

A Tale of Two Cookies

**A Tale of Two Cookies:
The Influence of Masculinity on
Consumer's Intention To Buy
Vegan (un)Labeled Unexpected Vegan Products**

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Abstract

This study investigated the impact of food labeling on the intention to buy unexpectedly vegan chocolate chip cookies, which has received limited research attention. The study was designed as a 2x2 between-subject experimental design, with participants ($N=219$) randomly assigned to either a vegan label (vs. no label) condition. Two hypotheses were tested: (1) vegan labeled chocolate chip cookies lead to higher buying intentions compared to the unlabeled ones, and (2) Participants scoring high on masculinity have a decreased intention to buy vegan labeled cookies than participants scoring low on masculinity, unlabeled cookies may remain unaffected. For testing the first hypothesis, an ANOVA was used, while for testing the second hypothesis, regression analysis was conducted. The study hypothesized that the vegan-labeled cookies would have a higher purchase intention as they could be perceived as more beneficial (e.g. healthier, environmentally friendly, and sustainable) and because of the increasing trend of veganism and awareness of animal welfare. Regarding the second hypothesis, it was suggested that vegan dieting might be perceived as a threat to masculinity. The study did not yield definitive findings due to the limited sample size, the diverse backgrounds of the participants, convenience sampling method, possible insufficient knowledge about the benefits of veganism, inaccurate measures of masculinity, or the lack of a realistic scenario. This study's results should be interpreted with caution, and further research regarding unexpected vegan products, vegan labeling, masculinity and intention to buy is recommended.

Keywords: unexpected, food labeling vegan, masculinity, intention to buy

In the past years, the number of vegans has been rising, and especially the consumption and production of vegan and vegetarian foods (Stremmel et al., 2022; Saari et al., 2021). Vegan dieting can be defined as avoiding the consumption of dairy and meat due ethical, environmental and health reasons (Green et al., 2010). Therefore, food labels are helpful by making grocery shopping easier by promoting transparency and guidance (European Vegetarian Union, 2023). However, food labels are not always present, and if they are, they could also bias the consumers perception of the product (Stremmel et al., 2022).

Researchers have shown an increasing interest in investigating the impact of vegan labeling on individuals' intention to buy, motivated by several factors. First, there is an increasing number of vegans, and growing demand for vegan products due to the growing interest in animal welfare, environmental sustainability and human health (Saari et al., 2021). Second, according to the food label theory, food labels could bias the perception of the food in positive and negative ways and influence the intention to buy (Stremmel et al., 2022). Possible risks for consumers and sellers are that both effects could create biased images of the food that are not true. Furthermore, the biased perception of claims and labels might lead to unhealthy over-consumption (Stremmel et al., 2022). A comprehensive understanding of the effect of food labeling might help to assess and adjust marketing strategies regarding vegan food labels, in order to maximize the appeal of certain products across a wider population. Besides, there is only little research on food labeling of unexpected vegan products alone (Stremmel et al. 2022), and in combination with masculinity on subsequent intention to buy. In the current paper, it will be investigated whether the presence of a vegan label (vs. No label) on an unexpected vegan chocolate chip cookie packaging has a significant effect on the intention to buy the cookies, and in a further step it will be investigated

whether the relationship between vegan label (vs. no label) and intention to buy is influenced by masculinity.

Vegan Food and Labels

Vegan means that a product does not contain any animal ingredients, nor that any ingredients are derived from animals during the production process (Stremmel et al., 2022). Vegan products can be divided into two categories: the first category intentionally mimics foods of animal origin, like vegan cheese, vegan meat or milk, and the other category is randomly vegan and does not purposely substitute animal ingredients (e.g cookies, gummy bears) (Stremmel et al., 2022). Labeling a food as vegan makes grocery shopping easier and promotes transparency and clarity (European Vegetarian Union, 2023). However, logos like fair trade, fair pay, vegan, vegetarian, low fat, gluten-free, heart healthy, organic could lead to biased impressions (Stremmel et al., 2022).

Biased impression of Food Labels

Stremmel et al., (2022) explains biased impressions by halo or horn effects. A *halo effect* is a cognitive bias that describes that, as a product seems more appealing, one will assign positive values to it (Stremmel et al., 2022), and a *horn effect* is a cognitive bias, meaning consumers assign negative attitudes toward the product (Thorndike, 1920). Attitudes are positive or negative evaluations towards a behavior (Ajzen, 1991). For example, if a fair trade label was present, it led people to perceive food as healthier (Berry & Romero, 2021). Or, if a vegan label was present it led people to perceive a product as healthier, more sustainable, more environmentally friendly and less tasty (Stremmel et al., 2022). Thus, consumers might be deceived in believing that a product is healthier, which might affect their intention to buy. Even

though a vegan label does not necessarily mean a product is indeed more healthy, it only communicates how the ingredients were derived (Stremmel et al. 2022).

Intention to buy

Buying intention is the degree of likelihood to which one will buy a certain product (Smith, 2021). The intention to buy is influenced by one's attitudes towards a product (Smith, 2021). Still, can attitudes be influenced by provided information and knowledge (Grunert et al., 2004). Intention to buy was influenced by horn and halo effects, and intention to buy appears to increase when the halo effect succeeded, and to decrease when a horn effect was visible (Stremmel et al., 2022).

Intention to buy Vegan labeled products

The intention to buy increased when a halo effect took place (Stremmel et al., 2022). This was noticeable in the study by Stremmel et al. (2022), where the vegan label led to an increased perception of healthiness and sustainability leading to an increased intention to buy (Stremmel et al. 2022). Moreover, were vegan labeled foods perceived as less tasty, indicating a horn effect leading to a decreased intention to buy (Stremmel et al. (2022). Nonetheless, these effects were only found for unexpected vegan products, which are products that are usually thought of to contain ingredients derived from animals, but did not (Stremmel et al., 2022).

Masculinity

Masculinity is a construct that is present in every society, but its influence and variation differ (Arrindell et al., 2013). Arrindell et al.'s (2013) cross-national study revealed that in countries where masculinity was high, traditional attitudes and behaviors about males and females existed more predominantly, causing stress that leads to mental and physical problems. Common attitudes and behaviors associated with high masculinity, or traditional masculinity,

are: competitiveness, successfulness, achievements, emotional restriction, decreased interest in health and self-assurance (Arrindell et al., 2013). Low masculinity however, was associated with femininity, which is defined by caring for others, improving quality of life, emphasizing less on being an outstanding individual in society, but liking what one does (Rothgerber, 2013; Kubberød, 2002). Furthermore, a study by Thomas (2016) suggested that individuals who want to maintain their high masculinity might engage in behaviors that ensure masculinity and avoid behaviors that might be perceived as less masculine.

Masculinity and Food Label theory

The decision to investigate masculinity as a component influencing intention to buy was based on previous studies highlighting its importance (Thomas, 2016; Sobal, 2005; Greenebaum & Dexter, 2018). Masculinity appears to be associated with meat consumption and the perception of vegan dieting (Thomas, 2016; Greenebaum & Dexter, 2018). In a study by Greenebaum & Dexter (2018), where 20 vegan men were surveyed, it was shown that negative attitudes regarding veganism were closely linked to high masculine characteristics such as: toughness, emotional restriction, resilience, not displaying empathy, sensitivity to talk about feelings. Furthermore, did traditional masculine predict a lack of remorse regarding consumption of meat and suffering of animals and was justified by the false belief that its consumption is healthy (Greenebaum & Dexter, 2018). Results show that the vegan men had less traditional masculine views which gives the impression that following a vegan diet might be determined by a degree of masculinity, rather than gender itself (Greenebaum & Dexter, 2018). Additionally, the consumption of meat, unhealthy, fatty and typical fast foods was associated with increased perceived masculinity (Thomas, 2016 & Sobal, 2005), as was masculinity proven by the consumption of animal products (Carroll et al., 2019). The findings of both studies are suggestive

of a *halo effect*, as positive attitudes towards these food items appeared to contribute to an enhanced perception of masculinity.

On the other hand, was following a vegan diet found to be associated with decreased perception of masculinity and was rather perceived as feminine (Thomas, 2016). Additionally, can the *horn effect* also be applied to the findings of Thomas (2016) as it was found that individuals with high masculinity tended to assign negative attributes to vegan products, which could be linked to a perceived decrease in masculinity. This may be because a vegan diet excludes two types of food that are typically associated with masculinity: high-fat items (such as butter, yogurt, cream, and cheese) and meat and could be perceived as a threat to masculinity (Thomas, 2016).

Present research and Relevance

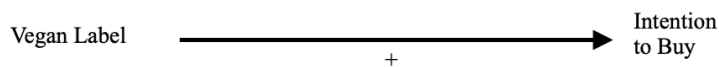
The aim of this study is to conduct an experiment that builds upon the existing research about vegan labeling on food perception and intention to buy. As suggested by Stremmel et al., (2022) the current study will investigate such effects in relation to unexpected vegan foods, as there only exists little to no research about unexpected vegan products. In addition, did Stremmel et al. (2022) suggest, to look into gender. However, it was decided to look into masculinity as it appears that vegan dieting appears to be more strongly associated with the degree of masculinity one possesses (Greenebaum & Dexter, 2018). The product of interest, in the current study, is a package of hedonic unexpectedly vegan chocolate chip cookies. A hedonic product, by definition, aims to serve fun and pleasure and is mostly unhealthy (Stremmel et al., 2022). The chocolate chip cookies will be either labeled as vegan or will not be labeled at all. Suggested by findings of Stremmel et al., (2022) the unexpected vegan chocolate chip cookies are expected to appear more attractive to the participants when labeled as vegan, compared to the unlabeled

cookies. This might be explained by the fact that the labeling could potentially enhance the overall appearance of the cookies by evoking perceptions of healthiness, sustainability, and environmental friendliness (Stremmel et al., 2022). The perceived attractiveness of these labeled cookies may also be explained by veganism being a trend, as well as the growing interest in animal welfare, and human health, which goes along with vegan dieting (Saari et al., 2021). Accordingly, the first hypothesis is formulated:

H1: The vegan labeled chocolate chip cookies lead to higher buying intentions compared to the unlabeled ones.

Figure 1

Conceptual Model



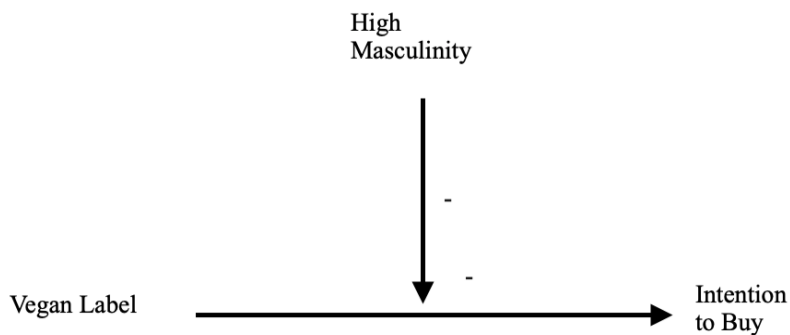
Additionally, will masculinity be explored, as it is expected that it will influence the relation between the vegan label (vs. No label) condition on intention to buy. In the context of this study, the term "high masculinity" will be used to denote the construct of traditional masculinity, while "low masculinity" will indicate a relatively weaker or negligible presence of traditional masculinity. Regarding the second hypothesis, the intention to buy vegan labeled chocolate chip cookies is expected to decrease for participants scoring high on masculinity. A possible explanation is that the vegan label might bias the perception of the chocolate chip cookies, overall, more negatively. For example, the cookies might be perceived as less tasty, more sustainable, more environmentally friendly and healthier (Stremmel et al. 2022). The cookies could be perceived as less masculine, and an instant threat to masculinity, as they do not

contain animal derived products, and because they might appear “overly healthy” (Thomas, 2016 & Arrindell et al., 2013). Moreover, does the reduction of meat consumption appear to be closely related to an environmental friendly and sustainable behavior. Thus, it is assumed that even though the vegan product might be perceived as more sustainable and environmentally friendly, it might rather lead to negative attitudes towards the chocolate chip cookies when labeled as vegan (Austgulen et al., 2018). Therefore, the second hypothesis is formulated as follows:

H2: Participants scoring high on masculinity have a decreased intention to buy vegan labeled cookies than participants scoring low on masculinity. For non-labeled vegan cookies masculinity does not influence intention to buy.

Figure 2

Conceptual Model



Method

Participants

The study was conducted by a group of third-year Bachelor students of the University of Groningen as a requirement to finish their Bachelor of Science. A convenience sample for this study, consisting mainly of the researchers' acquaintances, was used. The participants were surveyed through an online questionnaire. Out of 476 participants who started the survey, 240

participants completed the entire survey. 21 participants failed at least two attention check questions and were excluded. 219 valid responses remained for the analysis. The age of participants varied from 16 to 63 years ($M = 26.85$, $SD=10.36$). Of the participants, 33% identified as male, 66% as female, and 1% as other. 97.6% were European participants, 39.7% indicated their nationality as Dutch, 49.3% as German, and 8.6% from other European countries. 2.4% of the participants were Non-European participants. (E.g. American, Malaysian and Australian). Furthermore, 9.6% indicated that they follow a vegan diet, 19.2% a vegetarian diet, 37% a flexitarian diet, and 34.2% an omnivorous diet. Of the participants, 37% obtained a Bachelor's degree, 45.2% graduated from high school, 1.8% received a degree below the high school level, 14.2% obtained a Master's degree, and 4% received a degree higher than the available options. There were no specific requirements that the participants needed to fulfill except for buying cookies.

Procedure

The study has been approved by the Ethics Committee of Psychology of the Behavioral and Social Sciences of the University of Groningen. The data was acquired by administering an online Qualtrics survey in English, which was sent by the researcher to the participants via social media, and took the participant approximately 15 min to respond. Data was collected for seven days, commencing on Tuesday the 22nd of November, and participants were not offered any form of compensation for their participation.

At the beginning of the survey, the participants received a brief introduction about the purpose of the study, had to sign an informed consent, and were then randomly allocated to one of the four experimental groups (see Appendix B). Each participant had to look at the cookies packaging and subsequently answered various questions about intention to buy, willingness to

pay, monthly income, dietary identity, health consciousness, biospheric values and masculinity. At the end of the survey the participant filled in demographic information. The different topics were essential to six different bachelor's thesis. For this thesis, the independent variables: vegan label (vs. no label), and masculinity, and the dependent variable: intention to buy, were relevant. Masculinity served as a moderating variable between the label (vs. no label) condition and intention to buy.

Study Design and Materials

The study's research design was created to measure the effect of masculinity on the relation between vegan label (vs. no label), and intention to buy. For this experimental study, a 2x2 between-subject was used, which included two colors and the presence or absence of a vegan label. To label the product as vegan, the European-recognized vegan label will be used (see Appendix A). This led to four conditions: 1) brown packaging with the vegan label, 2) brown packaging without a label, 3) green packaging with a vegan label, and 4) green packaging without a label (see Appendix B). Participants were randomly assigned to one of the four conditions. The packaging color is irrelevant to this bachelor thesis. Therefore, participants were grouped by vegan label ($N = 118$) or no label ($N = 101$).

Manipulation checks

Four items, based on the study by Stremmel et al. (2022), served as manipulation checks to determine the effectiveness of the manipulation in the experimental design. The statements were rated on a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). The items were: "I think the chocolate chip cookies that were shown to me are healthier.", "I think the chocolate chip cookies that were shown to me are tastier.", "I think the chocolate chip cookies

that were shown to me are environmentally friendly." and, "I think the chocolate chip cookies that were shown to me are sustainable."

Intention to buy

Three statements based on Stremmel et al. (2022) were used to assess participants' intention to buy the cookies. A reliability analysis indicated good internal consistency with a standardized Cronbach's alpha of $\alpha = .78$. The statements were rated on a 7-point Likert scale (1 = *not at all* to 7 = *a lot*). The items were: "I would rather buy the chocolate chip cookies that were shown to me.", "I would buy the chocolate chip cookies that were shown to me in the near future." and "I plan to buy the chocolate chip cookies that were shown to me on regular basis."

Masculinity

Ten statements on masculinity were replicated in the study by Thompson and Pleck (1986). The statements assessed masculinity by rating phrases about status, norms and anti-femininity, resulting in one overall masculinity score. The participants had to rate ten statements on a 7-point Likert scale ranging from (1 = *strongly disagree* to 7 = *strongly agree*). The last statement was a reversed statement. The reliability analysis of the scales of the questions indicated good internal consistency with a standardized Cronbach's alpha of $\alpha = .76$. Items like: "A man owes it to his family to get the best-paying job he can get.", "Nobody respects a man very much who frequently talks about his worries, fears, and problems.", among others, were included. (See Appendix C for all statements).

Attention Checks

Attention checks were included to sort out unmotivated respondents who did not read the data correctly and could harm the research findings by not providing accurate and reliable data. Besides, they might introduce bias to the study. They consisted of three questions and were

incorporated into the questions of monthly income, health consciousness, and masculinity. The participant had to select once the option: "strongly disagree" and twice: "somewhat agree."

Results

Data Screening

The data was collected and downloaded from Qualtrics and opened in IBM SPSS version 29. Variables were recoded from string to numeric variables. As most of the topics included various statements, the recorded statements were grouped into one scale variable ending up with one score to make an analysis possible.

Preliminary Analysis

The manipulation check statements were analyzed using the one-way ANOVA for each of the four statements. The assumptions of normality of the residuals, independence of the observations, equal variances, and the absence of outliers to conduct this analysis were checked. No evidence of violations was found, and the analysis was continued. The first manipulation to see whether the participants perceived the cookies as healthier failed and was not statistically significant for the no label ($M = 3.35$, $SD = 1.35$) and the label condition ($M = 3.46$, $SD = 1.47$) at $F(1,217) = .34$, $p = .56$. The second manipulation check, if the participants perceived the cookies as less tasty also failed and was not statistically significant for no label ($M = 4.68$, $SD = 1.22$) and the label condition ($M = 4.42$, $SD = 1.31$) at $F(1,217) = 2.43$, $p = .12$. The third manipulation check, if the cookies were perceived as more environmentally friendly by the participant, was significant. The means of the no label ($M = 3.48$, $SD = 1.53$) and the label condition ($M = 4.23$, $SD = 1.63$) did differ significantly at $F(1,217) = 12.33$, $p < .001$. The fourth manipulation check, if the cookies were perceived as more sustainable by the participant, was statistically significant, and the means for the no label condition ($M = 3.37$, $SD = 1.35$) and

the label condition ($M = 4.24$, $SD = 1.65$) differed significantly from each other at $F(1,217) = 17.96$, $p = <.001$. Manipulation check three and four indeed measured what was intended to be measured, and the participants indeed perceived the vegan labeled cookies as more environmentally friendly and more sustainable. After all, they did not perceive vegan labeled cookies as healthier or less tasty.

Hypothesis Testing

Hypothesis 1: Intention to Buy

An ANOVA analysis was used to test the first hypothesis, that the buying intentions are higher for unexpectedly vegan labeled cookies compared to unlabeled vegan cookies. The assumptions of normality of the residuals, independence of the observations, equal variances, and the absence of outliers to conduct this analysis were checked. No evidence of assumption violations was found. The means of both groups: no label ($M = 3.99$, $SD = 1.21$) and label ($M = 4.08$, $SD = 1.25$), did not differ significantly. $F(1,217) = .32$, $p = .57$. Thus, participants did not have higher intentions to buy the vegan labeled cookies over the unlabeled vegan cookies.

Hypothesis 2: Masculinity as Moderator

To test the second hypothesis, that participants scoring high on masculinity have less intention to buy the vegan labeled cookies compared to participants scoring low on masculinity, a regression analysis via the PROCESS extension for SPSS was applied with intention to buy as the dependent variable, the two independent factors vegan label (1,0), and a standardized masculinity score (Hayes Process Macro - Model 1 - Moderation With Continuous Moderator, IV and DV - ResearchWithFawad, 2022). To conduct this analysis, the assumptions of normal distributions, outliers, linearity, multicollinearity, homoscedasticity, and normality of distribution of errors were checked, and no assumption violations were found. The means of the moderator

variable, masculinity, in the no label ($M = 2.74$, $SD = .91$) and label ($M = 2.58$, $SD = .77$) conditions did not differ significantly from each other at $F(2,217) = 1.93$, $p = .17$.

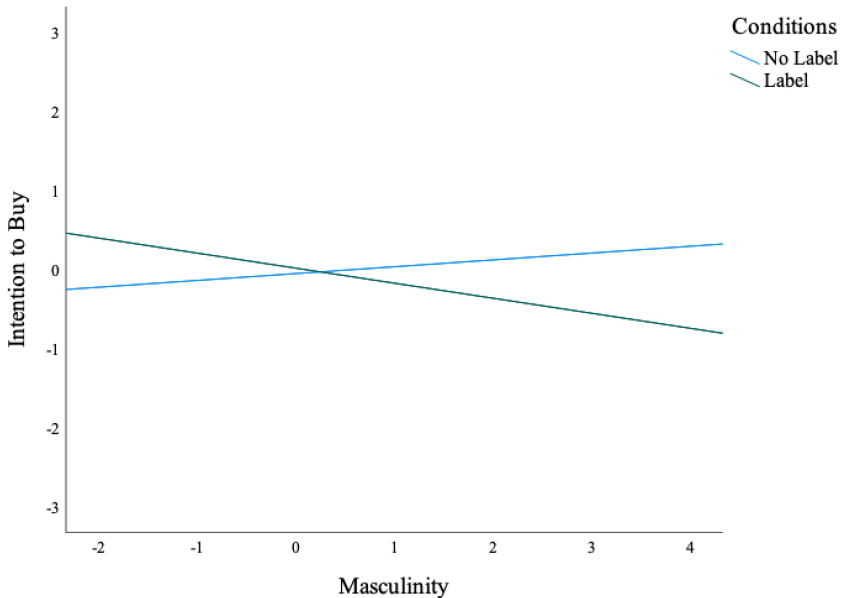
The vegan label did not have a statistically significant effect on intention to buy ($\beta = -.034$, $t(218) = .51$, $p = .61$), and masculinity also had no statistically significant effect on intention to buy ($\beta = -.039$, $t(218) = .57$, $p = .57$). The results indicated that the model including vegan label and masculinity did not explain a significant proportion of variance in intention to buy, $F(2, 216) = .32$, $p = .73$, $R^2 = .003$.

In the next step, a new regression analysis was applied, containing the variables: vegan label, masculinity and the interaction term of both of them. The interaction term was significant in predicting intention to buy, $\beta = .186$, $t(215) = -2.04$, $p = .04$. Explaining a significant proportion of variance in intention to buy, $F(3,215) = 1.6$, $p = .19$, $R^2 = .022$. This means that masculinity had a significant effect on the relation between the vegan label (vs. no label) conditions and intention to buy.

To investigate how the interaction differs a simple slopes analysis was conducted (see the differences in the slopes in Figure 3). The masculinity score was standardized with an $M = 0$ and $SD = 1$. The observed results indicated a negative effect of masculinity within the vegan label condition, $\beta = -.190$, $t(116) = -1.87$, $p = .06$, $R^2 = .029$, and a positive effect in the unlabeled vegan condition, $\beta = .087$, $t(99) = .96$, $p = .34$, $R^2 = .009$. Although the simple slopes were both insignificant compared to no effect, they differed significantly from each other.

To summarize, the overall existence of the interaction effect is supported. Thus, the moderating variable, masculinity, is affecting the relationship between the independent and dependent variables, vegan label (vs. no label) and intention to buy.

Figure 3

Interaction of the vegan label and unlabelled condition with masculinity as a moderator**Discussion**

The purpose of the experimental study was to investigate whether participants tend to have higher intentions to buy unexpectedly vegan labeled cookies over unexpectedly unlabeled vegan cookies (H1) and if masculinity is moderating the relation between labeling (label vs. No label) on intention to buy (H2). Accordingly, For the first hypothesis, there was no statistically significant result found. Thus no relationship between the presence of a vegan label and subsequent higher buying intentions was found. The assumption that a vegan label predicts higher buying intentions did not hold. Possible explanations why no significant effect was found could be lack of knowledge about the benefits of a vegan diet and the drawbacks of dairy and omnivore diets, the price of vegan products, and the lack of trust in vegan labeling (Green et al., 2010; Eva et al., 2022 & Stremmel et al., 2022). In the paper by Green et al., (2010), it was discussed that society, for example, still believes a dairy diet to be healthy for bone strength and an omnivore diet to be an important iron source and hence, relevant for health. However, the

same paper shows that a vegan diet lowers the risk of developing various types of cancers like: ovarian, prostate, testicular and breast cancers, promotes bone health and prevents osteoporosis. Other than that, a vegan diet is significantly more expensive compared to a vegetarian diet and slightly more expensive than an omnivore diet (Eva et al., 2022). Additionally, a vegan diet being more expensive might negatively affect the intention to buy vegan labeled products. Yet, the absence of statistically significant findings may be attributed to the possibility that participants who desire to consume a hedonic product that is also healthy, might not be interested in buying chocolate chip cookies. Likewise, the food label theory may explain a disinterest in vegan products as they are perceived as less tasty (Stremmel et al., 2022). Despite, in the present study, no such effect was found for perceived tastiness on chocolate chip cookies.

For the second hypothesis, there were statistically significant results found. The interaction of the two predictors, label (vs. No label) and masculinity, was significant, implying that indeed, masculinity had a moderating effect on the relation of the two conditions and intention to buy the unexpected vegan chocolate chip cookies at different levels of the moderator. Nonetheless, testing the simple slopes of the groups, vegan label and no label, against the null hypothesis, results were not significant. This means that the strength of the relationship between the predictor and outcome is not significantly different at high or low levels of the moderator within the groups. But, both groups differ significantly from each other in their intention to buy when masculinity was present as a moderator.

This finding highlights that the moderator variable plays a critical role in shaping the relationship between the predictor variable and the outcome variable. Therefore, the study suggests that a more nuanced understanding of the role of the moderator variable is necessary to comprehend the relationship between the predictor variable and the outcome variable accurately.

Findings in light of previous research

According to the first hypothesis, the finding was not in line with the findings of Stremmel et al. (2022). The participants did not have higher intentions to buy the vegan labeled cookies compared to unlabeled ones, nor were the vegan labeled cookies perceived as less tasty and more healthy. Regarding the second hypothesis, the results were significant and similarities to previous findings could be suggested. As observed by Thomas (2016), masculinity showed tendencies that might predict non-vegan dieting preferences, and masculinity and a vegan diet could be associated with decreased masculinity. Additionally, choosing to follow a vegan diet and excluding meat or dairy products might be seen as a direct violation of masculinity. A vegan diet might give the impression of light eating, which is considered more feminine than masculine (Sobal, 2005).

Implications for future research

It is noteworthy that countries differ in their overall masculinity score which distinguishes masculine from feminine societies. For example, is Japan a masculine society as it has a high masculinity score, and Sweden a feminine society, possessing the lowest masculinity score (Arrindell et al., 2013). In a masculine society, gender roles are distinct whereas in a feminine society, those gender roles overlap. Likewise, people scoring high on masculinity exhibit more stress that is related to mental and physical health and keeping up with traditional masculinity (Arrindell et al., 2013). Distributing surveys to different populations can enhance the accuracy of results, facilitate cross-population comparisons and thus, improve the external validity.

Besides, a cross-population comparison can assist businesses and marketers in adjusting their products and marketing strategies for different cultures and targeted groups. Avoiding horn

effects, a negative bias, could be key to improvement of marketing strategies. For example, how should one adjust their strategies so in a masculine society vegan products increasingly appeal to people that score high on masculinity, and to motivate people scoring high on masculinity to eat more healthy Green et al., (2010). Societies with high impacts of masculinity might avoid the term “vegan” more frequently. Moreover, even though the food label theory predicted that the vegan labeled products might be perceived less tastier, that was not the case for the vegan chocolate chip cookies of the present study. In future research it could be investigated whether this finding is generalisable to all hedonic products or, if the vegan chocolate chip cookies of the current study were the mere exception. Additionally, adding the term "plant-based" to the experimental conditions could be advantageous, as findings by Anderson (2019) suggest that this term might be more appealing compared to “vegan”. The term “plant-based” emphasizes the ingredients present, rather than absent, as is the case with the term “vegan” (Anderson, 2019). The exposure of the cookies to the participants through an online survey was limited and probably impaired the ecological validity of the study. To enhance the ecological validity of future research, it is recommended to incorporate the chocolate chip cookies within an actual marketing context where actual buying behavior can be observed, and participants are able to choose from an assortment of cookies.

Sample

Possible explanations why the significant interaction was not reflected in the slopes analysis could be that the sample size was not large enough to detect an effect. Another explanation could be that the moderator was not measured precisely, in future research the complete questionnaire by Thompson and Pleck (1986) could be assessed to possibly improve the measurement. Additionally, it is possible that a measurement error may have occurred.

Moreover, it is noticeable that the sample was predominantly female. Thus, a higher number of males, filling in the questionnaire could lead to stronger results in relation to the second hypothesis. The number of valid participant responses ($N = 219$) was almost half compared to the responses ($N = 389$) by Stremmel et al. (2022).

Other than that, the participants surveyed in the current study were from various countries, whereas the participants in the study by Stremmel et al. (2022), were from Germany only. This could also have led to significant findings in the study by Stremmel et al. (2022) but to insignificant findings in the current study. It is recommended to apply this or a similar study to a bigger sample of one population, and the questionnaire should be assessed randomly and not via an online convenience sample to obtain more reliable results. Also, when comparing masculinity scores of different populations (Arrindell et al., 2013).

Conclusion

To conclude, this study adapted and integrated elements of the study by Stremmel et al. (2022) and Thompson and Pleck (1986). According to H1, which was not supported by the result, it was found that participants did not have higher intentions to buy the unexpected vegan labeled chocolate chip cookies over unexpected unlabeled vegan cookies. This could be due to a lack of knowledge about the benefits of a vegan diet (Green et al., 2010).

According to H2, significant results were found. The impact of masculinity differed significantly per group, (vegan label vs. no label) on intention to buy. However, within the groups masculinity did not lead to a significant effect. It can be concluded that masculinity had a moderating effect on the relationship between the vegan label and intention to buy. Further research is needed to understand why no significant effect was observed within the groups. Nonetheless, the study highlights the importance of considering individual differences of

masculinity and the impact of labeling on intention to buy. It is difficult to say, if food labeling is recommended as it might bias the consumers perception both positively and negatively. After all, the results indicated that participants scoring high on masculinity were less likely to purchase vegan labeled cookies. Therefore, masculine cultures may require a different marketing strategy. Anyhow, future research is recommended to further investigate these findings.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Anderson, J. (2019, July 17). *What To Call Plant-Based Meat Alternatives: A Labeling Study*. Faunalytics. <https://faunalytics.org/what-to-call-plant-based-meat-alternatives-a-labelling-study/>
- Arrindell, W. A., van Well, S., Kolk, A. M., Barelds, D. P. H., Oei, T. P. S., Lau, P. Y., & v700. (2013). Higher levels of masculine gender role stress in masculine than in feminine nations: a thirteen-nations study. *Cross-Cultural Research*, 47(1), 51–67. <https://doi.org/10.1177/1069397112470366>
- Austgulen, M. H., Skuland, S. E., Schjøll, A., & Alfnes, F. (2018). Consumer Readiness to Reduce Meat Consumption for the Purpose of Environmental Sustainability: Insights from Norway. *Sustainability*, 10(9), 3058. <https://doi.org/10.3390/su10093058>
- Berry, C., & Romero, M. (2021). The fair trade food labeling health halo: effects of fair trade labeling on consumption and perceived healthfulness. *Food Quality and Preference*, 94. <https://doi.org/10.1016/j.foodqual.2021.104321>
- European Vegetarian Union. (2023, March 23). *Vegan and Vegetarian Definitions - European Vegetarian Union*. <https://www.euroveg.eu/vegan-and-vegetarian-definitions/>
- Eva, H., Helena, Z., Stine, W., Morwenna, F., Alfred, L., Andreas, M., Markus, K., & Ute, A. (2022). Food costs of children and adolescents consuming vegetarian, vegan or omnivore diets: results of the cross-sectional vechi youth study, 14(4010), 4010–4010. <https://doi.org/10.3390/nu14194010>

- Green, L., Dare, J., & Costello, L. (2010). Veganism, health expectancy, and the communication of sustainability. *Australian Journal of Communication*, 37(3), 51–72.
- Greenebaum, & Dexter. (2018). Vegan men and hybrid masculinity. *Journal of Gender Studies*, 27(6), 637–648. <https://doi.org/10.1080/09589236.2017.1287064>
- Grunert, K. G., Bech-Larsen, T., Lähteenmäki Liisa, Ueland, Ø., & Åström Annika. (2004). Attitudes towards the use of gmos in food production and their impact on buying intention: the role of positive sensory experience. *Agribusiness*, 20(1), 95–107. <https://doi.org/10.1002/agr.10086>
- Hayes Process Macro - Model 1 - Moderation with Continuous Moderator, IV and DV - ResearchWithFawad.* (2022, March 6). ResearchWithFawad. <https://researchwithfawad.com/index.php/lp-courses/hayes-process-macro-lecture-series/hayes-process-macro-model-1-moderation-with-continuous-moderator/>
- Kubberød, E., Ueland, Y., Rødbotten, M., Westad, F., & Risvik, E. (2002). Gender specific preferences and attitudes towards meat. *Food Quality and Preference*, 13(5), 285–294. [https://doi.org/10.1016/s0950-3293\(02\)00041-1](https://doi.org/10.1016/s0950-3293(02)00041-1)
- Qualtrics (2005). Version: 2021. Provo, Utah, USA
- Rothgerber, H. (2014). Real men don't eat (vegetable) quiche: Masculinity and the justification of meat consumption. *PsycEXTRA Dataset*. <https://doi.org/10.1037/e512142015-436>
- Saari, U. A., Herstatt, C., Tiwari, R., Dedehayir, O., & Mäkinen Saku J. (2021). The vegan trend and the microfoundations of institutional change: a commentary on food producers' sustainable innovation journeys in europe. *Trends in Food Science & Technology*, 107, 161–167. <https://doi.org/10.1016/j.tifs.2020.10.003>

Smith, L., W. B. L. S. F. (2021). *What is Buying intent: Definition, data and interpretation* | *Snov.io*. <https://snov.io/glossary/buying-intent/>

Sobal, J. (2005). MEN, MEAT, AND MARRIAGE: MODELS OF MASCULINITY. *Food and Foodways*, 13(1–2), 135–158. <https://doi.org/10.1080/07409710590915409>

Stremmel, G., Elshiewy, O., Boztug, Y., & Carneiro-Otto, F. (2022). Vegan labeling for what is already vegan: Product perceptions and consumption intentions. *Appetite*, 175, 106048. <https://doi.org/10.1016/j.appet.2022.106048>

Thomas, M. A. (2016). Are vegans the same as vegetarians? The effect of diet on perceptions of masculinity. *Appetite*, 97, 79–86. <https://doi.org/10.1016/j.appet.2015.11.021>

THOMPSON, E. H., & PLECK, J. H. (1986). The Structure of Male Role Norms. *American Behavioral Scientist*, 29(5), 531–543. <https://doi.org/10.1177/000276486029005003>

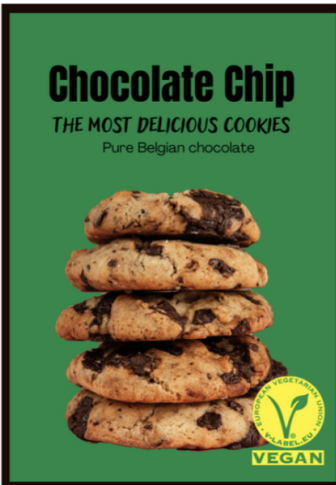
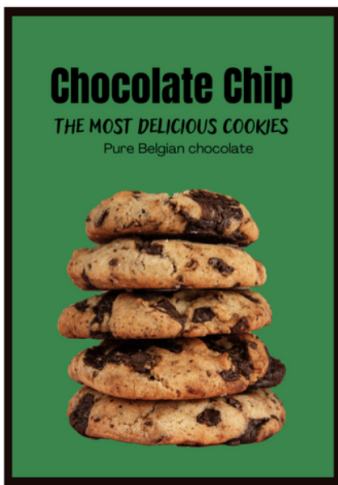
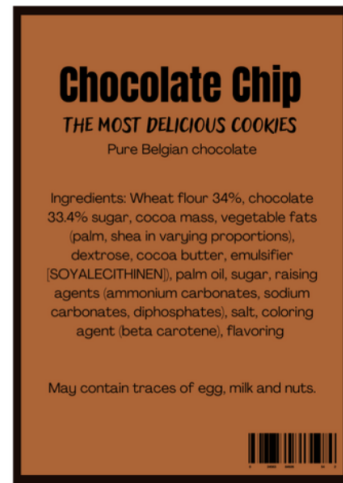
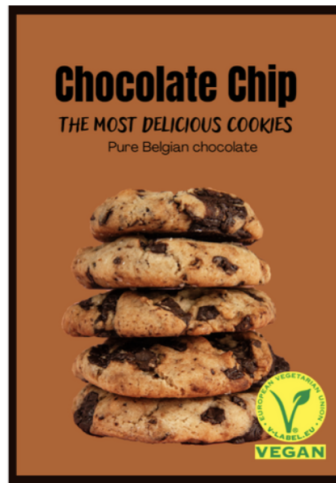
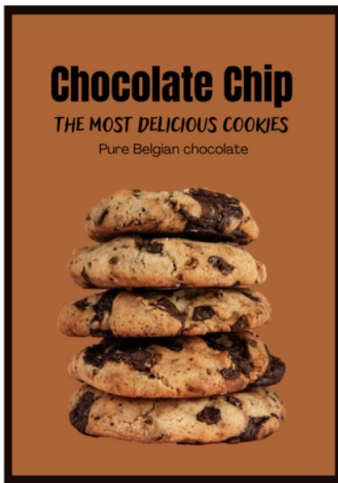
Thorndike, E. (1920). A constant error in psychological ratings. *Journal of Applied Psychology*, 4(1), 25–29. <https://doi.org/10.1037/h0071663>

Appendix

Appendix A



Appendix B



Appendix C

1. "A man owes it to his family to get the best-paying job he can get."
2. "A man always deserves the respect of his wife and children."
3. "I always like a man who's totally sure of himself."
4. "When a man is feeling a little pain he should try not to let it show very much."
5. "Nobody respects a man very much who frequently talks about his worries, fears, and problems."
6. "In some kinds of situations a man should be ready to use his fists, even if his wife or his girlfriend would object."
7. "It bothers me when a man does something that I consider "feminine"."
8. "A man whose hobbies are cooking , sewing, and going to the ballet probably wouldn't appeal to me."
9. "It is a bit embarrassing for a man to have a job that is usually filled by a woman."
10. "I think it is extremely good for a boy to be taught to cook, sew, clean the house, and take care of younger children."