Changes in Fashion Shopping Behavior of Millennials During and After the COVID-19 Pandemic: The Effect of Sustainable Consumption

Journal:	*Journal of Fashion Marketing and Management*
Manuscript ID	JFMM-10-2021-0260
Manuscript Type:	Original Article
Keywords:	Millennials, Shopping, Fashion, Sustainability, circular economy, COVID-19

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Abstract:

Purpose The COVID-19 made significant changes in the fashion retail markets in European countries because stores were closed due to government restrictions. The study aims to examine the changes in the shopping behaviour of fashion by millennial consumers before and during the COVID-19.

Design/methodology/approach Authors developed hypotheses to examine the relation between Impulsive Shopping (IS), Fashion & Style (FAS), Sustainability (SUS), and attitudes towards Fashion Circulation (FC) and their impact on the changes in shopping behaviour after the COVID-19 pandemic. The authors analyzed the measurement model results (n = 589) and the direct and indirect mediating effect of the latent variables on Shopping Frequency Before (SFB) the pandemic and on Shopping Frequency During the pandemic (SFD).

Findings The measurement model results show that significant relationships exist in the proposed model – namely, the relation between IS and SFB, FAS and SFD, SUS and SFD, SUS and CHA, FC and CHA, and SFD and CHA. Furthermore, the selected demographic variables acted as a mediator for the measurement model.

Research limitations/implications The study brings and presents items and measures to predict the changes in shopping behaviour after COVID-19 influenced by sustainability, fashion and style, fashion circulation, impulsive shopping, and shopping frequency before COVID-19 and shopping frequency during COVID-19.

Practical implications The implications of the study can be used to understand the shopping behaviour of Generation Z when purchasing fashion during the COVID-19 pandemic and to develop new strategies and policies for sustainable and circular fashion management.

Originality The model is unique and tested for millennials, which has different patterns of shopping behaviour than previous generations of consumers.

Keywords:

Millennials, shopping, fashion, sustainability, circular economy, COVID-19

1. Introduction

One of the consumer generations who was seriously influenced by the COVID-19 were millennial consumers who faced fear from the unknown and unstable situation. Due to physical restrictions related to the COVID-19 pandemic, many service providers had to close their operations due to COVID-19, millennials lost or significantly reduced their regular incomes from different kinds of full-time and part-time jobs. Millennials, also known as Generation Y, refer to a population group born between 1980 and 2000. This segment is characterized by tremendous purchasing power, high involvement in technological innovation, and high expectations (Ferri-Reed, 2011). This group of shoppers is unique not only in terms of motivation and behaviour but also in terms of the ability to spend, which is much higher than all other previous generations (Thomas et al., 2016). The quality of products and services offered is an important element of the millennial decision-making process (Nowak et al., 2006). Product properties, packaging, and store atmosphere all have a significant effect on millennials' intention to shop (Michon et al., 2008). Millennials exceed 25 per cent of the world's population and are the largest growing online consumer group (Arumugam & Wing, 2020). They rather prefer online shopping, where they perceive more benefits than in traditional shops, such as delivery, price, and payment conditions. According to (Eger et al., 2021), millennial consumers spend more on personal or digital services than on

apparel, suffer higher levels of debt, and earn less in comparison with previous consumer generations. However, millennials are not a homogeneous group. Considering millennials as a segment is superficial as they do not have similar attitudes and behaviours (Ladhari et al., 2019). Some previous researches confirmed that millennials are the biggest social media consumers and online purchasers (Bento et al., 2018; Hall et al., 2017) with different offline and online attitudes and behaviours (Soares et al., 2017). However, only a few studies have addressed the millennial online shopping behaviour for fashion apparel (e. g. Bento et al., 2018; Ladhari et al., 2019; Sethi et al., 2017) or the influence of COVID-19 pandemic on fashion shopping behaviour (Guthrie et al., 2021; Peluso et al., 2021). Milennials had to switch from physical stores to online shopping, home delivery, or cashless payment, which they did not use so frequently (Pantano et al., 2020). When purchasing fashion, these rapid changes in shopping behaviour influenced by the COVID-19 pandemic are also connected with deferred consumption, with a higher focus on sustainability (Beckers et al., 2021; Peluso et al., 2021) and circular economy and consumption (Sadiq et al., 2021) but these phenomena were not investigated yet.

Our research takes into consideration the gap in the literature related to the lack of empirical research on the influence of COVID-19 pandemic fashion shopping behaviour of millennials. This study is an initial effort towards bridging this gap in the literature by exploring how the fashion shopping behaviour of millennials evolved before, during, and after the COVID-19 pandemic. Hence, this study aims to examine the changes in the shopping behaviour of fashion by millennial consumers before and during the COVID-19 pandemic.

To address our research questions, we applied a conceptual research model to research the relations between Impulsive Shopping (IS), Fashion & Style (FAS), Sustainability (SUS), and attitudes towards Fashion Circulation (FC) and their impact on the changes in shopping behaviour after the COVID-19 pandemic.

This is one of the first studies examining changes in fashion shopping during the COVID-19 pandemic. The rest of the study is structured into the following chapters: Literature Review, Materials and methods, Results, Discussion, Theoretical contributions and managerial implications (including limitations of this study), Conclusions and References.

2. Literature review

2.1. Impulsive shopping

Decision-making processes are one of the main prerequisites in the study of consumers (Ameen et al., 2021). Some studies find similar decision-making styles in the online and offline worlds (Poddar et al., 2009), while others reveal completely different ways of making decisions (Chang & Wu, 2012). Customers can adapt their decision-making styles to specific situations or environments (Häubl & Trifts, 2000). In the retail environment, studies focus on shopping and decision-making processes or retail store preferences (Granot et al., 2010).

For impulsive customers, both a quality product and an interesting store environment are important. Impulsive shoppers often shop "carelessly" (Rezaei, 2015). Carelessly, impulsive shopping could be defined as a: "*Decision style of consumers who tend to buy spontaneously and who are unconcerned about how much money they spend.*" (Wesley et al., 2006, p. 536). Impulsive shoppers primarily do not care how much they spend and do not care about "good deals" (Lysonski & Durvasula, 2013). It's unlikely that these customers would plan their purchases, but even if so, they would not care how much they spend on goods (Jamal et al., 2006). Impulsive shopping is not related to the amount of money the buyer has at his disposal, but to his urge to use it (Styvén et al., 2017). Highly impulsive customers make purchasing decisions based on emotions, with rationale set aside (Büttner et al., 2014). Impulsive shopping occurs when an individual experiences a sudden, strong, and persistent urge to buy a

particular product (Lucas & Koff, 2014). Customers shop unplanned and impulsive when exposed to stimuli triggered by supply or product presentation (Liu et al., 2013). Consumers learn to control their impulse tendencies with age (Styvén et al., 2017). Brick-and-mortar stores foster impulsive shopping more than doing e-commerce sites (Aragoncillo & Orus, 2018). Despite the significant influence of the store atmosphere on consumer impulsivity, the frequency of purchases is not significantly affected, suggesting that the impulsiveness of shopping may be affected by the economic situation (Boutsouki, 2019). Impulsive shopping influenced by fear has increased during the COVID-19 pandemic (Addo et al., 2020; Guthrie et al., 2021; Kim, 2020; Wiranata & Hananto, 2020). Fear and uncertainty generated by the COVID-19 pandemic is a new situation for millennial consumers that decreases their wellbeing and enables them to behave impulsively (Ahorsu et al., 2020; Eger et al., 2021; Reznik et al., 2020). Following the previous research, we assume and expect that impulsive shopping positively affects the shopping frequency before the COVID-19 pandemic. Therefore, we formulate the following hypothesis.

H1: Impulsive shopping positively affects the shopping frequency before the COVID-19 pandemic.

2.2. Fashion & Style

People use clothing as an extension of their identity and as a means of expressing status, social class, age, or gender (Niinimäki, 2010). At the same time, they constantly evaluate each other's appearance in time and social context, which results in a constant process of building their own identity (Kirgiz, 2014). The result of the whole process is hedonism. People attach meaning to the way we dress, so our clothes communicate our social identity (Johnson et al., 2008). Interest in clothing among Y-generation consumers is evoked based on

psychological impulses (fashion trends and innovation, self-concept, and the need to identify), as well as on marketing communication (social media and advertising in general) (Cham et al., 2020). Consumer psychology influences each individual's choice of products and services (Rogers et al., 2005).

Marketing, in general, plays an indispensable role in influencing consumers in fashion (Jai & Tung, 2015) and thus boosts demand. While the data shows that interest in online shopping is still growing, most clothing retail sales are still in brick-and-mortar stores. This fact shows that barriers to online shopping continue to prevail (O. Johnson & Ramirez, 2020). For example, showrooming directly affects online shopping by allowing customers to eliminate the risk of selecting goods they may not want when they see the actual merchandise. At the same time, it reduces the financial risk of the entire transaction (Johnson et al., 2008).

Closely related to materialism is the need for consumption as a "motivational process" by which an individual seeks to improve her social status through consumer goods (Eastman et al., 1999). Fashion and fashion innovation represent the presentation of physical attractiveness and self-identification, and it is important to perceive its influence on the interest in clothing (Anič et al., 2010).

During the COVID-19 pandemic, people spent most of their time at home and instead of presenting their status to others (ElHaffar et al., 2020; Kumar & Shah, 2021), so they did not purchase new fashion as frequently as before the COVID-19 pandemic and we expect that the shopping frequency before the COVID-19 pandemic was higher than during the COVID-19 pandemic. At the same time, due to closed stores, they were not attracted by marketing communication in stores and therefore did not have the opportunity to shop impulsively in physical stores. Based on the above findings, we assume that:

H2: Interest in fashion and style positively affects shopping frequency before the COVID-19 pandemic.

H3: Interest in fashion and style negatively affects shopping frequency during the COVID-19 pandemic.

2.3. Sustainability

Millennials are ambitious, have a global perspective, are very considerate of each other, and want to change the world for the better (Dharmesti et al., 2019). Sustainable clothing is generally associated with the production of clothing in a socially, ethically, and environmentally friendly way (Niinimäki, 2010). As a result of ever-changing clothing trends, the price and quality of the goods on offer are perceived as constantly decreasing, which has dramatically increased clothing production (Niinimäki & Hassi, 2011). This results in excessive consumption of clothing and an increasing amount of textile waste (Dissanayake & Sinha, 2015). The textile industry is one of the world's worst polluters (Niinimäki & Hassi, 2011), giving fashion a profound adverse effect on the environment (Roos et al., 2017). Industrialization and urbanization have made goods available. This encourages hyper-consumption or buying much more than we need. Then we quickly discard things and buy new ones (Gumulya, 2020).

Alternative approaches are becoming ever more popular. For example, products and services may be used without having to own them (Phau & Woo, 2008). One approach is rental-based consumption, and this concept is applied in many industries, such as fashion, property, and more recently, in children's items (Gumulya, 2020). Sharing is generally considered to have a positive effect on the environment over nonsharing, due to the added value in the phase of using (Möhlmann, 2015). In this regard, social media can shape attitudes and standards for sustainability in the field of fashion (de Lenne & Vandenbosch, 2017).

The disruptive period of the COVID-19 pandemic is ideal to adopt these sustainable models (Bocken & Short, 2021), mostly concerning environmental issues (Ranjbari et al., 2021; Sandberg, 2021). The COVID-19 pandemic is an unprecedented and unique event in the history of human civilization and allows some patterns of behaviour to be changed based on uncertainty (Laato et al., 2020; Rausch & Kopplin, 2021; Sadiq et al., 2021). We also hypothesize the growing interest in sustainability during the COVID-19 pandemic and its positive influence on shopping frequency during the COVID-19 pandemic and changes in shopping behaviour after the COVID-19 pandemic. Based on the above, we can assume that:

H4: Interest in sustainability positively affects shopping frequency during the COVID-19 pandemic.

H5: Interest in sustainability positively affects changes in shopping behaviour after the COVID-19 pandemic.

2.4. Circular fashion economy

A relatively new, emerging alternative consumption model contributing to greater sustainability in the textile industry is the approach based on cooperation in the field of fashion (de Lenne & Vandenbosch, 2017). Circular Fashion includes concepts such as sharing, reselling, exchanging and renting (Botsman & Rogers, 2010). Although this approach has a positive impact on sustainable consumption, unfortunately, environmental and social issues have no major impact on the intention to engage in clothing rental (Becker-Leifhold, 2018). To ensure sustainability, consumers must reduce their consumption or adjust the choice of goods and services they consume (Pogutz & Micale, 2011). Renting instead of buying new clothing could be a viable approach to prolong the life cycle of clothing and reduce material and energy consumption (Zamani et al., 2017). The Sharing Economy is an

overarching concept that allows access to all products and services in the same way as a standard method of consumption (Hamari et al., 2016). Many of us spent more time at home and needed to feel comfortable rather than wearing work clothes. We also started to wear clothes that we bought but had not used yet. These aspects opened our minds to the idea of "other" life fashion. Until the COVID-19 pandemic, services such as clothing repairability, reuse or lack thereof, or recyclability were of little importance to consumers (Koszewska et al., 2020; Zhu & Liu, 2021). Based on the above, we present the following hypothesis that expects that interest in circular fashion will have a negative influence on changes in shopping behaviour after the COVID-19 pandemic because millennial consumers interested in circular fashion will purchase less than the majority of this consumer cohort.

H6: Interest in a circular fashion economy negatively affects changes in shopping behaviour after the COVID-19 pandemic.

2.5. Changes in shopping behaviour

In the past, there were some dangerous epidemics, such as Ebola, SARS, MERS, swine flu and dengue fever (Balinska & Rizzo, 2009). Typically, these events had the most significant impact on two categories of human behaviour: consumer behaviour and health-risk-mitigation behaviour (Torre et al., 2009). Changes in consumer behaviour have affected not only grocery stores, regular shops, cafes, and restaurants, but also their supply structures (Laato et al., 2020). Similar studies report an increase in the purchase of food, face masks, hand disinfectants, and other items considered important for pandemic survival during the previous SARS disease (Goodwin et al., 2011). Information sources have generated more interest and have played an important role in consumer behaviour (Laato et al., 2020). People began to learn to shop online.

Millennials are known to be the most consumption-oriented of all the generations (Sullivan & Heitmeyer, 2008) and have the most features in common with each other (Stein & Ramaseshan, 2016). Millennials buy fashion through all available channels. Their use of mixed channels includes “showrooming” and "webrooming," or using the Internet to research products they then buy at a store, or order in the e-shop and then are delivered home (Alexander & Kent, 2020). This trend has persisted for the last five years and the integration of modern technologies is an element that millennials evaluate when choosing a shopping centre (Ameen et al., 2021). Millennial women are better able to orient themselves in shopping malls than men. Although men can buy in a shorter time, they spend more money (Bogomolova et al., 2016). For women millennials, the quality of interaction and service is an essential element of customer service, while men focus on the outcome and consider effective problem-solving to be sufficient (Mathies & Burford, 2011). From the above, we conclude that the current COVID-19 pandemic has affected the frequency of shopping both before and especially during, and we assume the following hypotheses.

H7: The frequency of buying fashion before the COVID-19 pandemic positively affects changes in shopping behaviour after the COVID-19 pandemic.

H8: The frequency of clothing purchases during the COVID-19 pandemic positively affects changes in shopping behaviour after the COVID-19 pandemic.

Furthermore, we added a group of demographic variables that have a mediation role on the changes in shopping behaviour after COVID-19 (Bogomolova et al., 2016). They are age, gender, household size, city of residence, education, occupation, and household income (Ameen et al., 2021). We state the following hypotheses:

H9: Age positively influences changes in shopping behaviour after the COVID-19 pandemic.

H10: Gender positively influences changes in shopping behaviour after the COVID-19

pandemic.

H11: Household size influences changes in shopping behaviour after the COVID-19 pandemic.

H12: Place of residence influences changes in shopping behaviour after the COVID-19 pandemic.

H13: Education influences changes in shopping behaviour after the COVID-19 pandemic.

H14: Occupation influences changes in shopping behaviour after the COVID-19 pandemic.

H15: Revenue affects changes in shopping behaviour after the COVID-19 pandemic.

We constructed a theoretical conceptual model to evaluate the proposed hypotheses derived from previous studies on sustainable consumption during the COVID-19 pandemic (Laato et al., 2020; Sharma et al., 2020). The conceptual model is presented in Figure 1 and it identifies how the changes in shopping behaviour were influenced by Impulsive Shopping (IS), Fashion & Style (FAS), Sustainability (SUS), and attitudes toward Fashion Circulation (FC). Between these items, we did not expect significant correlations. Then we considered age, gender, household size, region, education, full-time/part-time studies, and income as a moderating variable.

Figure 1. near here

3. Materials and methods

The study aims to examine the changes in the shopping behaviour of fashion by millennial consumers before and during the COVID-19 pandemic. Therefore, the authors developed hypotheses to examine the relation between Impulsive Shopping (IS), Fashion & Style (FAS),

Sustainability (SUS), and attitudes towards Fashion Circulation (FC) and their impact on the changes in shopping behaviour after the COVID-19 pandemic.

After we developed the first version of the questionnaire, we piloted it in a group of 20 respondents to answer the questions and to receive feedback on the understandability of the questions and the ability to answer quickly. Then we adopted a couple of changes in terms of better understandability and higher specificity of questions. We made all content questions with 5-point Lickert scale answers ranging from strongly disagree to strongly agree mandatory. Some open-ended questions were also included in the questionnaire, but we did not provide an analysis of them. The final version of the survey questionnaire is shown in the Appendix.

After that, we distributed the survey link via direct e-mails in Czechia on September 20, 2020. After two weeks, we sent a second round of e-mails to remind recipients to answer the questionnaire. The survey statistics showed that 589 respondents returned complete questionnaires. Regarding the sample structure, approximately 77% of the respondents were female, which reflects their interest in purchasing fashion. The mean value for age was 24.8 years and the range was from 21 to 26 years old. The majority of respondents live in four-member households (56%) and two-member households (24%), and 92 % of respondents work part-time or full-time apart from their studies at university. Regarding the education level of the respondents, 59% of them reported they had a secondary school, 28% had a bachelor's degree, and 12% had a master's degree. The detailed information on the distribution of respondents is presented in Table 1.

Table 1. near here

4. Results

Before evaluating the structural model, we ensured the reliability, convergent, and discriminant validity of the data. Then we checked the collinearity issues and the existence of the common method bias. Therefore, we used SPSS software, version 26, for the PLS-SEM and the Mediation Analysis. These methods are widely used in consumer research because they can be combined with linear regression modelling and confirmatory factor analysis. The objective of PLS-SEM is predictive modelling with a focus on the complex model with many indicators (Sharma et al., 2020).

4.1. Reliability and convergent validity

Firstly, we measured the factor loadings for the constructs for evaluation of the model and the reliability of the constructs. The factor loadings were measured to be more than 0.55 for three of the four latent variables. The Cronbach alpha meets adequate values, except the item FC (0.32). Furthermore, the composite reliability is more than the expected value (0.55), and the average variance extracted (AVE) lies also within the adequate range.

Based on the recommendation in the previous studies, the standardized outer loading of the items should be more than 0.7. The value of AVE should be more than 0.5 to confirm the convergent validity among the constructs (Rahman et al., 2015). Next, we estimated the outer loading and level of significance by a bootstrapping approach. We found that the outer loadings are higher than 0.7 (except for two items in SUS5, SUS6, SUS7, and FC2, which are less than 0.7) and all of them are significant at $p < 0.001$. According to (Fornell & Larcker, 1981), the value of AVE for all factors should be higher than 0.50, because it explains beyond 50% of the variance.

In the case of SUS5, SUS6, SUS7, and FC2 where the loading is less than 0.7, the AVE is higher than 0.5, which is acceptable. Therefore, the values in Table 1 show that there exists convergent validity among the model constructs.

Table 2. near here

4.2. Discriminant validity

We checked the discriminant validity of the data by using the Fornell–Larcker. According to this measure, the AVE of each latent construct should be higher than the construct's highest squared correlation with any other latent construct and vice versa (Sharma et al., 2020), an indicator's loading should be higher than all of its cross-loading criteria (Hair et al., 2017). This confirms that the model constructs signify discriminant validity. The inner and outer variation inflation of factors is within the acceptable level for the mode as well as the strong reliability among the constructs as can be seen in Table 2. Based on the results of the intercorrelation matrix presented in Table 3, the discriminant validity is confirmed (see diagonal elements ([a]).

Table 3. near here

4.3. Collinearity issues

In the next step, we need to check the collinearity issues and the variance inflation factor (VIF) among the model constructs. According to Hair, et al. (2011), the outer VIF values show the collinearity among the items in constructs and the inner VIF shows the collinearity among the latent variables and the values of both inner and outer VIF should be lower than

five. This is visible in Table 4 and Table 5 where the values of inner and outer VIF are less than five and this means there exist any collinearity problems among the model constructs.

Table 4. near here

Table 5. near here

4.4. Common method bias

As a final test, we checked for the occurrence of common method bias because of the errors in the measurement model (Kock, 2015). For example, the variation can occur due to items developed during filling in the survey which may affect the answers of the respondents. Moreover, the desirable way of responding to a particular question may cause common method bias (Sharma et al., 2020). In this study, the authors try to understand the changes in the shopping behaviour of millennial consumers before and during the COVID-19 pandemic that can indirectly address the issue of common method bias. Then we calculated Harman's single factor test and second, the correlation matrix process. The total variance explained by Harman's single factor test is 41.26%, which is lower than 50% and confirms that there is no common method bias. Second, the correlation of more than 0.9 indicates a common method bias, but the values of our correlation coefficients were less than 0.9, thus there is confirmed no existence of common method bias.

4.5. Structural Model

For the evaluation of the hypothesized direct relationship, we used standardized regression weights to infer the association between independent variables such as SUS, FAS, FC, and IS,

and the shopping frequency before COVID-19 (SFB), shopping frequency during COVID-19 (SFD), and the changes in shopping behaviour after COVID-19 (CHA).

First, we need to check the compatibility of the measurement model, because the structural model (see Figure 2) is analyzed to verify the overmentioned hypotheses and predict the conceptual model. In PLS-SEM, the measurement model can be predicted by estimating the values of R^2 and Q^2. R^2 is accurately predicting the variance explained by the construct, and Q^2 proposes predictive relevance by using the sample reusing method where part of the data matrix is being omitted and the results are used to predict the omitted part (Sharma et al., 2020). According to (Hair et al., 2017), the higher is the value of R^2 (on the scale from 0 to 1), the higher the predictive accuracy would be. According to the previous studies, the values of R^2 as 0.75 are considered to be adequate, the value of 0.50 as moderate, and the values of 0.25 as weak predictive accuracy values. The value of R^2 for exogenous variables (SFB) is 0.125 and for (SFD) is 0.116, which means a weak predictive accuracy value. It also means a weaker explanatory power of the structural model, which implies that the independent variables in the model contribute 12.5% of the total variance in CHA.

The findings of Table 6 show that our set direct hypotheses (H1–H8) are sustained as $p < 0.05$ or lower in the seven set hypotheses. On the one hand, we proved that SUS, FAS, and FC have a significant impact on the SFB, SFD, and CHA. On the other hand, demographic variables (age, gender, household size, place of residence, education, full-time/part-time study, and income) have no significant impact on the SFB, SFD, and CHA. 10. We need to comment on gender as a demographic variable which is generally believed to have a significant effect on fashion shopping, as shown by the H10 hypothesis and by the fact that 77% of respondents are female and H3 is proven, although we did not find any significant effect by gender.

Table 6. near here

Figure 2. near here

4.6. Mediation analysis

In this study, the mediating relationship between SFB and CHA, and SFD and CHA via respondents' income were proposed. Table 7 describes the total, direct, and indirect relationship among the constructs, which illustrates that SFD affects CHA higher than SFB as the total effect of CHA is 1.246. It means that a one-unit change in SFD would influence the CHA of consumers by 1.246. It means that shopping frequency during COVID-19 has a positive influence on changes in shopping behaviour after COVID-19; however, this relationship is insignificant. Therefore, we expect that millennial consumers who decreased the frequency of their purchases during COVID-19 should purchase less also after COVID-19. The same situation is expected for millennials oriented to sustainability who can ask for sustainable consumption after COVID-19 as well.

Table 7. near here

5. Discussion

When developing the model, similar to (Laato et al., 2020; Sharma et al., 2020), we expected that the variables of Impulsive Shopping (IS), Fashion & Style (FAS), Sustainability (SUS), and attitudes toward Fashion Circulation (FC) would impact the Shopping Frequency Before (SFB) the COVID-19 pandemic and the Shopping Frequency During the COVID-19 pandemic (SFD) and that these two variables would impact the independent variable of Changes in Shopping Behavior (CHA), similar as result by (Indus University, Faculty of

Management Sciences et al., 2020). The final sample of 589 responses for the analysis and the proposed conceptual model was tested through the PLS-SEM to verify the hypothesis set and the outcome of the structural model for the CHA (Laato et al., 2020; Sharma et al., 2020). During the process of the measurement model evaluation, we confirmed that the reliability and validity of the collected data are within an acceptable range and can be used for the next analysis (Sharma et al., 2020). Furthermore, we evaluated the collinearity for both the inner and outer models to verify that there is no collinearity in the measurement model, and this confirms the compatibility with the measurement model. We confirmed that Intentions themselves do not contribute to the changes in shopping behaviour during the COVID-19. Besides, the mediation effect of the demographic variables is rather smaller for age, household size, education, and income.

Moreover, we tested the relationship among the constructs and the path coefficients were calculated using the bootstrapping approach. Table 6 reveals that the bootstrapping results examine the significant influence of IS on SFB, FAS on SFB, FAS on SFD, SUS on SFD, SUS on CHA, FC on CHA, and SFD on CHA. The hypothesis testing proved that hypotheses H1, H3, H4, H5, H6, and H8 are valid, and the measurement model can support the theoretical conceptual model. H1 expects that IS did positively affect SFB that consumers purchasing impulsively would have spent more money on fashion before COVID-19 would make purchasing decisions faster, and would not put money into their account to purchase a new fashion. Hypothesis H1 was proven correct by the findings of (Ahmed et al., 2020; Prentice et al., 2020), even though they focused their research on the whole population and not only millennials. H2 estimated that FAS positively affects SFB, which would mean that consumers who are more interested in purchasing fashion also purchased more frequently and spent more money on fashion before COVID-19, similar to the study by (Becker-Leifhold, 2018), studying interest in fashion and style, specifically renting services. Based on our

model, there is a moderately strong negative effect, and the hypothesis was rejected. H3 was proven a negative impact of FAS on the SFD. This hypothesis was confirmed, and it means that consumers with interest in fashion and style did not change their consumer behaviour during COVID-19 and that the pandemic situation did not influence their shopping behaviour. Both in terms of interest in fashion and style and the general acceptance of online shopping (Dharmesti et al., 2019). Both hypotheses H2 and H3 are in line with the findings of (Baek & Oh, 2021). H4 described a positive relationship between SUS and SFD, describing a positive influence of COVID-19 on consumers' interest in sustainability, and it confirmed a previous study of (Průša & Sadílek, 2019). Not only the shopping barrier had to play a major role here, but also the influence of social media, according to (de Lenne & Vandenbosch, 2017). H5 was proven that SUS has a positive influence on CHA; it assumes sustainable consumer behaviour has a significant influence on the changes in shopping behaviour (consumers purchase less typically as confirmed previously) (Tey et al., 2018) or based on (Hamari et al., 2016) researching perceived sustainability and its impact on future behaviour. Hypothesis H6 was proven a negative effect of FC on CHA because if consumers are more interested in fashion circulation and secondhand purchases, then they also purchase less fashion as stated by (Gazzola et al., 2020), but which is the result on the opposite side of the spectrum than (Pogutz & Micale, 2011). Lastly in line with (Deng et al., 2020) or similar to (Sheth, 2020), the H8 has a positive effect of changes in shopping change during COVID-19 on changes in shopping behaviour after COVID-19.

The total, direct, and indirect relationship among the constructs shows that SFD affects changes in shopping behaviour after COVID-19 more than SFB. Then, SFD as the total effect of CHA is 1.246. It implies that having a consumer who changed his shopping behaviour after COVID-19 also modified his shopping frequency during COVID-19. Therefore, by (Eger et al., 2021), we expect that millennial consumers who decreased the frequency of their

purchases or who focused on sustainable consumption during COVID-19 should purchase less and look for a sustainable fashion also after COVID-19. Anyhow, the relationship between SFD and CHA via consumers' income is not significant in the model. It infers that consumers' changes are not connected with their income levels. Eventually, the entire testing confirms the conceptual model for the CHA.

5.1. Theoretical contributions

The study has three main theoretical contributions. First, the study brings and presents items and measures to predict the changes in consumer behaviour after the COVID-19 pandemic influenced by sustainability, fashion and style, fashion circulation, impulsive shopping, and shopping frequency before COVID-19 pandemic and shopping frequency during COVID-19 pandemic. The model is unique and tested for millennials, which has different patterns of consumer behaviour than previous generations of consumers. Thus, the study contributes to the literature on shopping behaviour before, during, and after the COVID-19 pandemic (Eger et al., 2021; Laato et al., 2020; Omar et al., 2021). Apart from (Eger et al., 2021), Limited studies have explored findings in a Central European country context.

Second, the combination of variables such as sustainability, fashion and style, fashion circulation, impulsive shopping, and its influence on shopping frequency before the COVID-19 pandemic and shopping frequency during the COVID-19 pandemic is rather novel. It brings confirmation that the changes in fashion consumer behaviour after COVID-19 pandemic are mostly directly influenced by the interest in sustainability and shopping frequency during COVID-19 pandemic that could be potentially influenced also by impulsive shopping. This proposed model substantially adds to the evolving literature (Bocken & Short, 2021; Omar et al., 2021; Peluso et al., 2021; Ranjbari et al., 2021; Sandberg, 2021).

Lastly, this study focuses on a particular age cohort of consumers, millennials and the model was established for the fashion market only, because of the changes in consumer behaviour before, during, and after the COVID-19 pandemic for other products (such as food products or online shopping in general) are already known (Beckers et al., 2021; Guthrie et al., 2021; Kumar & Shah, 2021). Overall, studies investigating the influence of the COVID-19 pandemic on the consumer behaviour of millennials are very rare at the moment (Eger et al., 2021; Ozuem et al., 2021; Seabra et al., 2021; Zwanka & Buff, 2021)

5.2. Managerial implications

The first managerial implication is that this research brings a new insight into how the COVID-19 pandemic influences the consumer behaviour of millennials in the fashion market. We can see that the majority of millennials in European countries have changed their patterns of consumer behaviour. Therefore, this could be valuable information for marketers as well as for nonprofit organizations and governmental institutions to see the exact changes and the factors that influenced them. It also enables retailers to formulate new strategies for new markets. The positive influence of the interest in sustainability and fashion circulation on the changes in shopping behaviour during COVID-19 is evident and fashion producers and retailers should react to this trend (Brydges, 2021). This also creates a potential for marketers to focus on promoting a sustainable fashion and for nongovernmental organizations to participate in educating consumers. Additionally, we expect a growing interest in circular fashion business models and sharing economy platforms (Elliott et al., 2020; Ranjbari et al., 2021) that enable to reduce the amount of newly produced fashion. There is a potential to enhance the knowledge of fashion circulation and to help consumers understand that it can provide a successful solution for possible upcoming crises.

The limitation of this study is the sample structure that consists of respondents born between 1994–2000 and therefore it does not cover millennials born in the 1980s. The second limitation is the time range of this study. When doing this research in September 2020, we did not expect that the third wave of COVID-19 pandemic in Czechia will restrict the operation of physical stores and other services almost until May 2020. Then the variable of changes in shopping behaviour after the COVID-19 pandemic should be connected to the future with no COVID-19 restrictions.

6. Conclusions

In this study, we began an empirical analysis of changes in the fashion shopping behaviour of millennials during and after the COVID-19 pandemic. We used a conceptual model to examine the relationship between Impulsive Shopping (IS), Fashion & Style (FAS), Sustainability (SUS), and attitudes toward Fashion Circulation (FC) and its impact on the changes in shopping behaviour after the COVID-19 pandemic. To this end, we collected data from Czech respondents (n = 589). The empirical results suggested that consumers purchasing impulsively spent more money on fashion before COVID-19 decided about purchasing faster, and did not put money into their account to purchase a new fashion. Furthermore, consumers who are more interested in purchasing fashion purchased more frequently and spent more money on fashion before COVID-19. It also infers that consumers with an interest in fashion and style did not change their consumer behaviour during COVID-19 and that the pandemic situation did not influence their shopping behaviour. The mediation effect of the demographic variables is rather smaller for age, household size, education, and income. Millennial consumers who decrease the frequency of their purchases or who focused on sustainable consumption during COVID-19 should purchase less and look for a sustainable fashion also after COVID-19 and consumers' changes are not connected with their income levels. Next,

sustainable consumer behaviour has a significant influence on the changes in shopping behaviour, and if consumers are interested in fashion circulation and secondhand purchases, then they also purchase less fashion. Finally, we encourage scholars to take opportunities to collect empirical data on changes in shopping behaviour during COVID-19 in different fields and countries to further expand our knowledge on consumer behaviour during pandemics.

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Figures

Figure 1. Conceptual model on factors influencing changes in shopping behavior after COVID-19

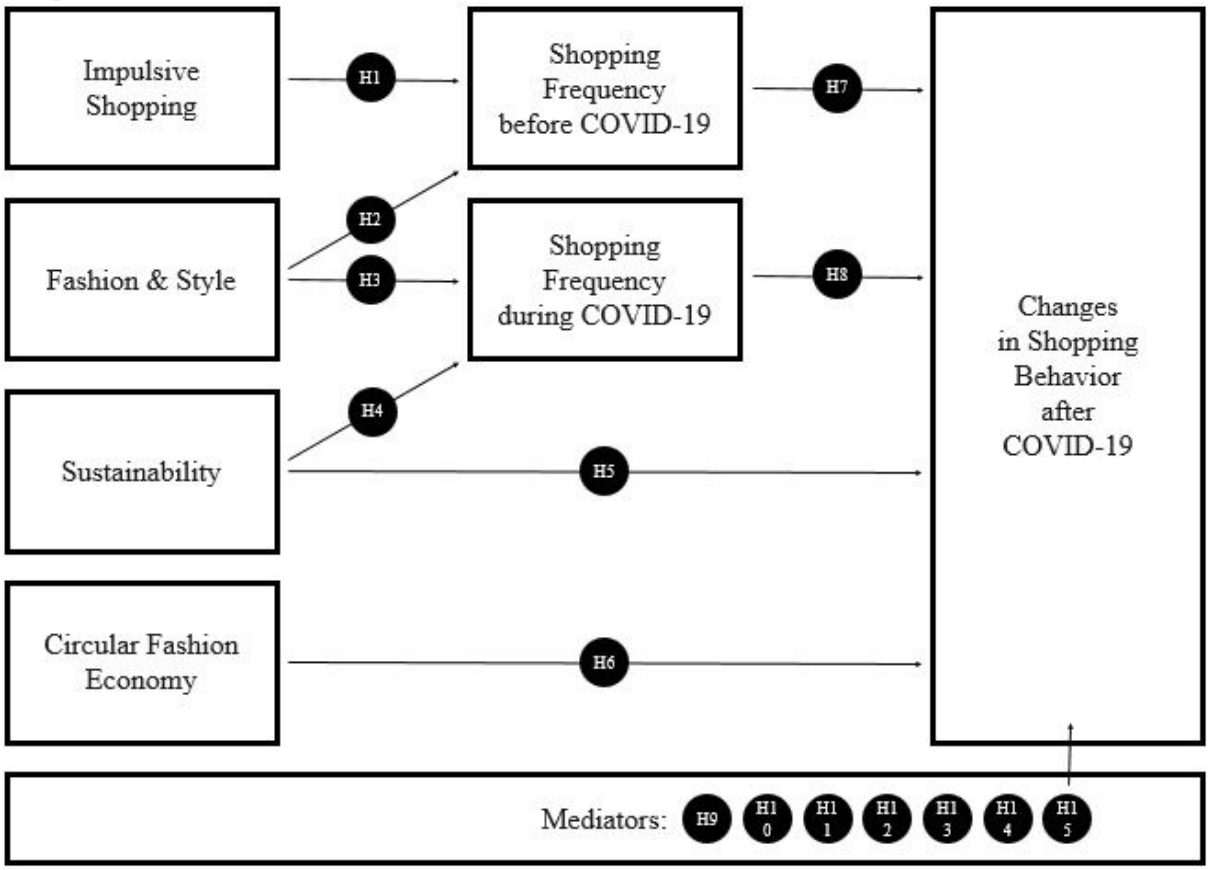
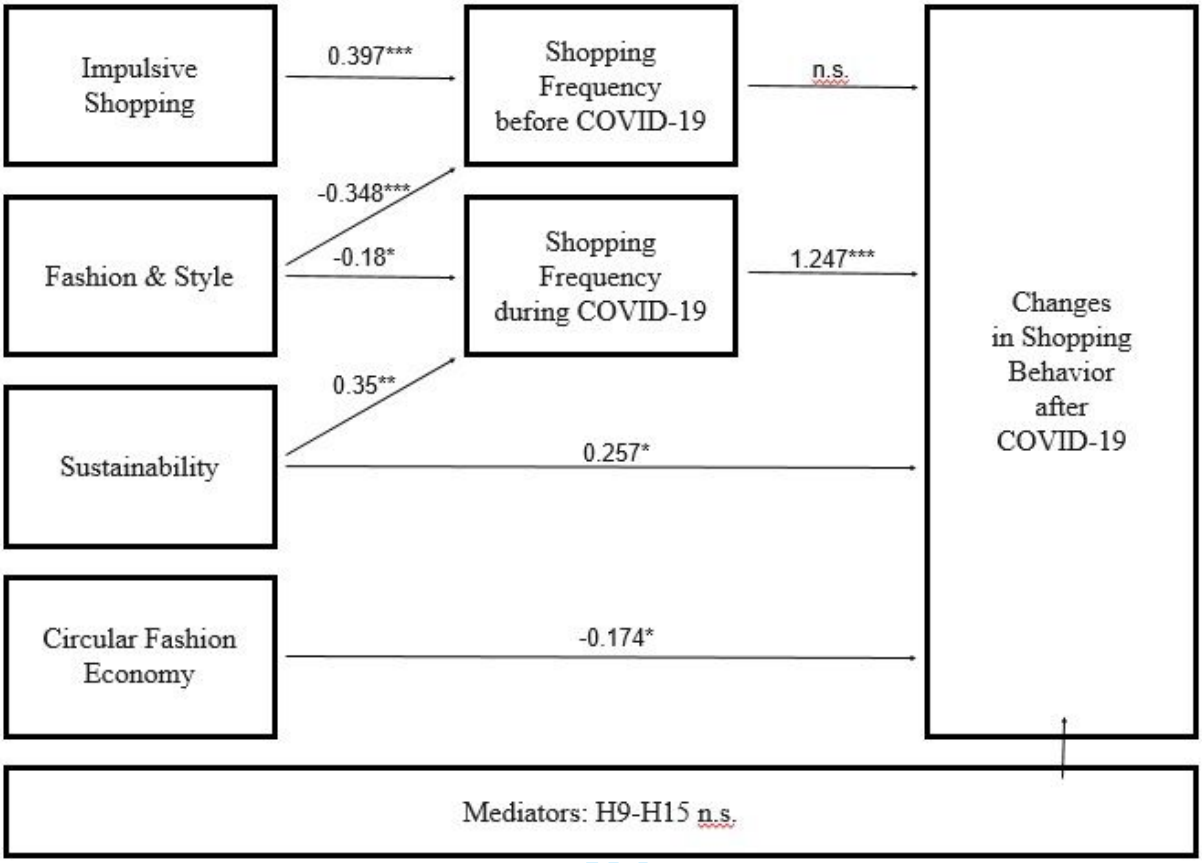


Figure 2. Partial least squares (PLS) structural model



Note: ***p < 0.001; **p < 0.01; *p < 0.05

Tables

Table 1. Sample structure (n = 589)

Gender	Male	22.43%	**Education**	Secondary school	59.70%
	Female	77.57%		Bachelor degree	28.15%
Age	21	5.44%		Master degree	12.15%
	22	17.49%	**Household size**	1 member	5.09%
	23	19.86%		2 members	23.91%
	24	18.00%		3 members	16.12%
	25	20.20%		4 members	51.02%
	26	19.02%		5 and more members	3.86%
			Work-activity	Part-time of full-time	91.59%
				No	8.41%

Table 2. Reliability and validity of the measurement model

Constructs	Indicators	Mean	SD	FL	CR	CA	AVE
SUS	SUS1	3.371	1.270	0.902	0.61	0.611	0.602
	SUS2	1.787	1.107	0.914			
	SUS3	2.508	1.461	0.878			
	SUS4	2.136	1.380	0.893			
	SUS5	2.248	0.695	0.693			
	SUS6	0.149	0.357	0.519			
	SUS7	2.895	1.382	0.661			
	SUS8	2.966	1.273	0.774			
FAS	FAS1	3.663	1.065	0.819	0.552	0.554	0.551
	FAS2	3.891	1.007	0.787			
	FAS3	2.801	1.376	0.908			
	FAS4	3.436	1.322	0.806			
	FAS5	1.889	0.404	0.924			
FC	FC1	2.550	1.331	0.925	0.555	0.577	0.569
	FC2	2.409	1.393	0.497			
	FC3	2.368	1.342	0.831			
	FC4	3.146	1.439	0.818			
	FC5	2.925	1.351	0.814			
IS	IS1	3.044	1.254	0.894	0.32	0.32	0.3
	IS2	2.367	1.434	0.976			
	IS3	2.650	1.468	0.825			
	IS4	1.889	0.413	0.901			

Table 3. Intercorrelation matrix

	SUS	FAS	FC	IS	SFB	SFD
FAS	0.245[a]					
FC	0.809	0.126 [a]				
IS	0.251	0.701	0.231 [a]			
SFB	-0.042	-0.063	0.006	0.079 [a]		

SFD	0.076	-0.043	0.022	-0.015	-0.137 [a]	
CHA	0.048	-0.020	-0.004	-0.038	-0.131	0.801 [a]

Table 4. Inner VIF

	SUS	**FAS**	**FC**	**IS**	**SFB**	**SFD**	**CHA**
SUS							
FAS							
FC							
IS							
SFB		1,967		1,967			
SFD	1,063	1,063					
CHA	2,907		2,907		1,034	1,034	

Table 5. Outer VIF

Indicators	**Mean**
SUS1	3.502
SUS2	1.340
SUS3	4.708
SUS4	3.241
SUS5	1.116
SUS6	1.168
SUS7	1.471
SUS8	2.239
FAS1	3.109
FAS2	1.644
FAS3	3.169
FAS4	3.200
FAS5	2.920
FC1	3.773
FC2	1.724
FC3	3.028
FC4	4.606
FC5	2.210
IS1	1.283
IS2	1.494
IS3	3.254
IS4	2.880

Table 6. Structural model estimates and main hypotheses

Hypothesis	**Path**	**Path coefficient**	**t-values**	**p-values**	**Results**
H1	IS-SFB	0.397	4.211	0.000	Supported
H2	FAS-SFB	-0.348	-3.775	0.000	Not supported
H3	FAS-SFD	-0.18	-1.929	0.05	Supported

H4	SUS-SFD	0.35	2.952	0.003	Supported
H5	SUS-CHA	0.257	2.154	0.031	Supported
H6	FC-CHA	-.174	-1.814	0.05	Supported
H7	SFB-CHA	0.013	.0367	0.713	Not supported
H8	SFD-CHA	1.247	31.736	0.000	Supported

Table 7. Mediation effect of SFB and SFD on CHA

Total effects	**β**	**p**	**Direct effects**	**β**	**p**	**Indirect effects via income**	**β**	**p**
SFB→CHA	0.013	0.713	SFB→CHA	0.013	0.713	SFB→CHA	-0.001	0.514
SFD→CHA	1.246	0.001	SFD→CHA	1.247	0.001	SFD→CHA	0.001	0.862

Appendix – Questions in the survey questionnaire

Constructs	Indicators	Question
SUS	SUS1	Before COVID-19, I tried to limit my fashion shopping.
	SUS2	Before COVID-19, I used to borrow clothes from friends, relatives, acquaintances, and / or professional clothing rentals.
	SUS3	During COVID-19, I try very hard to limit my fashion shopping.
	SUS4	During COVID-19 I like to repair my clothes.
	SUS5	My online fashion shopping changed during COVID-19.
	SUS6	During COVID-19, my relationship with the fashion you bought before her changed.
	SUS7	During COVID-19, I gained more control over myself as a fashion consumer.
	SUS8	During COVID-19, I focus on my personal growth instead of economic growth.
FAS	FAS1	Before COVID-19, fashion was essential to me.
	FAS2	Before COVID-19, I liked to dress in style.
	FAS3	Before COVID-19, I bought more fashion than I really needed.
	FAS4	During COVID-19, fashion is essential to me.
	FAS5	The frequency of borrowing fashion from my friends and family members increased during COVID-19.
FC	FC1	Before COVID-19, I tried very hard to limit my fashion shopping.
	FC2	Before COVID-19, I knew how to change fashion (with friends, family, within a certain group, or otherwise).
	FC3	Before COVID-19, I liked to repair my clothes.
	FC4	During COVID-19, I try to limit fashion shopping.
	FC5	My relationship with fashion during the COVID-19 pandemic has changed.
IS	IS1	Before the start of COVID-19, I bought the fashion without prior planning.
	IS2	Before COVID-19, I liked shopping in the second hand.
	IS3	During COVID-19, I buy more fashion than I really need.
	IS4	The frequency of borrowing fashion from my friends and family members changed during the Covid-19 pandemic.