2.84	1.73	0.812	0.504
	Collect selective garbage	4.25	1.20	0.586	
*Principal component, Varimax rotation, KMO=0.879					

The analyses returned a KMO $0.879 > 0.8$ which is a very good fit (*Sajtos and Mitev, 2007*). The first factor was identified as the Reducing, the second as the Reusing and the third one as Recycling factor. Additional Cronbach's Alpha has been calculated in order to measure the internal reliability of the dimension scales. For the Reduce and Reuse dimension the $\alpha > 0.7$, and can be considered (*Vaske et al., 2017*). For the Recycle dimension, we have a Cronbach alpha of 0.504, which might be problematic. However, it is known that there is not a consensus on the acceptable threshold of the Cronbach's Alpha (*Taber, 2018*). So, we would accept this dimension, as the factor analysis returned this factor, and the correlation of the Composting item is the highest with the Selective garbage collecting item. Nevertheless, further research can be undertaken to refine the scale.

Overall, the usage of own shopping bag (4.53), the usage of own water bottle (4.29) and the selective garbage collection (4.25) are the more practiced waste management consumer activities. Refusing the plastic straws also has a high value (4.06). This does not mean that these are equally associated with the ZW lifestyle by the consumers. As the factor analysis revealed, these activities belong at least to two different dimensions of acting against waste production on the consumers' level.

After the factor analysis, a Multiple Linear Regression model was built in order to confirm the predictor value of the three identified factors (Reduce, Reuse and Recycle) on the general ZW lifestyle perception (RQ1). The three ZW dimensions explaining power is $R^2 = 0.390$, and returned that only the Reduce dimension is a significant predictor at 0.05 level ($\beta = 0.583$, $p < 0.001$). The Reuse dimension is close to being significant, but actually, it is not ($\beta = 0.080$, $p = 0.088$), while the Recycle dimension has no effect on the perceived ZW lifestyle ($\beta = 0.003$, $p = 0.946$) (*Table 3*).

In order to check multicollinearity, the Variance inflation factor (VIF) statistics have been applied. Also, the normality of the standardized residuals was checked. No multicollinearity and normality problems have been identified in the case of the regression models.

After the factors were revealed, for each ZW dimension a Multiple Linear Regression analysis was applied, using as independent variables the social norm vs. individualistic values, the altruistic vs. the egoistic motivation, the attitude towards the zero wasters and the level of activity on different social media platforms (RQ2).

Table 3

Determinants of the ZW lifestyle adoption

Model		B	Std. Error	Beta	t	Sig.
Dependent Variable: ZW life adopt Adjusted R ² =0.390	(Constant)	1.147	0.188		6.115	0.000
	REDUCE	0.663	0.057	0.583	11.630	0.000
	REUSE	0.081	0.047	0.080	1.710	0.088
	RECYCLE	0.002	0.036	0.003	0.067	0.946

In the case of Reducing dimension six out of seven covariates were found to be significant. Conforming to the mainstream’s norm (SN) has a negative impact on reducing adoption ($\beta=-0.154$, $p<0.001$), while personal norm, meaning following the own principles and values, influences positively the reducing adoption ($\beta=0.129$, $p=0.002$). Altruistic motivation is the second strongest predictor of Reducing behavior ($\beta=0.283$, $p<0.001$), while the egoistic motivation does not have an impact on waste reduction initiatives. The attitude towards the zero wasters influences positively the waste reduction ($\beta=0.130$, $p=0.003$). Both YouTube watching frequency and Facebook group activity have a positive impact on reducing behavior. Moreover, the Facebook group activity is the strongest predictor of reducing behavior ($\beta=0.330$, $p<0.001$). These variables all together explain $R^2=41.5\%$ of the variation in the dependent variable (Table 4).

Table 4

Determinants of the ZW lifestyle dimensions

Model		B	Std. Err.	Beta	t	Sig.
Dependent Variable: REDUCE Adjusted R ² =0.404	(Constant)	-0.217	0.394		-0.550	0.583
	SN	-0.143	0.038	-0.154	-3.746	0.000
	PN	0.136	0.043	0.129	3.154	0.002
	ALTRmot	0.409	0.065	0.283	6.333	0.000
	EGOmot	-0.004	0.040	-0.005	-0.110	0.912
	ZWatt	0.212	0.071	0.130	2.999	0.003
	ZW YT watching	0.147	0.049	0.125	2.975	0.003
	ZW FB activity	0.358	0.047	0.330	7.619	0.000
Dependent Variable: REUSE Adjusted R ² =0.164	(Constant)	0.988	0.528		1.871	0.062
	SN	-0.154	0.051	-0.146	-3.005	0.003
	PN	0.184	0.058	0.153	3.167	0.002
	ALTRmot	0.231	0.087	0.141	2.673	0.008
	EGOmot	0.022	0.053	0.022	0.418	0.676
	ZWatt	-0.018	0.095	-0.010	-0.191	0.848
	ZW YT watching	0.181	0.066	0.136	2.740	0.006
ZW FB activity	0.245	0.063	0.199	3.885	0.000	

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Dependent Variable:	(Constant)	0.832	0.702		1.186	0.236
RECYCLE	SN	-0.231	0.068	-0.168	-3.405	0.001
Adjusted R ² =0.143	PN	0.037	0.077	0.023	0.474	0.636
	ALTRmot	0.399	0.115	0.186	3.469	0.001
	EGOmot	0.080	0.071	0.059	1.130	0.259
	ZWatt	0.057	0.126	0.024	0.454	0.650
	ZW YT watching	0.032	0.088	0.018	0.360	0.719
	ZW FB activity	0.346	0.084	0.215	4.134	0.000

For the Reusing and Recycling behavior, the SN remained as a negative predictor for adopting the behavior ($\beta=-0.146$, $p=0.003$; $\beta=-0.168$, $p=0.001$), the ZW Facebook group activity the strongest positive predictor ($\beta=0.199$, $p<0.001$; $\beta=0.215$, $p<0.001$), and the ALTRmot also a strong positive covariate of these behaviors ($\beta=0.141$, $p=0.008$; $\beta=0.186$, $p=0.001$). In the case of Recycling behavior, no other variable has been found significant. In the case of Reusing behavior the PN guidance ($\beta=0.153$, $p=0.002$) and the ZW YT watching ($\beta=0.136$, $p=0.006$) have also a positive impact (Table 4).

CONCLUSIONS

The aim of the study was to outline the behavioral dimensions of the zero waste lifestyle on the consumer level and to identify the predictors of this behavior. According to our results, reducing waste is considered by consumers as the main dimension of the ZW lifestyle. In a ZW system and a 3R hierarchy, reducing waste is also considered to be the main priority (Lehmann, 2011a). This result could be explained by the fact that it is the easiest to apply in everyday life if we take a closer look at the involved items. Having their own shopping bag, textile bags for patisseries or for vegetables, an own water bottle and food box, refusing plastic straw and other disposable eating paraphernalia could be managed independently from the others, on the household level of each consumer. These individually performable efforts are seen by the respondents as the main components of the ZW lifestyle. The acquisition of reused products and items require some infrastructure on the supply side to be adopted by consumers. Recycling activities also need specific infrastructure. Despite the fact that the selective garbage collecting gained high individual score, meaning that it is widely adopted behavior, it is not seen by the respondents as a ZW lifestyle component. Thus, ZW lifestyle is something more personal in the eyes of those who practice it, shaped by the individual effort of each.

Regarding the determinants of the ZW lifestyle, we have found some insightful results. The zero wasters are individualistic people, they follow their own principles, and they are nonconformists towards the mainstream's lifestyle. They are guided by altruistic motivations and have a positive attitude towards people who are living ZW. Contrarily to other studies that found a positive impact or no impact of

subjective norms on certain ZW activities, the present study found a significant negative impact of following the behavior of people around consumers. This means that the ZW adoption is sabotaged by the conformity to the generally adopted lifestyle. When the number of followers of the ZW principles reaches the critical mass, probably this barrier will disappear. There are already signs of embracing eco-friendly ideas not only by niche suppliers but also by conventional companies (*Angus and Westbrook, 2019*). In order to ZW go mainstream, social media platforms are important vehicles for ZW messages. Those consumers, who are more committed to ZW lifestyle, are more active in social media either as followers or as posters – a phenomenon already signalled by previous studies (*Fuentes et al., 2019*).

As a limitation of our study it should be mentioned that the sample was not representative of the population as the women respondents were heavily overrepresented. However, in several environmentally conscious behavior studies it has been found that women with high education levels and from the urban areas are more willing to employ green behavior (*Straughan and Roberts, 1999*). Another limitation, and also a suggestion for further research, is to test the ZW dimension scale before analyzing other covariates. This scale creation and refining process offer valuable and unexplored opportunities for further research. Also, other covariates can be included in this study to outline better the ZW adoption behavior patterns. In several studies, the perceived behavioral control or convenience issues (*Liobikiene et al., 2016; White et al., 2019*) are found to be important predictors of the environmentally friendly behavior.

The ZW concept on the consumer level still seems to be a bottom-up movement, which, for example, is not associated with the already widely adopted recycling activities. In order to benefit from the social and economic opportunities offered by pro-environmental consumer movements, the investigation of the ZW consumer lifestyle remains a promising research topic.

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