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ATTITUDES TOWARDS SUSTAINABLE CONSUMPTION OF REMOTE AND HYBRID EMPLOYEES

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ABSTRACT: Behaviours toward sustainable consumption periodic activities that improve the quality of life and improve relations with the environment. The aim of the study is to identify similarities and differences in employees' behaviours according to the form of fully remote and hybrid work. The final data was collected through a survey of 360 respondents working remotely or hybrid. Hypotheses were tested using factor analysis. Four different behavioural areas were identified and analysed: eating and shopping habits, media and product consumption. Results indicate that remote workers more often than hybrids avoid shopping centres, refrain from purchasing ICT equipment and make a shopping list. Hybrid workers purchase food from local producers. The similarities between the worker groups are in the selection and consumption of food, with some exceptions. The control variable gender showed the greater involvement of women in sustainable consumption compared to men. The study suggests that managers and decision-makers should adopt strategies for strengthening employee attitudes toward implementing sustainable consumption in the workplace to enhance awareness and change worker's habits.

KEYWORDS: sustainable consumption, remote work, hybrid work, sustainable development

Introduction

The issue of sustainable consumption stands out from the problems of environmental protection and also refers to sustainable development, especially in the field of improving the quality of life and health protection. Sustainable development in the social and cultural dimension can be recognised as a set of certain behaviours and forms of consumption (Maciejewski, 2023; Klimczak & Gliszczyńska-Świątło, 2024). If we take into account the recent years marked by the coronavirus pandemic and remote/hybrid work mode development, it can be seen that a health-conscious consumer could see sustainable consumption (SC) as desirable behaviour. Within this framework, several research contributions have been assessing the influence of remote work on sustainable consumption attitudes. Remote working conditions, i.e. lack of travel to the workplace and contact with other employees, as well as remaining isolated from the surroundings that enlarge social distance, encourage changes in behaviours and attitudes regarding shopping and consumption habits (Fabiani et al., 2021). Employees who work from home have a greater tendency to engage in compulsive shopping behaviour than those who work on-site (Nori et al., 2022). Remote workers positively distinguished from on-site work in environmental degradation and air pollution (Kacapyr, 2023), waste management and dietary modification (Jaros, 2016a; Maciejewski, 2023; Dąbrowska & Shulhina, 2024). Those attitudes are unique for SC in the labour market in Poland. When sustainable consumption patterns are popularised among employees in organisations, this attitude is present among those working at home. Problems with accepting SC attitudes are a derivative of consumer behaviour, environmental degradation, and income inequality (Teneta-Skwiercz, 2017; Zrałek, 2018).

This article focuses on sustainable consumption behaviours of remote and hybrid workers and fits into the research gap by deepening the problem of remote working, which is not highlighted by literature but focuses on the issues of differences in SC between remote and on-site work. The study deepens the problem of SC working remotely by examining the differences and similarities between remote and hybrid workers. The results show that remote work may trigger different attitudes among workers who prefer sustainable consumption and distant work. Recognising SC behaviours in different forms of remote work and comparing them is important due to the commonness of remote and hybrid work and the dissemination of sustainable behaviour patterns in the organisation.

Particular attention was paid to behaviours in the socio-economic, health and environmental dimensions, included in the twelfth goal of the SDG agenda (2022). The aim of the article is to show the similarities and differences in the behaviours and attitudes of employees who worked fully remotely and hybridly. In the context of the goal, the following research questions were formulated: what are the differences and similarities between remote and hybrid workers in terms of sustainable behaviour, and what behaviours shape the attitude toward sustainable consumption among remote and hybrid employees?

In a broad sense, the article contributes to the discussion on consumer behaviour in relation to the ongoing environmental degradation and growing overconsumption. In addition, it concerns changes in the labour market, where remote work is desirable, and a hybrid form is often encountered after the end of the pandemic, showing which consumption behaviours are preferred in each of these forms and what attitudes are formed. The article complements the discussion on awareness and emphasises sustainable consumption standards among non-on-site employees. It may also be a contribution to the discussion about the transfer of sustainable consumption from the company to the home while moving the workplace to home for part or all of the working time. The research results presented in this article may be interesting material for scientists and practitioners, as well as politicians interested in the current state of consumer awareness of the conditions of widespread remote work. It may also be an inspiration for entrepreneurs interested in the sustainable consumption of employees within the company, who are deciding about the time and extent of remote work and the role of enterprises in promoting this consumption in their private lives.

The article contains a review of the latest literature, followed by a presentation of the research approach, including the survey, calculation method and procedure, and the obtained research results. After presenting the research results, they were discussed in comparison with the latest research published in scientific article databases. The structure of the article ends with a summary of the results.

An overview of the literature

Sustainable consumption and remote work

Sustainable consumption (SC) is the twelfth goal of sustainable development policy, and its scope can be related to three dimensions: social and ecological. The social scope of the goal refers to securing the quality of life of an individual, and the ecological scope is to maintain the values of the natural environment. During the Earth Summit in Rio de Janeiro in 1992, a debate began in which topics regarding sustainable consumption and the role of “green consumers” began to permeate. This increased emphasis on consumption highlighted the key role of social aspects and environmental issues resulting from the fact that excessive consumption on the planet is coupled with equally excessive production (Cohen & Murphy, 2001). Maciejewski (2023) calls SC the core of sustainable development, which means consuming not less but in a different, more effective way that leads to improved quality of life and concern for the well-being of future generations, the needs of other people and environmental protection. This consumption can be included in satisfying basic needs by minimising the consumption of products and materials harmful to the environment. Wilczak (2016) points out that deconsumption and minimalism in material consumption are included in SC, which allows you to reduce expenses, free up time and resources, and lead to increased consumer satisfaction with intangible things. Since deconsumption is defined as a voluntary departure from behaviours aimed at satisfying the desires created by marketers in favour of a conscious, rational and ethical choice related to meeting real needs (Wilczak, 2016), sustainable consumption defines a certain pattern of norms that create the attitudes of the individual (Nguyen et al., 2019) making the free shopping choices every day to meet your own needs.

The scope of minimalism in consumption includes sharing material things, using them for a long time, repairing them, and even making material objects on your own. Minimalism also means limiting media consumption and ensuring the purchase of products containing ingredients produced in compliance with environmental protection principles, as well as managing waste in a sustainable manner by recycling it (Zrałek, 2018; Kłos, 2022). This concept can be successfully applied to the economy, organisations and individuals. Sustainable consumption is not strongly related to digitalisation as a stage of technological progress. Okręglińska (2022) showed that digitalisation did not have a clearly positive impact on employees’ orientation towards sustainable consumption and production. Meanwhile, individuals’ practical involvement in green products and markets varies by region. It is indicated that business entities in highly developed countries are much more present and active in this area than those from developing countries (Thongplew et al., 2017). Ladraa et al., (2022), based on research in Morocco, admitted that the health crisis has encouraged people to change their behaviour and adopt a more committed “green consumer” attitude towards the environment. In this understanding, it is most often a person of middle or upper social class with higher education and high income, often a middle-aged woman who wants to improve society and is very well educated.

Orientation towards sustainable consumption reflects the inclusion of ecological and social aspects in the business strategy, and the approach to SC in the context of remote work requires looking at it from the perspective of the individual’s needs. After the pandemic ends, remote work is a well-known and often preferred form of work. According to Davidescu et al. (2020), working from home is widely recognised as having numerous benefits, particularly in terms of increased work efficiency, greater comfort, and better time and space management. On the other hand, remote work has been appreciated for its positive impact on organisational results, interpersonal relationships, knowledge acquisition and individual development. In Poland, in 2019, approximately 4.6% of people worked remotely (PARP, 2021). In April 2020, there was an increase in remote workers to 17%. Since then, remote work has been constantly present in the labour market and in 2023, it constitutes 7.1%, of which about 70% are hybrid workers. Many managers noted that this may be a new form for employees, and most people would either like to change to remote work or use hybrid work (Daniełak & Wsocki, 2023).

Sustainable consumption is expressed in social aspects relating to a satisfactory quality of life and work, maintaining health both during and outside work. Companies that include the principles of sustainable development in their strategies try to convince their employees to follow these standards. Piotrowicz (2023) described the phenomenon of changes in culture in the company, which

involve greater interest in supporting mental health, including the implementation of a well-being program with proposals, for example, hours just for the family, sports gamification, and webinars on healthy eating.

Sustainable consumption in remote work is revealed in conditions and individual inclinations. We must not forget that thanks to remote work, employees can protect their health and gain time without commuting to the office. Such solutions were not previously available to anyone who worked within standard hours (Pokutycka, 2022). Skórska (2022) mentions remote work as a factor in changing the quality of life in the area of working conditions and surroundings, including family and life situations. Many authors pay attention to the well-being of employees when performing remote work, an element of which is “control over the environment” (Gross-Gołacka et al., 2023; Prasad et al., 2020). Continuing with this dimension, Danielak and Wysocki (2023) note that in remote work at home, labour costs have increased significantly due to the higher consumption of energy, heating and water. The results of the study on the impact of remote work on the environment showed that the main factors influencing the sustainability of remote work are the distance of the workplace from home, the remote work schedule and the size and comfort of workrooms in apartments. From an ecological point of view, remote working is always sustainable if long commutes (over 10 km) are avoided on a daily basis; judicious use of remote working can reduce the environmental impact of any organisation employing office workers, as well as improve their job satisfaction and lifestyle (Fabiani et al., 2021).

Sustainable consumption patterns are promoted in Poland, and the implementation of the 2030 Agenda in 2022 has so far achieved 18 out of 130 tasks. In terms of SDG 12, achievements were assessed as neutral and causing the greatest difficulties. Compared to the EU average, Poland has made the greatest progress in reducing inequality (SDG 10), combating poverty (SDG 1) and ensuring biodiversity on land (SDG 15), and in the SDG Index ranking, it was ranked 12th among EU countries (Teneta-Skwiercz, 2017). Survey studies have shown that attitudes towards SC are ambivalent because people declared that they save energy but most often left RTV devices in standby mode or segregated waste driven by the desire to protect the environment and segregated medicines to a negligible extent. Material costs or lack of time were barriers to SC (Jaros, 2016b). In turn, the Central Statistical Office data on the consumption of meat, fruit and vegetables show that households located in rural areas consume more meat and less fruit and vegetables than in urban areas, which means that the pattern of food consumption in Poland is shifting towards a less sustainable one (Utzig, 2019). According to Eurostat data, four indicators of the Agenda 2030 program did not reveal positive trends over the last 15-year period. Indicators such as: consumption of hazardous chemicals, raw material consumption, consumption footprint, and generation of waste showed an increase in value (Eurostat, n.d.). Poland is not among the countries with high sustainable development indicators due to socio-economic problems such as: reducing income inequalities, developing digital competencies, and reducing pollution. According to Górka (2023), the fifth stage of implementing the SDG programs is currently underway, and it requires more effective actions and incentives, including in the area of education and upbringing. In turn, Kozera-Kowalska (2024) proved that the falling labour supply in Poland indicates a possible shortage of competencies for the needs of the green economy.

Attitudes and behaviours of sustainable consumers

The reason for studying attitudes is that attitudes are strongly related to behaviour (Allport, 1965). Wojciszke (2002) claims that attitude is an attitude towards specific objects, people or their types. Hawkins et al. (2004) pay attention to the cognitive, emotional and motivational aspects of attitude. However, Ajzen (1991) emphasises the connection between an individual’s attitude and his behaviour and defines it as a certain tendency to react positively or negatively to an object. Several factors contribute to the existence of a consistent relationship between an individual’s attitude and behaviour. Fishbein and Ajzen (1975) postulate that an attitude-behaviour relationship can only be expected when the measures of both variables are the same in terms of detail. The second factor influencing the consistency between an individual’s attitude and behaviour is situational conditions. Zimbardo and Leippe (1991) draw attention to the individual’s attitude towards the object as a factor determining the compliance of behaviour with attitude. Moreover, attention is also paid to the individual’s personal experiences. Wojciszke and Grzyb (2024) believe that attitudes influence human behaviour by shaping the way of perceiving a given object or forming a conscious intention of the

individual to behave towards a given object. Therefore, the existence of a relationship between attitudes and behaviours is undeniable. It is commonly believed that attitudes can only be inferred by analysing external, observable factors such as behaviours and statements and by diagnosing the context in which they occur. Dibb et al. (1991) argue that attitude refers to an individual's knowledge and negative or positive feelings towards an object. Taking into account the above concepts, the authors of this study postulate the existence of a relationship between sustainable behaviour and attitude towards SC.

In a competitive environment and with constantly increasing environmental pollution, organisations are increasingly paying attention to sustainable employee behaviour both at work and at home. The level of destructive human impact on the natural environment requires urgent action not only by individuals but also by organisations. Piwowar-Sulej (2020) draws attention to the development of a pro-environmental organisational culture and emphasises the importance of identifying factors determining the pro-environmental behaviour of employees. Muster and Schrader (2011) postulate the idea of a green work-life balance. Moreover, researchers (Gadeikiene et al., 2019) pay attention to employees' transfer of sustainable consumption behaviours from the workplace to their private lives. Alcock et al. (2020) analysed the relationship between an individual's approach to nature (protection versus use) and pro-ecological behaviour. In their concept, Joshi and Rahman (2017) distinguished groups of factors determining the behaviour of sustainable consumers, including: personal, behavioural and socio-cultural factors. At the same time, the results of other research (Hosta & Zabkar, 2020) showed that sustainable consumer behaviour concerns environmental issues on the one hand and social issues on the other, and these two aspects are interconnected. Moreover, the relationship between pro-environmental behaviour and sustainable consumption has been confirmed (Theodori & Luloff, 2002; Whitburn et al., 2019; Alcock et al., 2020). Blok et al. (2015) treat pro-ecological behaviour as a synonym for sustainable consumption behaviour and link it with reducing the negative impact of human activity on the natural environment. It is also worth noting the assumptions that pro-ecological consumption and pro-social consumption behaviour are two different forms of sustainable consumption behaviour (Kadic-Maglajlic et al., 2019; Hosta & Zabkat, 2020). Therefore, in order to obtain a comprehensive picture of sustainable consumption behaviour, both pro-environmental and pro-social behaviour indicators should be analysed. Jastrzębska (2017) and Pabian (2013) claim that a sustainable consumer is a compilation of three attitudes: an economically responsible consumer, an ecologically responsible consumer and a socially responsible consumer. In the economic aspect, the individual meets his needs and achieves benefits while behaving responsibly in the ecological and social aspects. In his purchasing behaviour, he tries to optimise his satisfaction with the purchase while respecting the principles of sustainable development (Jastrzębska, 2017; Pabian, 2013).

The attitude of an ecologically responsible consumer is manifested in the rational management of consumer goods. Such a person limits the consumption of goods made from non-renewable resources, products that create hazardous waste and decide to purchase ecological products, i.e. not supplemented with imitations that do not come from inhumane production or breeding (Bywalec, 2007). Typical behaviours of an ecologically responsible consumer will be: segregating waste, buying food with appropriate content, using renewable energy sources, and exchanging goods. In the social aspect, a responsible consumer will manifest his/her moral norms and values and engage in ethical behaviour. Therefore, he will buy products that were made without violating the rights of people employed in their production, he will pay attention to the ecological cost of the product. Moreover, sharing information about one's behaviour and being active in promoting it will also be characteristic (Bylok, 2016). Sustainable human behaviour is often associated with the voluntarily chosen simplicity of products, which is supposed to be a manifestation of opposition to consumerism – an individual decides to limit his or her consumption of his or her own will, and not due to external coercive measures (Shaw & Moraes, 2009). Moreover, in their sustainable behaviour, people take into account ethical and moral considerations related to the impact of consumption on the natural environment and society (Shaw & Newholm, 2002). Researchers (Paco & Raposo, 2008) postulate that “green consumer” behaviours focus on environmentally friendly approaches and involve recycling, buying and using ecological products, good waste management and limiting consumption. Changes in people's behaviour caused by the pandemic have had an impact on their behaviour as employees. Research results from the IBM Institute for Business Value indicate that 71% of respondents who are employ-

ees or job seekers stated that the company's approach to sustainable development, expressed in its pro-environmental activities, is of great importance to them and makes such an organisation a more desirable place to work. Moreover, almost half of respondents also suggested that they would accept a lower salary if working for such companies (Ferris, 2021). Moreover, organisations that implement innovative pro-environmental strategies thus increase their competitive advantage among people entering the labour market (Babikova & Bucek, 2019). Therefore, sustainable behaviours intertwine in professional and private life, demonstrating increasing awareness of attitudes towards SC.

Research method

The empirical study was preceded by literature studies on the methodology of analysing survey research for remote employees. Similarities and differences in behaviours and attitudes concerning SC standards during remote work were determined using diagnostic survey data. The questionnaire included four areas of sustainable behaviour. The first area covered the issue of eating habits (e.g. "When working remotely (or hybrid), do you choose traditional meals (so-called slow food) more often than before?"). The issues for measuring dietary habits were adapted from Čiarnienė et al. (2023), Verfuërth et al. (2019), Muresan et al. (2022), Jaros (2016a), Restrepo and Zeballos (2020). The second area covered the issue of shopping habits. An example of these questions is: "When working remotely (or hybrid), do you choose food products from local producers more often than before?". The issues for measuring this area were adapted from Simeli et al. (2023), Muresan et al. (2022), Maciejewski (2023). The third area covered the issue of media consumption. An example question is: "Have you tried to save electricity while working hybrid/remotely?". Issues for measuring utility consumption were adapted from Banyte et al. (2020) and Hynes (2013). The fourth area covered the issue of product consumption, for example: "When working remotely (or hybridly), did you try to avoid plastic packaging more often than before?". The issues for this measurement were adapted from Simeli et al. (2023), Banyte et al. (2020), Jaros (2016c).

The study was conducted in Poland in November 2022 on a sample of 360 people (N=360) who voluntarily took part in the study and sent questionnaires, all of whom were qualified for analysis. The respondents were selected randomly from the database of participants of the research panel of the DSC Research Group Sp. z o. o. from Wrocław. Respondents who met the criteria qualifying for the study, i.e., those who had experience with both stationary work, remote work, or hybrid work during and after the pandemic, were asked to answer the questions included in the questionnaire. For the purposes of the study, two groups of remote workers were identified. The first concerned people working fully remotely 5 days a week. The second group consisted of employees who had experience working during or after the pandemic in a system of combining on-site work with remote work, i.e. hybrid work. The scope of questions analysed consisted of 21 substantive questions and a part describing the demographic and social characteristics of the respondents.

The aim of the study was to diagnose the similarities and differences in sustainable behaviours and emerging attitudes of fully remote and hybrid workers. Four distinct areas of behaviour were identified and analysed. The first area concerned eating habits. The answers included 6 questions listed in Table 2. The next one – shopping habits – 6 questions (Table 3). Then, the media consumption area contained 4 questions (Table 4), and the last one was the product consumption area – 5 questions (Table 5). The questions used a 5-point Likert scale: 1 – strongly disagree, 2 – disagree, 3 – difficult to say, 4 – agree, 5 – strongly agree. For the purposes of the study, the answers were summed: I agree and strongly agree, and I strongly disagree and disagree, and the few missing answers were replaced by the median.

In order to show the degree of difference between the intensity of sustainable behaviours of remote and hybrid employees, a factor analysis was performed in which the principal components method was used to extract the loadings, with Varimax rotation as appropriate considering the independence of the examined behaviours. The Kaiser-Meyer-Olkin (KMO) test was used to determine the adequacy of the data for factor analysis. This coefficient in the samples was above the recommended threshold of 0.50 (see Tables 2-5). The Chi-square statistic, its significance and the degrees of freedom of the sample are also provided. The factor analysis study was conducted separately for

the sample of fully remote and hybrid workers. In each sample, a separate examination of factors in four areas was performed.

Additionally, an analysis of similarities and differences between people working remotely and hybrid was performed according to gender in each of the areas of behaviour related to SC.

Characteristics of the research group

In terms of age groups, respondents represent the age range from -30 to +50 years. The largest representation is people aged 30-40, which corresponds to the population structure in the country. The share of people aged over 50 is small, which is smaller than in the total population (Table 1).

Table 1. Research group composition

Variable	Level	Total sample (%)	Fully remote (%)	Fully hybrid (%)
Gender	Men	49.2	37.9	60.1
	Women	50.8	40.7	60.7
Age (years)	-30	19.4	44.3	55.7
	30-40	48.6	37.7	62.3
	41-50	24.1	33.3	66.7
	50+	7.7	46.4	53.6
Education	Vocational	1.94	28.6	71.4
	Secondary	11.9	32.6	67.4
	Higher	85.5	39.3	60.7
Employment (sector)	Public institution	26.1	29.5	24.0
	Business sector	71.1	66.9	74.2
	NGO	2.2	3.6	1.8
Remote workplace	At home	93.3	38.7	61.3
	Elsewhere (remote). In the company (hybrid)	6.3	39.1	60.9
A form of remote work	-		38.6	61.3

Source: authors' work based on questionnaire data, Central Statistical Office data <https://bdl.stat.gov.pl>, report data: "Basic facts about non-governmental organisations", Stowarzyszenie Klon/Jawor, Warsaw 2013.

In the survey, the participation of both genders was similar, i.e. 51% were women and 49% were men. People with higher education predominated (85%), while the share of people with secondary education (12%) and vocational and primary education (2% and 1%, respectively) was smaller. Respondents indicated employment in the business sector (71%), and every fourth respondent in public administration institutions. More than half of the respondents performed hybrid work (61%), and the rest performed it only remotely. By far, the majority worked remotely from home (93%). The selection of the sample was random and determined equal proportions of participation by gender and an advantage of middle-aged people. The sample represents remote (39%) and hybrid (61%) workers, mainly working from home. The surveyed group was dominated by people working remotely in the business sector, and one-third were people working in institutions.

Presentation of results

The study conducted a hierarchical analysis that was divided into work modes: remote and hybrid. The study concerned the areas of: nutrition, shopping, media and product consumption (Zalega, 2019). Results were obtained at a significance level of <0.001, and multivariate models

achieved KMO above 0.57. Assuming no relationship between factors, Varimax rotation was selected in each area. The analysis identified two components in each form of work, and the results for each area are given below. The first area of analysis is 6 questions about dietary habits (Table 2). In the first component of remote workers, an important behaviour is a desire to eat meat (0.80), and pro-sustainable behaviours include choosing traditional meals (so-called slow food) (0.77) and taking care of ecological ingredients (0.73). Preparing meals yourself was slightly less important (0.69). In the second component, the highest value was achieved by the purchase of ecological products (0.69). In turn, in hybrid workers, the highest loading of the first component was achieved by the choice of exotic food (0.72) and the consumption of meat (0.65), while in the second component, the most important was the purchase of organic products (0.87). The arithmetic mean of the loads for the first components turned out to be higher for fully remote workers (0.6) than for hybrid workers (0.47). To sum up, people working remotely pay more attention to health-promoting ingredients and eating habits.

Table 2. Analysis of dietary habits

Factors/behaviours	Remote work mode			
	Remote ¹		Hybrid ²	
	Components		Components	
	1	2	1	2
Q1.1 Preferring traditional meals (so-called slow food)	0.770	0.148	0.569	0.351
Q1.2 Making sure meals contain organic ingredients	0.739	0.310	0.528	0.555
Q1.3 Not limiting meat consumption	0.805	-0.015	0.655	0.330
Q1.4 Paying attention to buying ecological products	0.070	0.945	-0.053	0.879
Q1.5 Preference for exotic foods (e.g. tropical fruits, seafood)	0.549	0.471	0.792	-0.120
Q1.6 Preparing meals yourself	0.696	0.136	0.383	0.593

* Factor extraction method: principal components method, Varimax rotation, KMO: X1- 0.804, X2- 0.761, Chi2 X1 – 215.584, Chi2 X2 – 232.364, df = 15, significance <0.001.

Source: authors' work using the IBM SPSS Statistics 29 package and survey data.

Table 3. Analysis of shopping habits

Factors/behaviours	Remote work mode			
	Remote ¹		Hybrid ²	
	Components		Components	
	1	2	1	2
Q2.1 Avoiding buying food products from local producers	0.708	-0.198	0.580	0.125
Q2.2 Buying only what you need, while trying to save money	0.587	0.093	0.238	0.464
Q2.3 Buying the best regardless of price	-0.024	0.808	-0.044	0.889
Q2.4 Not treating price as the main obstacle when purchasing healthy, organic food	0.133	0.703	0.418	0.462
Q2.5 Making a shopping list before going shopping	0.699	0.214	0.763	0.047
Q2.6 Not spending free time in malls and shopping centres	0.588	0.470	0.754	0.238

*Factor extraction method: principal components method, Varimax rotation, KMO: X1- 0.681, X2- 0.733, Chi2 X1 – 79.227, Chi2 X2 – 126.463, df = 15, significance <0.001.

Source: authors' work using the IBM SPSS Statistics 29 package and survey data.

The second area included 6 questions about shopping habits (Table 3). For those working remotely, in the first component, it was crucial to avoid buying food products from local producers (0.7) and to prepare a shopping list (0.69). In the second component, the following items had the highest loading: buying the best regardless of the price (0.80) and not treating price as the main obstacle when purchasing healthy, organic food (0.7). For hybrid workers, the first component is important, which is making a shopping list and giving up spending free time in malls and shopping centres (0.75), and the second component is choosing the best, regardless of the price (0.88). Overall, the behaviours of both forums are similar; the only negative feature of the remote form was the lack of access to local producers, who were not necessarily close to the place of residence.

The next area is the consumption of utilities, including electricity, heat and water (Table 4). For those working remotely, the first component included saving water consumption at work (0.80) and electricity (0.74), while keeping the temperature at home lower than at the company was revealed by the second component (0.97). In hybrid workers, similarly, in the first component, the highest load is on saving water (0.85) and energy (0.78), and in the second one, maintaining a lower temperature (0.98). The analysis showed that the respondents did not work longer than the working hours, which would mean higher electricity consumption. The arithmetic mean of the first components showed a slight advantage for hybrid workers.

Table 4. Media consumption analysis

Factors/behaviours	Remote work mode			
	Remote ¹		Hybrid ²	
	Components		Components	
	1	2	1	2
Q3.1 Maintaining a lower temperature in the remote/hybrid workspace	0.037	0.974	0.151	0.989
Q3.2 Saving electricity in the remote/hybrid workplace	0.743	-0.035	0.783	-0.068
Q3.3 Saving water consumption in the remote/hybrid workplace	0.804	-0.016	0.857	-0.065
Q3.4 Not doing work longer than required working hours. which means higher electricity consumption	0.560	0.254	0.629	-0.063

*Factor extraction method: principal components method, Varimax rotation, KMO: X1- 0.581, X2-0.576, Chi2 X1 – 30.237, Chi2 X2 – 105.390, df = 6, significance <0.001.

Source: authors' work using the IBM SPSS Statistics 29 package and survey data.

The fourth area was product consumption (Table 5). This area contained five statements, including 4 out of 5 statements that were inconsistent with sustainable consumption. In the case of remote workers, the first component was not sorting waste, and in the second component, it was purchasing drinks in returnable packaging, with loads above 0.79, in both behaviours. A positive behaviour was the lack of purchase of new equipment for remote work (0.80), the efficiency of which is necessary for remote work. In the case of hybrid workers, in the first component, the lack of segregation of waste (0.84) and reusable packaging (0.75) had a high impact, and in the second component, purchasing drinks in returnable packaging (0.93). Finally, among those working remotely and in hybrid environments, there is a lack of waste segregation, as well as a lack of use of reusable packaging and avoidance of plastic packaging (0.677).

Taking into account the first components, the value of the arithmetic mean did not reveal the advantage of any form of work in the area of product consumption. Moreover, the values of loads after isolation for statements about the lack of sustainable consumption are greater than 0.7 in the first components of both forms of work. This means that the behaviours occur frequently and are inconsistent with sustainable consumption.

Table 5. Product consumption analysis

Factors/Behaviours	Remote work mode			
	Remote ¹		Hybrid ²	
	Components		Components	
	1	2	1	2
Q4.1 Failure to sort waste	0.796	0.087	0.841	-0.032
Q4.2 Purchases of beverages in returnable packaging	0.206	0.798	0.117	0.938
Q4.3 No purchase of new remote working equipment for use at home	0.198	0.803	0.539	0.431
Q4.4 No use of reusable packaging	0.753	0.301	0.757	0.232
Q4.5 No avoidance of plastic packaging	0.766	0.264	0.677	0.351

*Factor extraction method: principal components method, Varimax rotation, KMO: X1-0.776, X2-0.793, Chi2 X1 – 144.944, Chi2 X2 – 218.080, df = 10, significance <0.001.

Source: authors' work using the IBM SPSS Statistics 29 package and survey data.

Analysis with the gender criterion in all areas and separately for remote and hybrid workers showed small but statistically significant differences (hybrid: $t(21) = 0.031$; $p < 0.05$, remote: $t(21) = 0.14$; $p < 0.05$) in both subgroups. On average, in each of the areas, women demonstrate SC behaviours more often than men. In turn, in each area, one can find behaviour in which they have the greatest (on average 10% advantage) over the opposite sex, both in the group of remote and hybrid workers. Women working hybrid more often than men showed (with a high advantage) a restriction in meat consumption and attitudes such as: buying the best regardless of price, maintaining a lower temperature in the remote/hybrid workspace, avoiding purchase of new remote working equipment for use at home. Women working remotely, apart from: maintaining a lower temperature and avoiding the purchase of new remote working equipment, also had an advantage in preparing meals yourself and making a shopping list before going shopping. In both forms of work, women were more involved in SC in connection with household chores than men. Men working hybrid showed sustainable consumption behaviours, mainly saving electricity use by avoiding doing work longer than required, but they also stood out negatively by failure to sort waste and no avoidance of plastic packaging. Remote workers took care of meals that contained organic ingredients, paid attention to buying ecological products, and purchased beverages in returnable packaging more often than women. That means they showed SC attitudes, but not as often as women. Behaviours of hybrid workers indicate a tendency to save heat (women) and electricity (men). In contrast, in remote work, men care more about sustainable food ingredients than women, and women emphasise their own preparation. Only women working hybrid drew attention to reducing meat consumption. The exceptions also include behaviours of not sorting waste and buying in plastic packaging, which were indicated by men working hybrid.

Discussion of the results

The SARS-Cov-2 pandemic forced a significant percentage of the world's population to suddenly confine themselves at home, limit social contacts, reduce mobility, and have their daily lifestyles disrupted by isolation and remote work (Haleem et al., 2020), with reduced physical activity (de Oliveira da Silva Scaranni et al., 2023) and intensifying sedentary lifestyles (Stockwell et al., 2021), as well as increased meal frequency and snacking (Bennett et al., 2021). Also, in post-pandemic times, many people continue to work remotely or hybridly. These flexible forms of work have not only changed our behaviour in our private and professional lives but also significantly impacted the environment. Taking this fact into account, it is interesting from both a theoretical and practical point of view to diagnose how specific behaviours characteristic of SC affect the environment. Research results show that remote and hybrid work has both positive and negative impacts on the environment. Results from a 2023 study conducted by Cornell and Microsoft (Kacapyr, 2023) show that remote work can

lead to a significant reduction in an individual's carbon footprint. According to the study, remote workers can achieve up to 54% lower carbon footprint compared to on-site employees. Also, hybrid work from home for two to four days translates into a reduction in carbon footprint by 11 – 29%. Therefore, reducing the use of cars resulting from remote and hybrid work contributes to reducing greenhouse gas emissions from personal vehicles and public transport, such as trains and buses. It is, therefore, an ecologically sustainable behaviour.

The results of the study by the authors of the text show that the participating remote and hybrid employees, by changing their shopping behaviour and giving up visits to malls and shopping centres, also contributed to reducing their carbon footprint. Moreover, previous research shows that behaviours related to heating, electricity, and technologies help reduce the carbon footprint during remote and hybrid work. Respondents to the study conducted by the authors also in this aspect demonstrated a balanced attitude. The study results showed a slight advantage of the hybrid working group in balanced media consumption. Subjects in both groups demonstrated sustainable behaviour towards saving water and energy. Maintaining a lower temperature turned out to be a very important determinant of posture in both forms, but only in the second component. Changes in the way work is performed have resulted in new eating habits. An analysis of the results of the Compass Group (2023) conducted among a sample of 35,000 employees in 26 countries by Compass Group showed that the vast majority of workers around the world see the benefits in terms of productivity, health and well-being of maintaining a healthy diet over the course of the working week. 62% of remote and hybrid workers admitted that they try to eat tasty and healthy meals during the workday. In turn, as many as 75% of hybrid employees participating in the study said that they try to eat healthier on the days they go to work. In the empirical study by the authors of this article, respondents working remotely found it characteristic to prepare meals on their own and take care of their health. However, they strongly expressed their reluctance to give up meat consumption. This is not in line with the dietary guidelines, which propose replacing meat with the consumption of plants (Belgacem et al., 2021; Cleveland & Gee, 2017), but to some extent, it is in line with the results of the report “Roślin nie jemy” (2019) five years ago. Opinions indicated a reluctance to abandon meat consumption (27% of respondents do not eat meat, and 45% reduce their consumption) and replace it with plant-based alternatives or cell-cultured meat. It can be seen that despite the passage of time, the attitude towards giving up meat has not changed, and Poland is in 9th place in terms of the number of vegetarians (namely 10% of total society) (Rybicka et al., 2024). Hybrid employees stood out from the “remote” workforce by being more interested in choosing “eco” products at the purchase stage. These eating behaviours demonstrate a balanced attitude of SC respondents and are consistent with the research results of Roh et al. (2022), who reported that consumer attitudes and subjective norms in the consumption of organic food have a significantly positive impact on purchase intention. Hybrid employees stood out from the “remote” workforce by being more interested in choosing “eco” products at the purchase stage. These eating behaviours indicate a balanced attitude of the respondents, although not in all aspects. In terms of purchasing behaviour, remote and hybrid work has also caused changes among consumers. Deloitte research results (Rogers et al., 2022) show that people working remotely and hybrid spend less time in stationary stores than office workers. Moreover, according to data from the Morning Consult report (Bigora, 2023), remote workers are almost twice as likely to order groceries online compared to stationary workers. The authors' research focused only on remote and hybrid attitudes, and a balanced attitude in terms of purchasing behaviour is similar among remote and hybrid employees.

A negative differentiator for the remote form turned out to be the failure to include local producers in food purchases, perhaps because access to them is limited when there is less time for shopping or when there is no need to commute to work or suppliers are not available near the place of residence. Additionally, not spending free time in malls and shopping centres is significantly related to the form of work and is more typical of hybrid work, which may mean that commuting to work would deprive employees of time for such activities, which is – by the way – beneficial from the point of view of presenting a balanced attitude. When it comes to using up products and buying new ones, the results of the previously mentioned research conducted by Deloitte (Rogers et al., 2022) indicate that remote and hybrid workers spend more money on home maintenance than stationary workers, but these expenses include rent, utilities and renovations and maintenance, not home appliances. Moreover, expenses for new clothes have significantly decreased. Both of these behaviours can be consid-

ered manifestations of a balanced attitude. In the research of the authors of the article, although the differences between the two forms are small, in the area of product consumption, a sustainable attitude is typical for remote workers, as opposed to hybrid workers. If we were to indicate sustainable behaviour, distinguishing two forms, it would be the lack of purchase of new remote work equipment for use at home, which is more important for remote workers than for hybrid workers. In terms of consent to behaviour that does not belong to the paradigm of environmental protection and quality of life, such as not limiting meat consumption, it is similar in both forms. Results of the studies conducted so far show that women are more likely to engage in SC behaviours than men (Zelezny et al., 2000; Johnson et al., 2013). Moreover, women are more likely than men to engage in various forms of SC in their private lives, as home/family are important aspects of their lives (e.g., they use less water and energy at home; Hunter et al., 2004). Although women buy more clothes, food, and household goods, their consumption behaviours are higher than those of men (Johnsson-Latham, 2007). Differences in SC between women and men are often related to gender roles and behaviours resulting from them. Household care and related practices, such as cooking, cleaning, and buying clothes for others, are stereotypically performed by women and extend to sustainable forms of these behaviours that are more often performed by women (e.g., buying organic food, “green” cleaning products, and sustainably produced clothing). In addition, men tend to avoid sustainable consumption in areas strongly associated with women (e.g., hanging clothes on a line, recycling, and using reusable shopping bags). In turn, home renovations, which are stereotypically performed by men, include more sustainable forms of these behaviours in this area (e.g., using energy-efficient technologies). Interestingly, women do not avoid SC behaviours when purchasing sustainable products necessary for renovations. This pattern suggests that gender role stereotypes may particularly influence men’s engagement in SC, going beyond individual tendencies.

The results of the research conducted by the authors also show that in each of the areas studied, women were more likely than men to perform SC behaviours. This applies to both remote and hybrid workers. In both forms of work, women were more likely than men to engage in SC in connection with household responsibilities. Men working hybridised showed sustainable consumption behaviours, mainly saving electricity use by avoiding doing work longer than required. Again, these results confirm the greater involvement of women in sustainable consumption diagnosed in other studies than men. Thus, gender seems to be a determinant of sustainable behaviours within the two different forms of work, although at the same time, it should be emphasised that women and men distinguish different practices of sustainable behaviours during remote and hybrid work.

Conclusions

The study focused on the behaviours and attitudes of remote and hybrid workers that fit into the norms of sustainable consumption. The form of work that includes time spent at home refers to the changing system of consumption norms against the background of transformation towards sustainable development. Sustainable consumption includes a number of activities in environmental, social and economic areas. Consumption transformations require changes in the way we choose and consume goods, services and media. The aim of the study was to identify similarities and differences in employee behaviour depending on the form of work and attitudes. One of the common behaviours of remote workers is preparing meals themselves. They more often prefer slow food and care about choosing healthy products to the extent that they buy regardless of the price, and in the case of “eco” products, they do not treat price as the main obstacle. However, there is still a lack of will to abandon meat consumption, and they are not interested in purchasing food from local producers. Moreover, more often than hybrids, they avoid visits to shopping centres, refrain from purchasing ICT equipment and have the habit of making shopping lists.

In turn, hybrid workers are more inclined to purchase products from local producers, and the selection and consumption of food are at a similar level. Remote workers have a high tendency to save utilities, but this attitude is more common among hybrid workers. These behaviours may result from the transfer of behaviour from work to home, which leads to a broader promotion of sustainable consumption attitudes. “Remotes” are indifferent to waste segregation standards and the use of returnable packaging. Standout behaviours included not purchasing new ICT equipment to work

from home. Hybrid workers have a similar attitude towards waste segregation and returnable packaging, but only in this group, the purchase of drinks in returnable packaging turned out to be common.

Attitudes based on pro-sustainable behaviours are similar among remote and hybrid employees. Overall, people working from home showed consumption at a sustainable level and have a positive attitude towards it, with some exceptions, as “hybrid” more often than “remote” choose eco-signed products, show less media consumption and less often purchase new remote work equipment for use at home. From a scientific point of view, the article shows the way SC consumption attitudes are analysed in new work modes. The study of worker-balanced behaviour should be the subject of attention and evaluation in the area of changing pro-sustainable behaviour among employees who may choose different work models. This, with regard to strategies of human resource management, is the subsequent subject for case or survey studies.

The research undertaken here can also be enlarged with the inclusion of SC costs and wages of remote workers, as well as health aspects, including the amount of sleep and health conditions that may be related to the quality of the employee’s SC. The place of living may have a similar significance, which determines access to media, products and services with SC characteristics.

The authors also suggest other research questions regarding the impact of SC on agricultural production and food supply chains depending on the share of remote work in working hours, as well as the impact of the scale of remote and hybrid work on the sustainable use of raw materials. However, it is still worth bearing in mind the limitations of the number of respondents and within the framework of the answers provided about the subjectivity and wishful thinking declarations of respondents. In the next works and with a larger sample, it is worth developing multiple regression analysis. Taking into account these recommendations would help to develop the research potential of future works. From a practical point of view, it is mainly about the promotion of pro-sustainable standards and increasing consumer awareness against the background of the requirements of SDG 12. Moving away from traditional consumption towards sustainable consumption requires further action from companies to improve employee attitudes towards implementing sustainable consumption in the workplace.

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The contribution of the authors

Conceptualisation, A.Z. and J.F.; literature review, A.Z. and J.F.; methodology, A.Z.; formal analysis, A.Z.; results descriptions, A.Z.; conclusions and discussion, J.F.

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POSTAWY WOBEC ZRÓWNOWAŻONEJ KONSUMPCJI PRACOWNIKÓW ZDALNYCH I HYBRYDOWYCH

STRESZCZENIE: Zachowania w kierunku zrównoważonej konsumpcji wpisują się w działania, które poprawiają jakość życia i wpływają na poprawę relacji ze środowiskiem. Celem badania jest identyfikacja podobieństw i różnic w zachowaniach pracowników w zależności od formy pracy zdalnej w tym trybu w pełni zdalnego i hybrydowego. Na podstawie wyników ankiety przeprowadzono analizę hierarchiczną w czterech obszarach, która wykazała, że pracownicy zdalni częściej przygotowują posiłki, dbają o zdrowie, ale pracownicy hybrydowi wykazali przewagę jedynie w konsumpcji mediów. Pomimo tego, że grupy zdalne i hybrydowe nie w pełni spełniają standardy zrównoważonej konsumpcji, to wykazują podobieństwa i różnice w wybranych postawach. Badanie służy pogłębieniu wiedzy na temat postaw wobec zrównoważonej konsumpcji wśród pracowników zdalnych i hybrydowych. Wspiera osoby zainteresowane stanem świadomości konsumpcyjnej, pracując zdalnie. Artykuł jest częścią dyskusji na temat zrównoważonych działań w firmie. W badaniu uwzględniono diagnozę podobieństw i różnic w podejściu pracowników zdalnych i hybrydowych, wskazując postawy wobec zrównoważonej konsumpcji w różnych środowiskach pracy.

SŁOWA KLUCZOWE: zrównoważona konsumpcja, praca zdalna, praca hybrydowa, rozwój zrównoważony