Social Norms, Personal Norms, and Age: Understanding the Drivers of Second-Hand Clothing Consumption

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Abstract

This study investigates the influence of personal norms, injunctive social norms, and age on second-hand clothing consumption behaviour. By examining the interplay between norms and age in the context of second-hand clothing consumption, this research aimed to contribute to the understanding of factors that promote sustainable behaviour in a net-zero transition. An online survey was distributed through Qualtrics and data was collected from a convenience sample of 128 participants. The results showed that personal and injunctive social norms positively correlate with second-hand clothing consumption behaviour. Theoretical frameworks, such as the theory of normative social behaviour, the norm-activation model, the theory of planned behaviour, and the social identity theory, are consistent with the findings. However, age did not show a significant effect on personal and social norms in relation to second-hand clothing consumption. Future studies could aim to include participants from a more diverse range of regions, cultures, and socioeconomic backgrounds, as well as incorporate additional research methods, such as qualitative interviews. Moreover, the role of environmental awareness as a potential moderator could be investigated. Interventions aimed at encouraging second-hand clothing consumption could involve educational campaigns that target both, policy initiatives, and collaborative efforts within the fashion industry.

Keywords: second-hand clothing consumption, personal norms, injunctive social norms, age, sustainable consumption behaviour, circular economy

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The negative impacts of climate change are expected to become more severe if global warming increases further (IPCC 2023, 2022a). Limiting the temperature increase to 1.5°C instead of 2°C would have important benefits for both humanity and nature (IPCC 2023, 2022a). In this context, the fashion industry stands out as one of the world's most polluting industries (Brewer, 2019). Accounting for 10% of global carbon emissions, the industry's production and supply chain processes generate significant environmental harm (Conca, 2015). The "fast fashion" concept, which gives consumers copies of the newest trends (Beebe, 2015), has dramatically increased the industry's and consumers' carbon footprint and encouraged a wasteful lifestyle (Brewer, 2019). In response to growing concerns about overconsumption and the environmental impact of discarding clothing, the second-hand clothing industry is expected to experience significant growth (Liang & Xu, 2017). *Second-hand clothing*, also called used clothing, helps mitigate environmental pollution (Farrant et al., 2010).

This study aims to examine the influence of personal norms, injunctive social norms, and age on second-hand clothing consumption behaviour. Personal norms have been linked to pro-environmental behaviour intentions in various areas, including buying environmentally friendly products (Onwezen et al., 2013). However, social norms have also been found to influence the decision to buy sustainable consumption options (Kleinhückelkotten & Neitzke, 2019). However, previous studies have shown norms may have different impacts on pro-environmental behaviour depending on their age (Melnyk et al., 2020). This study aims to gain insights that can inform strategies to promote sustainable behaviour in a net-zero transition.

Social Norms on Sustainable Clothing Consumption

In the context of sustainable clothing behaviour, social norms have shown to be a significant factor influencing individuals' consumption choices (Kleinhückelkotten & Neitzke, 2019). Social norms are shared beliefs about appropriate behaviour within a community regarding how we respond to a situation (Hassan et al., 2022). Previous research has consistently highlighted the impact of social norms on sustainable clothing behaviours. For example, Kleinhückelkotten & Neitzke (2019) conducted a study in Germany investigating the role of social norms in sustainable clothing consumption. The study identified factors influencing the buying and use of clothes as well as the potential for more sustainable consumption options, of which one was second-hand clothing. Social norms were found to have a positive impact on consumer behaviour, promoting more sustainable choices in clothing consumption (Kleinhückelkotten & Neitzke, 2019), suggesting that social norms play a significant role in shaping sustainable clothing preferences. Another study by Hassan et al. (2022) found injunctive social norms to be an important factor in shaping sustainable fashion consumption. *Injunctive social norms* are information about effective behaviour based on the perception of what others do (Hassan et al., 2022). The study found that consumers may be inspired to make ethical and environmentally responsible decisions when they notice that those around them start buying sustainable fashion. Individuals are more likely to develop stronger beliefs in achieving desired outcomes and to establish trust in cooperative intentions when they see other individuals making contributions to environmental preservation. These factors, in turn, contribute to individuals' willingness to engage in sustainable fashion consumption (Hassan et al., 2022). These findings indicate that social norms are important in shaping individuals' behaviour towards sustainable clothing consumption. Building upon this existing knowledge, this study aims to show that there

is a positive relationship between injunctive social norms and second-hand clothing behaviour. This study will test the following hypothesis: (1) The higher the injunctive social norm of the consumer, the more likely they are to engage in second-hand clothing consumption.

Personal Norms on Sustainable Clothing Consumption

Personal norms have been found to play a significant role in shaping sustainable fashion consumption behaviours among consumers (Hassan et al., 2022). *Personal norms* refer to the internalized sense of moral obligation that individuals experience (Hassan et al., 2022). Individuals with higher personal norms feel a stronger desire to engage in sustainable clothing consumption than people with low personal norms. Their moral obligation drives their intention to make more pro-environmental decisions in fashion consumption (Hassan et al., 2022). Another study by Hwang et al. (2013) found that moral obligation has a positive and significant impact on purchase intentions for apparel products with CSR attributes, including being organic, fair trade, and recyclable. Specifically, individuals with higher levels of moral obligation are more likely to express intentions to purchase apparel made of organic materials, products with a fair-trade label, and those made using recycled materials (Hwang et al., 2013). These findings highlight the significant influence of personal norms on individuals' behaviour in relation to sustainable clothing consumption. Therefore, the present study expects there to be a positive relationship between personal norms and second-hand clothing behaviour. The following hypothesis will be tested: (2) The higher the personal norm of the consumer, the more likely they are to engage in second-hand clothing consumption.

The Effect of Age

Despite previous research suggesting the effect of social and personal norms on sustainable clothing choices, a meta-analysis suggests that age may also play a role (Melnyk et

al., 2019). According to the meta-analysis conducted across 297 studies, it was found that older individuals are less sensitive to social norms compared to younger individuals, indicating a negative relationship between age and social norms (Melnyk et al., 2019). The study showed that older individuals are less likely to conform to social norms (Melnyk et al., 2019). In contrast, younger individuals demonstrated a higher likelihood of conforming to social norms (Melnyk et al., 2019). Since social norms have been shown to shape younger consumers' behaviour, I assume that if second-hand clothing consumption is viewed as socially desirable, younger individuals may be more inclined to conform to that norm. The following hypothesis will be tested: (3) The younger the consumer, the more important injunctive social norms are in predicting second-hand clothing consumption.

Based on the findings of Melnyk et al.'s (2019) study, which demonstrated a negative relationship between age and social norms on consumer behaviour, further exploration is needed to understand the motivations of older consumers regarding second-hand clothing. Given that older people are less affected by social norms, it is possible that personal norms may play a stronger role in driving their engagement in second-hand clothing consumption. I assume that personal norms may become more salient for older consumers due to their accumulated life experiences or self-perceptions related to sustainability. Over time, older individuals develop higher sustainability-related awareness in comparison to younger adults (Banyté et. al, 2020). Therefore, older consumers may perceive themselves as more responsible of the planet, and personal norms aligned with sustainability may motivate them to choose second-hand clothing as a way to reduce their environmental footprint. The following hypothesis will be tested: (4) The older the consumer, the more important personal norms are in predicting second-hand clothing consumption.

Method

Before collecting the data, I practiced a power analysis for my research model, aiming for a linear multiple regression with a medium effect size ($f^2 = .0625$), $\alpha = .05$, and *power* = .80. This analysis resulted in a recommended sample size of 128 participants. Each student of the bachelor thesis group aimed to collect data from approximately 26 participants. At the end of the data collection, 144 participants filled out the survey. The average time needed to finish the survey was 27.4 minutes ($SD = 87.9$). We excluded 15 participants from the data analysis because they did not finish the survey. In addition, three participants were removed as outliers (z-score > 3 for the duration of time they needed to fill out the survey). We assumed that the survey was taken over a long period of time (e.g., several days) and that the participants took such long breaks in between so that they might have lost track of what the survey was about or how certain concepts were defined beforehand. Thus, the final sample used in the data analysis consisted of 126 participants. No participant indicated a different gender than male or female and 44.44% of the participants were male while 55.56% were female. In addition, the distribution of the sample reflects a diverse range of ages ($M = 39.4$, $SD = 18.3$). The participants were well distributed across two main age groups: 42.86% fell between the ages of 20 and 30, while 31.75% fell between the ages of 50 and 65. In addition, we asked the participants about their nationality at the beginning of the survey. Dutch participants made up 51.59% of the participants, German participants made up 30.16%, and other nations made up 18.25%. Thus, at least over 80% of the participants stemmed from a WEIRD (Western, Educated, Industrialized, Rich and Developed) country. We can therefore speak of a WEIRD sample.

Procedure

An online survey was distributed through social media asking people in-person, and the data collection was a convenience sampling done by five bachelor students in the thesis group "Promoting sustainable behaviour and policy support in net-zero transition" at the University of Groningen, The Netherlands. The participants could voluntarily choose whether they wanted to participate or not after reading the information about the research. Participants were not given any compensation for participating. As a condition of participation, the participants had to be older than 16 years, and understand one of the three languages (i.e., English, Dutch, or German). This study is registered to the Ethics Committee of the Faculty of Behavioural and Social Sciences at the University of Groningen, The Netherlands, and is exempt from review. We collected the data between the 27th of April 2023 and the 3rd of May 2023. The survey was completed in one session, and there was no time restriction for taking the survey.

Design

The researchers were not present when participants filled in the survey, which was taken individually and online via Qualtrics (Qualtrics, 2005). First, the participants received general information about the survey, including the study's relevance, goal, a summary of what will be asked of them, and the fact that participation is voluntary. In addition, the participants were informed about how we would utilize their responses for our research topics and how their data would be treated. Then the participants had to give consent to take part in the study in order to continue the survey. In the main part of the survey, the participants answered questions about seven different blocks: personal values, sustainable clothing, sustainable diet, sustainable consumption, corporate environmental responsibility, carbon offsets, and environmental policies. A complete version of the survey can be found in Appendix A.

Measurement

This section focuses on the specific part of the survey concerning sustainable clothing. In this study, I aimed to explore participants' personal norms (independent variable), social norms (independent variable), second-hand clothing consumption behaviour (dependent variable), and age (moderator variable). Before participants answered questions related to these variables, they were provided with the following: 'In this second section, we are interested in what you think about buying second-hand clothing.' Personal norms (M = 2.55, SD = 1.42) were assessed using a 6-point Likert scale (1 = *Not obligated at all*, 2 = *Not obligated*, 3 = *Slightly not obligated*, 4 = *Somewhat obligated*, 5 = *Obligated*, 6 = *Strongly obligated*), where participants indicated their level of personal obligation to buy second-hand clothing. Social norms (M = 2.81, SD = 1.33) were measured by asking participants to rate how much they felt people close to them (e.g., family, friends) considered it important to buy second-hand clothing. This was also assessed using a 6-point Likert scale (1 = *Not important at all*, 2 = *Not important*, 3 = *Somewhat unimportant*, 4 = *Somewhat important*, 5 = *Important*, 6 = *Very important*). Lastly, the second-hand clothing consumption behaviour (M = 2.00, SD = 0.97) was measured by asking participants to indicate how often they purchased second-hand clothing using a 5-point Likert scale (1 = *Never*, 2 = *Sometimes*, 3 = *About half the time*, 4 = *Most of the time*, 5 = *Always*). In addition to these variables, I considered age as a moderator. At the beginning of the survey, participants were asked to indicate their age in numbers (M = 39.41, SD = 18.28), ensuring that age data were collected to facilitate the analysis of the moderating effect.

Data Analysis

The collected data underwent data cleaning procedures to ensure data accuracy and integrity. Descriptive statistics were calculated to provide a summary of the variables of interest.

Two simple regression analyses were performed to examine the direct effects of personal and social norms on second-hand clothing consumption behaviour. Two multiple regression analyses with interaction terms were conducted to investigate the interaction effects between personal norms, social norms, and age on second-hand clothing consumption behaviour. The analyses were performed using centered variables to minimize multicollinearity and improve the interpretability of the results. Assumptions for two simple linear and one multiple linear regression models were assessed, including normality, homoscedasticity, multicollinearity, and linearity. The normality assumption was met for all variables. The assumption checks can be found in Appendix B.

Instruments

The survey was constructed using the software Qualtrics (Qualtrics, 2005), and participants accessed the survey through a provided weblink. Prior to data collection, a power analysis was performed using *GPower 3.1* (Faul et al., 2009; Faul et al., 2007). The statistical analysis was conducted in SPSS Statistics 28.

Results

Correlations

At first, I looked at the correlation between second-hand clothing consumption behaviour and age to get a general overview of whether there are differences between ages. The correlation suggests a weak negative relationship between second-hand clothing consumption behaviour and age and is statistically significant (r = -.20, 95% CI [-0.36, 0.03], p = .03), suggesting that older individuals are less likely to engage in second-hand clothing consumption compared to younger individuals. The correlation between injunctive social norms and second-hand clothing consumption behaviour shows a moderate positive relationship (r = .47, 95% CI [-0.31, 0.60], p

< .001), suggesting that individuals with higher injunctive social norms towards sustainable clothing are more likely to engage in second-hand clothing consumption. The relationship between personal norms and second-hand clothing consumption behaviour shows a strong positive relationship (r = .64, 95% CI [0.52, 0.73], p < .001), indicating that individuals with higher personal norms towards sustainable clothing are more likely to engage in second-hand clothing consumption. I further examined the relationship between injunctive social norm, personal norm and age. The correlation shows a non-significant relationship between injunctive social norm and age (r = -.10, 95% CI [-0.28, 0.07], p = .23). Similarly, there is also a non-significant relationship between personal norm and age (r = -.12, 95% CI [-0.29, 0.06], p = .18).

Examination of Hypotheses

A simple linear regression analysis was conducted to investigate whether the higher the injunctive social norm of the consumer, the more likely they are to engage in second-hand clothing consumption (H_1). The analysis of the coefficient table revealed a significant positive relationship between injunctive social norms and second-hand clothing consumption behaviour (b = 0.34, $t(126)$ = 5.87, p < .001), suggesting that, on average, for each one-unit increase in social norms, there is a 0.342-unit increase in engagement to buy second-hand clothing. These findings provide strong support for the first hypothesis. Consumers with higher injuncitve social norms are more likely to engage in second-hand clothing consumption.

For the second hypothesis, a simple linear regression analysis was conducted to examine whether the higher the personal norms of the consumer, the more likely they are to engage in second-hand clothing consumption (H_2). The analysis of the coefficient table revealed a significant positive relationship between personal norms and second-hand clothing behaviour (b

= 0.44, $t(126) = 9.25$, $p < .001$), suggesting that, on average, for each one-unit increase in personal norms, there was a 0.44-unit increase in engagement to buy second-hand clothing. Overall, these results provide strong support for the second hypothesis. Consumers with higher personal norms are more likely to engage in second-hand clothing consumption.

The third hypothesis was tested through a multiple linear regression with interaction and centered variables to examine the relationship between social norms, age, and second-hand clothing consumption behaviour (H_3). The model summary indicated that 24% of the variance in second-hand clothing consumption could be explained by the predictors ($F(3, 122) = 13.10$, $p < .001$). However, the interaction effect between social norms and age is not statistically significant ($b = -0.003$, $t(126) = -0.79$, $p = .431$). This suggests injunctive social norms do not have a stronger positive effect on second-hand clothing behaviour for younger consumers than older consumers.

Lastly, the fourth hypothesis was examined through a multiple linear regression with interaction and centered variables to examine the relationship between personal norms, age, and second-hand clothing consumption behaviour (H_4). The model summary revealed that a 44 % of the variance in second-hand clothing consumption could be explained by the predictors ($F(3, 122) = 30.91$, $p < .001$). However, the interaction term between personal norms and age is not statistically significant ($b = -0.003$, $t(126) = -1.32$, $p = .19$). This suggests personal norms do not have a stronger positive effect on second-hand clothing behaviour for older consumers than younger consumers.

Discussion

The aim of this study was to examine the relationships between personal norms, injunctive social norms, age, and second-hand clothing consumption behaviour. The findings aim

to provide insights that can be used to develop strategies to promote sustainable behaviour during the transition to net-zero. Previous studies have shown social norms may have different impacts on pro-environmental behaviour depending on an individual's age. Because personal norms and injunctive social norms have been found to influence pro-environmental decisions, including buying environmentally friendly products and sustainable consumption options (Onwezen et al., 2013; Kleinhückelkotten & Neitzke, 2019), the research question of how personal norms, social norms, and age contribute to second-hand clothing consumption behaviour was investigated.

Social Norms

The first hypothesis investigated whether the higher the injunctive social norm, the higher the second-hand clothing consumption. In this study, results showed that injunctive social norms were positively associated with second-hand clothing consumption behaviour, supporting H_1. When comparing these findings with existing literature, I found support for the role of social norms in influencing sustainable clothing consumption behaviour. For example, Kleinhückelkotten & Neitzke (2019) found that social norms positively impact consumer behaviour and promote sustainable choices in clothing consumption. Similarly, other studies demonstrated the significance of injunctive social norms in motivating sustainable fashion consumption, emphasizing the role of social influence in encouraging ethical and environmentally friendly choices (Hassan et al., 2016; Hassan et al., 2022; Pristl et al., 2020).

The results of this study have theoretical implications that build upon the frameworks established in the field of sustainable consumer behaviour. The positive relationship between injunctive social norms and engagement in sustainable clothing consumption aligns with theories such as the theory of normative social behaviour (Rimal & Real, 2005) and the social identity theory (Turner & Tajfel, 1979). According to the theory of normative social behaviour (Rimal &

Real, 2005), individuals' behaviour is shaped by their perceptions of what others think they should do and their motivation to conform to these perceived norms. Social norms can create a sense of collective responsibility and social pressure to engage in purchasing second-hand clothing. Moreover, the social identity theory (Turner & Tajfel, 1979) suggests that individuals derive their sense of self and social identity from their membership in specific groups. When individuals identify strongly with a group that values sustainability and environmentally conscious behaviour, they are more likely to conform to the group's norms and engage in second-hand clothing consumption.

Personal Norms

The second hypothesis was that the higher the personal norms, the higher the second-hand clothing consumption. Higher personal norms were positively associated with a greater likelihood of engaging in second-hand clothing consumption, providing evidence for H_2. Previous research emphasized the influential role of personal norms in shaping sustainable clothing behaviours (Hassan et al., 2022). Similarly, Hwang et al. (2015) found that moral obligation positively influenced purchase intentions for apparel products with corporate social responsibility attributes, such as being organic, fair trade, and recyclable. Other studies showed that personal norms were positively associated with purchasing intentions, indicating that personal norms likely play a role in influencing consumers' behaviour towards sustainable clothing consumption (Hanss et al., 2016; Pristl et al., 2020; Joanes, 2019).

The findings of this study have theoretical implications, expanding upon existing theories and frameworks in the field of sustainable consumer behaviour. The positive relationship between personal norms and engagement in second-hand clothing consumption found in this study aligns with the theory of the norm-activation model (Schwartz, 1977) and the theory of

planned behaviour (Ajzen, 1991). According to the norm-activation model, individuals' personal norms, which include their internalized values and beliefs, operate as motivational factors that activate pro-environmental behaviour. The findings contribute to the theory by demonstrating how personal norms relate to engagement in second-hand clothing consumption, and emphasising the importance of the application of the norm-activation model within the context of sustainable fashion choices. Similarly, the theory of planned behaviour states that individuals' behavioural intentions are shaped by their attitudes, subjective norms, and perceived behavioural control. In line with this theory, the positive relationship between personal norms and second-hand clothing consumption behaviour observed in this study suggests that individuals with stronger personal norms towards sustainable consumption are more likely to form favourable attitudes and intentions towards engaging in second-hand clothing consumption.

Social Norms and Age

The third hypothesis included the moderator variable age and investigated whether the younger the consumer, the higher the injunctive social norm for engaging in second-hand clothing consumption. However, no significant interaction effect between injunctive social norms and age was found, suggesting that the impact of injunctive social norms on second-hand clothing consumption behaviour does not significantly vary based on age. Therefore, H_3 was not supported.

While the current study did not find a significant moderating effect of age on the relationship between social norms and second-hand clothing consumption behaviour, these findings differ from previous research, emphasizing the need for further exploration and potential contextual variations in the influence of age on injunctive social norm effects. A meta-analysis conducted by Melnyk et al. (2019) suggests that age might have a moderating effect on the

impact of social norms on consumer behaviour. Older individuals tend to be less influenced by social norms, while younger individuals showed a higher tendency for conformity (Melnyk et al., 2019).

The inconsistency between this study and previous research could be attributed to several possible reasons. Firstly, it is important to consider the context and sample characteristics of this study, as they may differ from those of Melnyk et al.'s (2019) meta-analysis. In the study of Melnyk et al. (2019), a meta-analysis approach was used with a large sample consisting of 220 papers and 297 studies, including 110,303 individual respondents. The sample was diverse in terms of age and gender, while in this study we had a smaller sample size of 126 participants. These differences in sample characteristics can potentially affect the generalizability and external validity of this study's findings compared to Melnyks et al.'s (2019) study. The previous study collected data from several sources, including electronic databases, meta-analyses, resource centers, and personal requests. In contrast, this study used a convenience sample from an online survey distributed through social media and by asking people in person. This difference in data collection methods could impact the representativeness of the samples. Melnyks et al.'s (2019) study focused specifically on social norms related to consumer behaviour, while in this study, I investigated personal norms and social norms in the context of sustainable clothing consumption. Both studies explored the influence of norms, but differed in the specific behavioural domain being investigated, which could affect the comparability of the findings. Furthermore, this study focused on the influence of social norms on second-hand clothing consumption, but other variables such as attitudes, beliefs, or perceived bahvioural control might interact with social norms in shaping second-hand clothing consumption behaviour. Drawing from the theory of

planned behaviour, it is possible that these factors may interact with social norms to shape individuals' engagement in sustainable clothing choices.

Personal Norms and Age

The fourth hypothesis took age into consideration and investigated whether the older the consumer, the higher the personal norms when it comes to engaging in second-hand clothing consumption. However, no significant interaction effect between personal norms and age was found, suggesting that the impact of personal norms on second-hand clothing consumption behaviour does not significantly vary based on age. Therefore, H_4 was not supported.

Possible explanations for this non-significant interaction could include other factors beyond age that might contribute to the formation of personal norms when engaging in second-hand clothing consumption. Variables, such as environmental awareness, may also play a significant role in shaping personal norms, independently of age. The findings of Hassan et al. (2022) have taken environmental awareness into account, and the results revealed a strong positive relationship between environmental awareness and sustainable fashion consumption. Conducting further studies that take environmental awareness into account will strengthen the research. This study's findings suggest that in the specific context of this research, age may not be a significant moderator of the relationship between personal norms and second-hand clothing consumption behaviour.

In summary, the findings supported the positive association between injunctive social norms and second-hand clothing consumption, as well as the positive relationship between personal norms and engaging in second-hand clothing consumption. These results are consistent with previous research and theoretical frameworks such as the theory of normative social behaviour, the norm-activation model, the theory of planned behaviour, and the social identity

theory. However, no significant interaction effects were found, suggesting that age may not significantly influence the impact of social norms or personal norms on second-hand clothing consumption behaviour. Overall, the findings contribute to the existing literature on sustainable fashion behaviour by supporting the role of injunctive social norms and personal norms in influencing second-hand clothing consumption behaviour. The findings also highlight the need for further exploration of the interrelationships between these variables and the potential impact of environmental awareness and other variables such as attitudes, beliefs, or perceived bahvioural control, providing valuable insights for both researchers and practitioners in the field of sustainable fashion.

Practical Implications

The significant positive effect of social norms on second-hand clothing consumption underscores the importance of using social influence to promote sustainable behaviour. Marketers and sustainability advocates can make use of the power of social norms by demonstrating the growing trend of second-hand clothing consumption and creating a sense of social desirability around it. Collaborations between clothing brands and influencers can involve events, social media campaigns, and workshops that promote the benefits of second-hand clothing. Encouraging peer influence, social comparisons, and social endorsements can help shape social norms and foster a culture of second-hand clothing consumption. Additionally, promoting education and awareness about the benefits of second-hand fashion can play a crucial role in shaping individuals' personal norms. By providing students with knowledge about the environmental impact of the fashion industry and emphasizing the benefits of second-hand clothing, institutions can empower future designers, marketers, and consumers to develop strong personal norms towards sustainable fashion choices. People can develop a greater understanding

of the social and environmental effects of their clothing consumption habits, which may inspire them to make more environmentally friendly fashion choices. Students who are exposed to information about the benefits of second-hand clothing and the social acceptability of engaging in such behaviour are more likely to perceive second-hand fashion as a normative behaviour within their social circles. This would create a positive feedback loop, as the presence of strong social norms can further reinforce individuals' personal norms towards second-hand clothing consumption.

The positive relationship between personal norms and second-hand clothing consumption behaviour suggests that interventions and marketing strategies should focus on appealing to individuals' personal norms related to sustainable fashion. Policymakers can play a significant role by implementing policies that align with and reinforce these personal norms. One potential approach is to provide tax benefits or incentives for second-hand clothing retailers. By doing so, policymakers can contribute to the normalization and social acceptance of second-hand clothing consumption, aligning with the social norms of sustainable fashion. By demonstrating consumers that buying second-hand clothing is a valued and socially responsible behaviour, these incentives may help them develop personal norms that support choosing second-hand clothing.

Limitations and Future Research

First, it is important to acknowledge that the study used a convenience sampling method, which may limit the representativeness of the findings. The majority of participants in this study were from WEIRD countries, primarily from Dutch and German backgrounds. Therefore, the generalizability of the findings to other cultural and socioeconomic contexts is difficult to determine. While the study provides valuable insights into the relationship between personal norms, injunctive social norms, and second-hand clothing consumption, future research should

aim to include a more diverse range of regions, cultures, and socioeconomic backgrounds. Factors such as generational values, and lifestyle preferences may interact with age to influence individuals' decisions regarding second-hand clothing consumption. Considering the potential variations in cultural norms and social structures, future research should explore how personal norms, social norms, and age interact to influence second-hand clothing consumption in diverse populations. By including participants from various regions and cultural backgrounds, researchers can uncover the contextual factors that shape individuals' attitudes, perceptions, and behaviours towards second-hand fashion.

Another important aspect to consider is the role of cultural influences on second-hand clothing consumption. Cultural norms may influence individuals' attitudes and perceptions towards second-hand clothing, as well as their willingness to engage in sustainable consumption. In some cultures, there may be a strong emphasis on the pursuit of new fashion trends, which could potentially deter individuals from considering second-hand clothing options. Other cultures may place a higher value on sustainability, therefore promoting the acceptance and adoption of second-hand fashion. Therefore, future research should delve into the role of cultural norms in shaping second-hand clothing consumption patterns by investigating cultural differences and the influence of cultural norms regarding second-hand clothing behaviour. This could be done through qualitative research methods, such as interviews to understand the individuals' subjective experiences related to second-hand clothing behaviour within different cultural contexts.

Moreover, the data collection for this study relied on self-report measures, which are subject to potential social desirability bias or recall bias. Participants may have provided responses that they believed were socially desirable or may have inaccurately recalled their

behaviour or attitudes related to second-hand clothing consumption. Future research should consider incorporating additional methods, such as observational data or objective measurements of second-hand clothing consumption, to provide a more accurate assessment of the participants' behaviour.

Additionally, one potential moderator that could be explored in future research is environmental awareness, as it may shape social and personal norms related to sustainable fashion consumption. By being aware of the environmental impact of the fashion industry, individuals may develop a stronger personal norm to engage in sustainable fashion practices, which in turn can shape their social norms and influence their likelihood of consuming second-hand clothing. Researchers can gain a better understanding of how individuals' awareness of environmental issues influences their adoption of second-hand clothing consumption behaviour. The findings of Hassan et al. (2022) have taken environmental awareness into account, and the results revealed a strong positive relationship between environmental awareness and sustainable fashion consumption. Conducting further studies that take environmental awareness into account will strengthen the research. Future research can explore individuals different levels of environmental awareness through surveys, experimental designs, or qualitative research methods that explore individuals' motivations, attitudes, and behaviours towards second-hand clothing.

Conclusion

In conclusion, this thesis explored the influence of personal norms, injunctive social norms, and age on second-hand clothing consumption behaviour. The findings of this study showed that both personal norms and injunctive social norms positively influence second-hand clothing consumption behaviour. However, age did not show a significant effect on personal and

social norms in relation to second-hand clothing consumption, suggesting that age may not be a significant factor in influencing norms related to second-hand clothing behaviour. Future research should consider selecting participants from a wider variety of countries, cultures, and socioeconomic backgrounds to allow for a more diverse and representative sample. Additionally, incorporating additional measures and exploring other potential moderators, such as environmental awareness, would increase our understanding of how age, injunctive social norms and personal norms interact in the context of second-hand clothing choices. By clarifying the underlying factors that influence people's decisions to purchase second-hand clothing, this study adds to the body of knowledge already existing. These findings align with previous research and theoretical frameworks such as the theory of normative social behaviour, the norm-activation model, the theory of planned behaviour, and the social identity theory. Moreover, the insights gained from this study have practical implications for various stakeholders involved in promoting sustainable fashion. By using the influence of personal and social norms, interventions can be designed to encourage individuals to embrace second-hand clothing consumption. These interventions may include educational awareness campaigns, policy initiatives, and collaborative efforts within the fashion industry. By collectively working towards sustainable fashion options, individuals can contribute to reducing the environmental impact of the fashion industry and strive towards a net-zero transition.

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Appendix A

Survey

English

INFORMATION ABOUT THE RESEARCH

"Promoting sustainable behaviour and policy support in net-zero transition"

PSY-2223-S-0346

Why do I receive this information?

You are invited to participate in this research on sustainable behaviour. We provide you with this information to inform you about the extent, purpose, and content of this survey. Based on this, you can decide whether you would like to participate in the survey, or not. This research is conducted as part of the Bachelor thesis of Roeli Huisma, Iris Groot, Jorrit van der Wal, Antonia Karp and Vincent Haller under supervision of Chieh-Yu Lee of the Faculty of Behavioural and Social Sciences at the University of Groningen. On the basis of a checklist developed by the EC-BSS at the University of Groningen, the study was exempt from full ethical review.

Do I have to participate in this research?

Participation in the research is voluntary. However, your consent is needed. Therefore, please read this information carefully. Ask all the questions you might have, for example, when you do not understand something. Only afterwards you will decide if you want to participate. If you decide not to participate, you do not need to explain why, and there will be no negative consequences for you. You have this right at all times, including after you have consented to participate in the research.

Why this research?

To reduce the global temperature increase and accelerate towards a sustainable future, multiple systems must be changed. These transitions will imply lifestyle changes for individuals and strongly depend on people's support and behaviour change. In the current research, we want to know what motivates people to adopt sustainable behavior and support climate change policies.

What do we ask of you during the research?

Firstly, you are asked for your consent to participate in this research. After your consent, you will be redirected to the questions of the survey. In the survey, we will ask about your demographic characteristics, for example, age, gender, and nationality. We then ask you a series of questions about your perception and opinions regarding a few sustainable behaviours, including diets, clothing, flying and policy support. In the survey,

you will read a small text about one of the two scenarios describing the shop where you are going to buy your clothes and answer a few questions afterwards. In the final section, you will also read another small text about one of the two policies describing how to allocate the climate costs and then we will ask your opinions about it. There is no right or wrong answer for each question. Please provide the answers that fit your opinion best. The survey takes approximately 5-10 minutes to complete. No monetary compensation is provided for filling out the survey. If you are recruited from the SONA-system, you will be granted credits based on the criteria set by SONA-system.

What are the consequences of participation?

We expect no negative consequences occurred during the participation. However, if you experience any discomfort or negative effects, you can always stop participating by closing the browser. You can also reach out to one of the researchers by email.

How will we treat your data?

Your data will only be used for educational purposes in writing five Bachelor theses and will not be published. Data will be digitally processed and analysed by the research team. They will process and analyse your data confidentially on a computer or laptop with password protection. All data is collected anonymously. This data will be used until the first of August 2023 and archived for 10 years in the university server according to the protocol of Faculty of Behavioural and Social Science at the University of Groningen. If you are recruited from the SONA-

system, your SONA-ID will be separated from the research data for assigning the course credit and will be deleted soon after the credit has been given, approximately around 1-2 weeks after the data collection. The research team will make sure that the research data cannot be traced back to individual students.

What else do you need to know?

You may always ask questions about the research: now, during the research, and after the end of the research. You can do so by emailing one of the researchers involved:

Roeli Huisma: r.huisma@student.rug.nl
Vincent Haller: v.m.haller@student.rug.nl
Jorrit van der Wal: j.r.van.der.wal.1@student.rug.nl
Iris Groot: i.g.groot@student.rug.nl
Antonia Karp: a.karp@student.rug.nl

Or the supervisor Chieh-yu Lee: c.y.lee@rug.nl

Do you have questions/concerns about your rights as a research participant or about the conduct of the research? You may also contact the Ethics Committee of the Faculty of Behavioural and Social Sciences of the University of Groningen: ec-bss@rug.nl.

As a research participant, you have the right to a copy of this research information.

- I have read the information about the research. I have had enough opportunities to ask questions about it.
- I understand what the research is about, what is being asked of me, which consequences participation can have, how my data will be handled, and what my rights as a participant are.
- I understand that participation in the research is voluntary. I myself choose to participate. I can stop participating at any moment. If I stop, I do not need to explain why. Stopping will have no negative consequences for me.
- Below I indicate what I am consenting to.

Consent to participate in the research:

◯ Yes, I consent to participate

◯ No, I do not consent to participate

English

Thank you for consenting to participate.
This survey will be divided into six section. In this first section, we would like to ask your demographics.

1. Which gender do you identify with?

- ○ Man
- ○ woman
- ○ Non-binary / others
- ○ Prefer not to say

2. How old are you?

16 24 33 41 50 58 66 75 83 92 100

Age

3. What is your nationality?

- ○ Dutch
- ○ German
- ○ Other

English

Below you will find brief descriptions of different people. For each person, we describe what is very important to them. Please read each description carefully and indicate **how much this person is like you**.

The meaning of the scores is as follows: 1 means that the person is totally not like you, 7 means that the person is totally like you. The higher the score, the more the person is like you.

	Totally not like me 1	2	3	4	5	6	Totally like me 7
It is important to him to prevent environmental pollution	○	○	○	○	○	○	○
It is important to him to protect the environment	○	○	○	○	○	○	○
It is important to him to respect nature	○	○	○	○	○	○	○
It is important to him to be in unity with nature	○	○	○	○	○	○	○

English

In this second section, we are interested in what you think about buying second-hand clothing.

How much do you feel personally obligated to buy second-hand clothing?

Not obligated at all	Not obligated	Slightly not obligated	Somewhat obligated	Obligated	Strongly obligated
○	○	○	○	○	○

How much do you feel that people close to you (e.g. family, friends) think it is important to buy second-hand clothing?

Not important at all	Not important	Somewhat unimportant	Somewhat important	Important	Very important
○	○	○	○	○	○

English

In the third section, we would like to ask you some questions about your diet.

What is a sustainable diet?

Sustainable diet means that we eat in the way so that the environment is protected and there would be enough healthy food for everyone on the planet.

Please answer the following questions concerning sustainable diet that fit you best.

How often do you communicate about a sustainable diet in your peer group?

Never or almost never	Rarely	Sometimes	Often	Very often
○	○	○	○	○

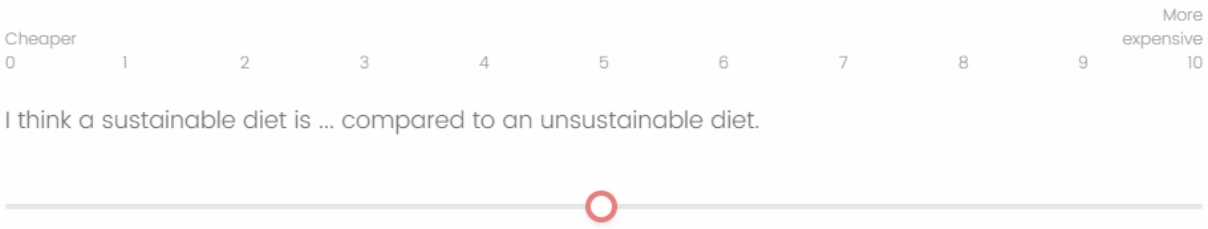
Note for below: ordering of options is randomized

For different diet options, how expensive do you think they are?
Please order the diet options below. The most expensive should be at the top.

- Vegan diet
- Vegetarian diet
- Flexitarian diet (eating generally vegetarian, but every once in a while also meat or fish)
- Omnivore diet (eating everything)

How expensive do you think a sustainable diet is in comparison to an unsustainable diet?

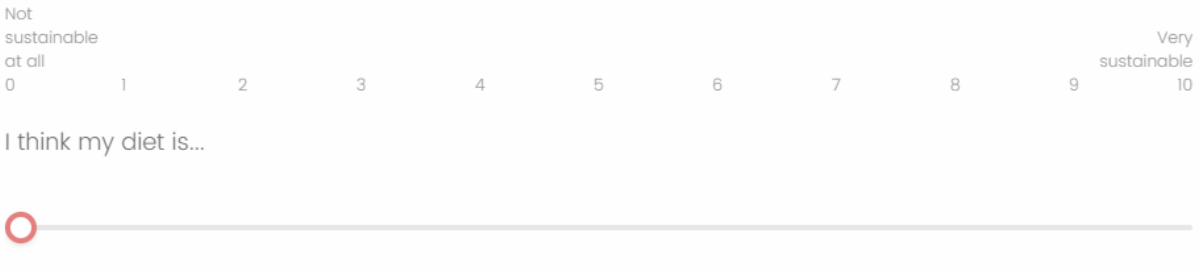
For example: if you think a sustainable diet is **more expensive** than an unsustainable diet, then your answer would be more on the **right** side of the scale. If you think a sustainable diet is **cheaper** than an unsustainable diet, then your answer would be more on the **left** side of the scale.

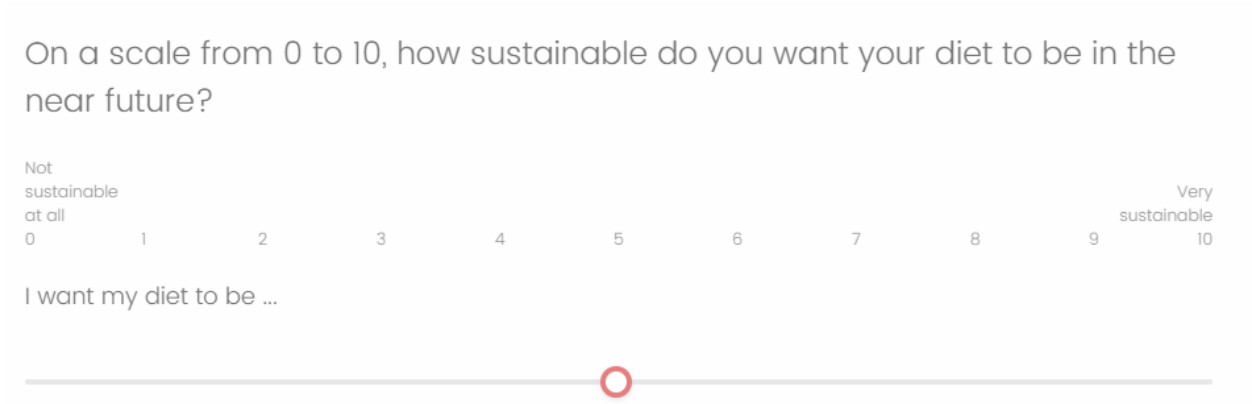


How much do you agree to the following statement: I think that a sustainable diet is too expensive.

Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
○	○	○	○	○	○	○

On a scale from 0 to 10, how sustainable is your diet?




On a scale from 0 to 10, how sustainable do you want your diet to be in the near future?
Not sustainable at all
Very sustainable
0 1 2 3 4 5 6 7 8 9 10
I want my diet to be ...

English

In this fourth section, we are interested in what you find important concerning sustainable consumption in general.

On a scale from 0 to 100, how much do you agree with the following statement?

Strongly disagree 0 | Neither agree nor disagree 50 | Strongly agree 100

In the near future, I want to buy and consume more environmentally friendly

English

Now you are going to read a text about shopping in one of the clothing stores. Please read the following text carefully and imagine you are a customer of the clothing store.

Nestled in the heart of a bustling shopping district lies Clothing Store X, which has become a favourite destination for customers who care about fashion. From the moment you step inside the store, you're greeted with a warm welcome from the staff, who are eager to help you find what you're looking for.

The store offers a wide range of styles, from casual to formal wear, with an emphasis on quality fabrics and attention to detail. You notice that the other customers are enjoying their shopping experience, chatting amongst themselves and exchanging style tips. At the checkout, you'll find that the prices are reasonable, given the high quality of the clothing.

In short, shopping at Clothing Store X is an enjoyable experience. With its wide range of styles, personalized attention, and commitment to quality, it's no wonder that so many people keep coming back for more.

English

Now you are going to read a text about shopping in one of the clothing stores. Please read the following text carefully and imagine you are a customer of the clothing store.

Nestled in the heart of a bustling shopping district lies Clothing Store X, which has become a favourite destination for customers who care about the environment. From the moment you step inside the store, you're greeted with a warm welcome from the staff, who are eager to help you find what you're looking for.

The store offers a wide range of clothes, made from sustainable materials, including organic cotton, recycled polyester, and bamboo. You notice that the other customers in the store are sharing their shopping experience, chatting amongst themselves and exchanging style tips. At the checkout, you'll find that the prices are reasonable, given the high quality of the clothing and the company's commitment to sustainability.

In short, shopping at Clothing Company X is an enjoyable experience. With its wide range of clothes made with sustainable materials and commitment to sustainability, it's no wonder that so many people keep coming back for more.

English

Please indicate how much you agree with the following statements.

	Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly agree
After reading the text, I can see myself shopping at Clothing Store X	○	○	○	○	○	○	○

Clothing Store X finds taking care of the environment important and strives to minimize its negative impact on the environment	○	○	○	○	○	○	○
Other customers of Clothing Store X value the environment	○	○	○	○	○	○	○

On a scale from 0 to 100, how much do you agree with the following statement?

Strongly disagree 0 — Neither agree nor disagree 50 — Strongly agree 100

After this shopping experience, I will buy and consume more environmentally friendly in the near future

English

In this next section, we are interested in your opinions about carbon offsets, especially when taking a flight.

Flying produces huge amount of greenhouse gas (GHG) emissions and causes harmful effects to our environment. Recently, a new policy called "**carbon offsets**" was offered to airlines to compensate for their negative effects on the climate by reducing their emissions through another way.

For example, when you take a flight from Amsterdam to Barcelona, you can choose to offset the carbon emissions from your flight by paying the money (around €10-€20 per person) so that the airline will invest in a non-profit organization for renewable energy.

How much do you feel personally obligated to protect our environment?

Not obligated at all — Strongly obligated

0 1 2 3 4 5 6 7 8 9 10

I feel I am ... to protect our environment

How much do you care about other people's (e.g. family, friends) opinions about whether you act pro-environmentally?

Not at all A little A moderate amount A lot A great deal
0 1 2 3 4 5 6 7 8 9 10

I care...

When thinking about going on holiday by taking a flight, I feel...

Never Sometimes moderately Strongly Massively
0 1 2 3 4 5 6 7 8 9 10

Guilt

Shame

Now you are going on a holiday in Europe by flight.
How likely will you pay for carbon offsets (around €10-€20 per person) to compensate for the emissions?

Extremely unlikely Somewhat unlikely Neither likely nor unlikely Somewhat likely Extremely likely
0 1 2 3 4 5 6 7 8 9 10

I will ... pay for a carbon offsets.

English

In this final section, we are interested in what you think about who has to pay to help counteract climate change.
There are several ways to mitigate and adapt to climate change. However, we need to decide who has to pay for these measures. One type of the policies is to make sure **people have individual responsibility and existing rights.** For example, people whose house was damaged by flooding have to pay for the repair themselves. Another example is that everyone has to pay an equal carbon tax to the government to compensate for the damages.

Please think about the policy mentioned above. If this policy was implemented, how would it affect you?

This policy would affect me...

Very negatively	Negatively	Somewhat negatively	It would not really affect me	Somewhat positively	Positively	Very positively
○	○	○	○	○	○	○

On a scale of 1 to 7, how much would you support climate policies based on this way of allocating the costs?
That is, everyone has to pay the same amount of money, regardless of their CO2 emissions. This money could be used to prevent the floods caused by climate change.

Strongly oppose	Oppose	Somewhat oppose	Neither support nor oppose	Somewhat support	Support	Strong support
○	○	○	○	○	○	○

On a scale of 1 to 7, how much responsibility do you think you have to help counteract climate change?

None at all						A great deal
○	○	○	○	○	○	○

English

In this final section, we are interested in what you think about who has to pay to help counteract climate change.
There are several ways to mitigate and adapt to climate change. However, we need to decide who has to pay for these measures. One type of the policies is to make sure those **who contribute more to climate change have to pay more.** For example, people emitting a lot of CO_2 by flying, eating meat or driving a polluting car have to pay more. On the other hand, those **who are already putting in a lot of work to adapt to climate change would pay less.** For example, people already insulating their house, not eating meat or not driving a car will pay less.

Please think about the policy mentioned above. If this policy was implemented, how would it affect you?

This policy would affect me...

Very negatively	Negatively	Somewhat negatively	It would not really affect me	Somewhat positively	Positively	Very positively
○	○	○	○	○	○	○

On a scale of 1 to 7, how much would you support climate policies based on this way of allocating the costs?
That is, those who emit more CO_2 have to pay more money than those who emit less CO_2. This money could be used to prevent the floods caused by climate change.

Strongly oppose	Oppose	Somewhat oppose	Neither support nor oppose	Somewhat support	Support	Strong support
○	○	○	○	○	○	○

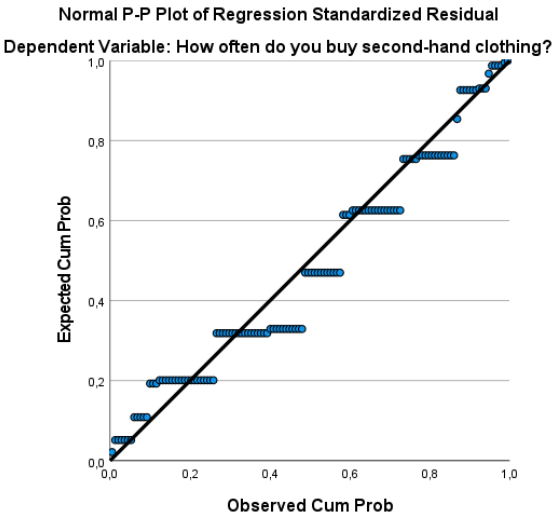
On a scale of 1 to 7, how much responsibility do you think you have to help counteract climate change?

None at all						A great deal
○	○	○	○	○	○	○

Appendix B

Figure B1

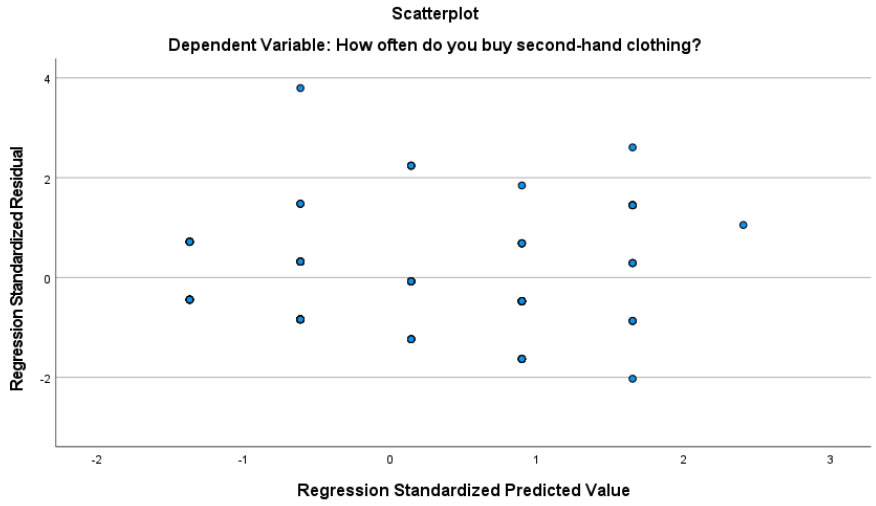
Assumption Normality Simple Linear Regression Analysis (Social Norms)



Source: SPSS

Figure B2

Assumption Homoscedasticity Simple Linear Regression Analysis (Social Norms)



Source: SPSS

Figure B3

Assumption Multicollinearity Simple Linear Regression Analysis (Social Norms)

Model		Unstandardized	SE[a]	p	VIF
H_1	(Intercept)	1.040	0.181	< .001	
	Soc_N[b]	0.342	0.058	< .001	1.000

[a] SE = Standard error.

[b] Soc_N= Social Norm (How much do you feel that people close to you (e.g. family, friends) think it is important to buy second-hand clothing?)

Source: SPSS

Figure B4

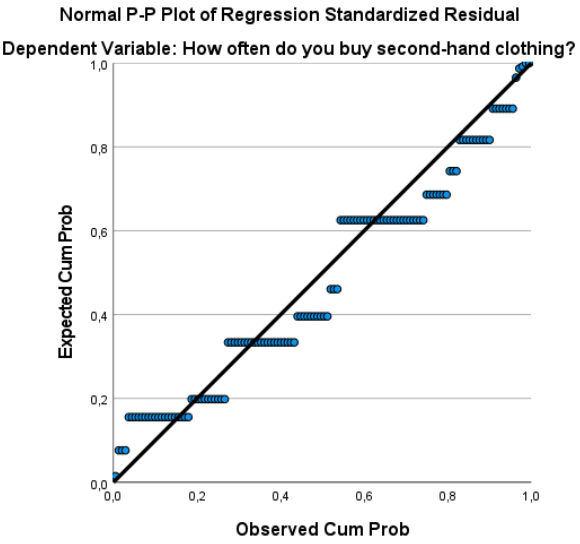
Assumption Linearity (Social Norms)

		Unstandardized	F	p
How often do you buy second-hand clothing? * How much do you feel that people close to you (e.g. family, friends) think it is important to buy second-hand clothing?	Between Groups	(combined)	9.777	<.001
		Linearity	36.689	< .001
		Deviation from Linearity	3.049	.020

Source: SPSS

Figure B5

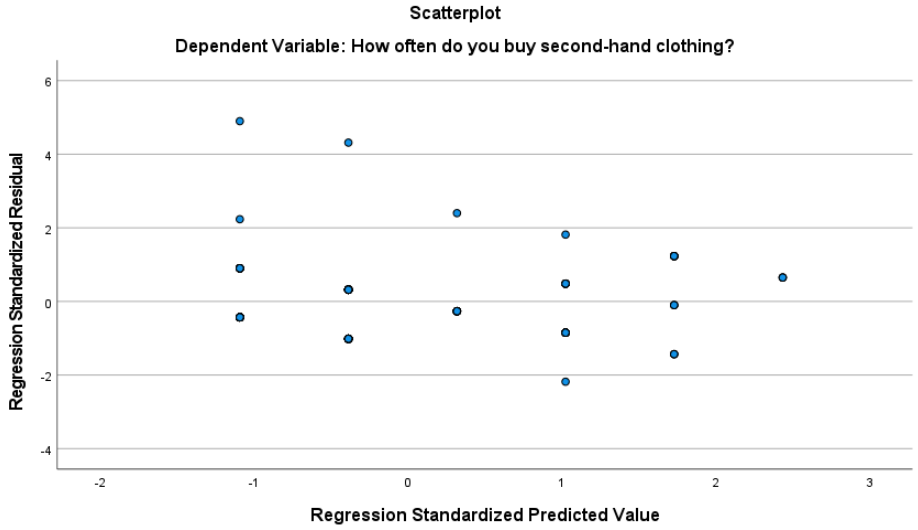
Assumption Normality Simple Linear Regression (Personal Norms)



Source: SPSS

Figure B6

Assumption Homoscedasticity Simple Linear Regression Analysis (Personal Norms)



Source: SPSS

Figure B7

Assumption Multicollinearity Simple Linear Regression Analysis (Personal Norms)

Model		Unstandardized	SE[a]	p	VIF
H_1	(Intercept)	0.884	0.181	< .001	
	Pers_N[b]	0.438	0.047	< .001	1.000

[a] SE = Standard error.

[b] Pers_N= Personal Norm (How much do you feel personally obligated to buy second-hand clothing?)

Source: SPSS

Figure B8

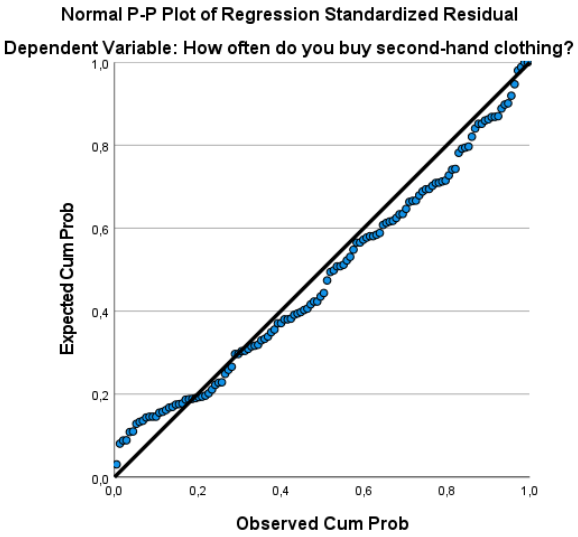
Assumption Linearity (Personal Norms)

		Unstandardized	F	p
How often do you buy second-hand clothing? * How much do you feel personally obligated to buy second-hand clothing	Between Groups	(combined)	18.985	<.001
		Linearity	87.730	< .001
		Deviation from Linearity	1.799	.133

Source: SPSS

Figure B9

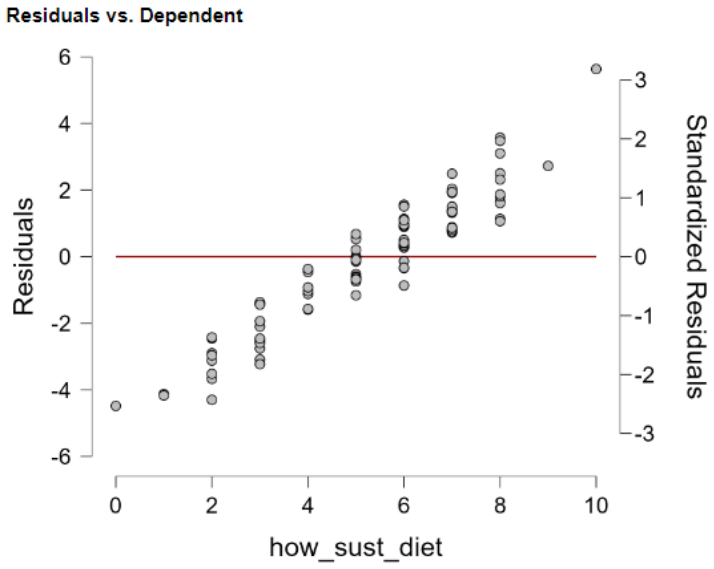
Assumption Normality Multiple Regression Analysis



Source: SPSS

Figure B10

Assumption Homoscedasticity Multiple Regression Analysis



Source: SPSS

Figure B11

Assumption Multicollinearity Multiple Regression Analysis

Model		Unstandardized	SE[a]	p	VIF
H_1	(Intercept)	1.067	0.229	< .001	
	Pers_N[b]	0.384	0.060	< .001	1.654
	Soc_N[c]	0.074	0.064	0.2509	1.650
	Age[d]	-0.006	0.004	0.080	1.017

[a] SE = Standard error.

[b] Pers_N = personal norms.

[c] Soc_N = social norms.

[d] Age = age.

Source: SPSS