

**Navigating Choice Overload:
The Role of Consumer Expertise in Sun Protector Purchases
Across Online and Offline Retail Channels**

Eleonora Pecci

Dissertation written under the supervision of Prof. Paulo Romeiro

Dissertation submitted in partial fulfilment of requirements for the MSc in International Management, at Universidade Católica Portuguesa and for the MSc in Marketing Management at Bocconi University, 12/09/2024.

ABSTRACT

The retail industry has undergone a significant transformation over the past two decades, driven by the spread of digital technologies and the growing range of product alternatives available. This thesis explores the phenomenon of choice overload, which happens when consumers face an overwhelming number of options, within the context of sun protection products.

Specifically, the research examines how consumer expertise influences the impact of choice overload across both online and offline retail channel. Through a combination of a focus group, a pre-test, and a main experiment, this study investigates the effect that choice overload has on purchase intention, and how this is moderated by the level of consumer expertise and the retail channel chosen for the purchase.

The findings contribute to a better understanding of consumer behavior by highlighting the conditions under which choice overload is either exacerbated or mitigated. This research offers practical insights for retailers on optimizing their product assortments according to the retail channel, to better align with consumer preferences, ultimately enhancing purchase intention.

Key Words:

Choice overload, assortment size, consumer expertise, retail channel, online shopping, sunscreen products, category management

Author: Eleonora Pecci

Title: Navigating Choice Overload: The Role of Consumer Expertise in Sun Protector Purchases Across Online and Offline Retail Channels

RESUMO

O sector retalhista sofreu uma transformação significativa nas últimas duas décadas, impulsionada pela disseminação das tecnologias digitais e pela crescente gama de alternativas de produtos disponíveis. Esta tese explora o fenómeno da sobrecarga de escolha, que ocorre quando os consumidores se deparam com um número avassalador de opções, no contexto dos produtos de proteção solar.

Especificamente, a investigação examina a forma como a experiência do consumidor influencia o impacto da sobrecarga de escolha nos canais de retalho online e offline. Através de uma combinação de um grupo de discussão, de um pré-teste e de uma experiência principal, este estudo investiga o efeito que a sobrecarga de escolha tem na intenção de compra e a forma como esta é moderada pelo nível de especialização do consumidor e pelo canal de retalho escolhido para a compra.

Os resultados contribuem para uma melhor compreensão do comportamento do consumidor, salientando as condições em que a sobrecarga de escolha é exacerbada ou atenuada. Esta investigação oferece aos retalhistas uma visão prática sobre a forma de otimizar a sua gama de produtos de acordo com o canal de venda a retalho, para melhor corresponder às preferências dos consumidores e, em última análise, aumentar a intenção de compra.

Palavras Chave:

Sobrecarga de escolha, dimensão do sortido, conhecimentos do consumidor, canal de retalho, compras em linha, produtos de proteção solar, gestão de categorias

Autor: Eleonora Pecci

Título: Navegando na sobrecarga de escolha: O papel da experiência do consumidor nas compras de protetores solares nos canais de retalho online e offline

TABLE OF CONTENTS

1. INTRODUCTION	1
2.1 CHOICE OVERLOAD	2
2.1.1 <i>What moderates the choice overload effect?</i>	3
2.2 PURCHASE INTENTION.....	6
2.3 RETAIL CHANNELS.....	7
2.3.1 <i>Online Retail Channel</i>	7
2.3.2 <i>Offline Retail Channel</i>	9
2.4 CONSUMER EXPERTISE.....	9
2.4.1 <i>How to Assess Consumer Expertise</i>	10
2.5 MOTIVATION FOR MODEL DEVELOPMENT AND RESEARCH QUESTIONS.....	11
2.6 PROPOSED THEORETICAL MODEL	12
1. RESEARCH METHODOLOGY.....	14
3.1 RESEARCH DESIGN	14
3.2 STAGE 1 - FOCUS GROUP.....	15
3.2.1 <i>Procedures</i>	15
3.2.2 <i>Sample</i>	15
3.2.3 <i>Instruments</i>	15
3.3 STAGE 2 – PRETEST.....	16
3.3.1 <i>Procedures</i>	16
3.3.2 <i>Sample</i>	16
3.3.3 <i>Instruments</i>	17
3.4 STAGE 3 – MAIN EXPERIMENT	18
3.4.1 <i>Procedures</i>	18
3.4.2 <i>Stimuli</i>	18
3.4.3 <i>Instruments</i>	19
3.4.4 <i>Sample</i>	19
3.4.5 <i>Questions</i>	21
2. RESULTS	23
4.1 SAMPLE ANALYSIS	23
4.2 MANIPULATION CHECKS	23
4.3 FACTORS DEVELOPMENT	25
4.4 BIVARIATE ANALYSIS	26

4.5 HYPOTHESIS TESTING	27
4.5.1 <i>Main effect</i>	27
4.5.2 <i>Interactions</i>	28
4.6 OVERALL MODEL TEST	30
4.7 LINEAR DISCRIMINANT ANALYSIS	32
3. DISCUSSION AND CONCLUSION.....	34
5.1 MAIN FINDINGS & CONCLUSIONS	34
5.2 MANAGERIAL / ACADEMIC IMPLICATIONS	36
5.2.1 <i>Managerial Implications</i>	36
5.2.2 <i>Theoretical Implications</i>	38
5.3 LIMITATIONS AND FUTURE RESEARCH.....	39
5.3.1 <i>Limitations</i>	39
5.3.2 <i>Future Research</i>	40
BIBLIOGRAPHY	41
APPENDICES	46
APPENDIX A.....	46
APPENDIX B.....	47
APPENDIX C	52

LIST OF TABLES

Table 1 - Data Collection Methods Summary	14
Table 2 - Characteristics of Respondents in the Pre-Test	17
Table 3 - Survey Questions Development	22
Table 4 - Channel Manipulation Check Results	24
Table 5 - Choice Overload Manipulation Check Results	24
Table 6 - T-Test Results.....	27
Table 7 - Hypothesis 1 Test Results	28
Table 8 - Hypothesis 2 Test Results	29
Table 9 - Hypothesis 3 Test Results	30
Table 10 - Model Test Results.....	31
Table 11 - Linear Discriminant Analysis Test Results	33
Table 12 - Strategies to Address Choice Overload According to Retail Channel	37
Table 13 - Strategies to Address Choice Overload According to Retail Format.....	38

LIST OF FIGURES

Figure 1 - Overall Model	13
Figure 2 - Tested Model.....	34

1. INTRODUCTION

Over the past twenty years, the retail sector has undergone a significant transformation due to the rapid growth of digital technology and the rising variety of available products.

On the one hand, with the rise of e-commerce, social media, and mobile platforms, consumers now have access to a broader range of shopping channels than ever before. Simultaneously, the market has seen a proliferation of product varieties, fueled by personalization, customization, and niche product development trends. While these changes have enhanced consumer autonomy and satisfaction for some, they have also introduced new challenges, particularly in the form of choice overload. This phenomenon occurs when abundant options lead to decision paralysis, decreased satisfaction, and lower purchase intent. Indeed, although traditional economic theory posits that more choices should improve consumer purchase intention, evidence suggests that too many options can have the opposite effect.

This thesis explores the intricate dynamics of choice overload within the context of sun protector products, a category characterized by high product variety. Specifically, the study investigates how consumer expertise affects the choice overload phenomenon across different retail channels.

By examining the interaction between choice overload, consumer expertise, and online versus offline retail channels, this research aims to understand better how these variables influence purchasing intent.

The findings contribute to the broader retail strategy and consumer psychology fields, offering valuable insights for academics and managers. This study enhances theoretical understanding by identifying the conditions under which choice overload is mitigated or exacerbated. It provides practical recommendations for retailers seeking to optimize their product assortments and e-commerce strategies in an increasingly complex and competitive market landscape.

2. LITERATURE REVIEW

2.1 Choice overload

The term choice overload –also referred to as too-much-choice or over-choice- refers to a phenomenon that happens when numerous equivalent alternatives are accessible, and so when the individual is presented with too many options or stimuli from which they may choose. In this context, the decision-making process can become stressful due to the numerous potential outcomes and the risks that can arise from picking the wrong option (Iyengar and Lepper, 2000). In contradiction to the common economic and psychological perspective suggesting that having more alternatives is always better, a series of research involving field observations and laboratory experiments proved that having a diverse range of options can be demotivating rather than useful to customers (Simenson & Tversky, 1992; Iyengar & Lepper, 2000; Schwartz, 2004). According to Chernev et al. (2015), choice overload is subjective, and can't be directly observed, as it depends on individual differences, contextual factors, and personal preferences —making it a mutable experience that manifests differently across different situations and people. Specifically, in their meta-analysis, Chernev et al. (2015) measured choice overload as the decision maker's subjective state —satisfaction, confidence, and regret— or as a particular behavioral consequence —choice deferral, switching likelihood, assortment choice, and option selection.

Other research has further explored the complexities of choice overload by focusing on its consequences, like decision paralysis and choice regret.

Decision paralysis refers to the inability to choose due to the overwhelming number of options (Adriatico, 2022), while choice regret pertains to the feeling of having chosen the wrong alternative (Inbar et al., 2011).

Then, it has been suggested that when consumers are presented with larger assortments, their ideal preferences tend to shift, making those ideal choices harder to achieve (Chernev, 2003; Schwartz et al., 2002). Additionally, larger assortments can raise consumers' expectations about the likelihood of finding a perfect match among the options available, as well as the degree to which their chosen option aligns with their preferences (Diehl & Poynor, 2010). As a result, choosing from a larger assortment may lead to unmet expectations, increasing the likelihood of deferring a decision and reducing satisfaction with the selected option.

Overall, various studies have demonstrated that having too many roughly equally good options can be intellectually exhausting since each option must be assessed against each alternative to choose the best one.

In light of these findings, the concept of 'choice overload' has emerged in more recent literature to describe the paradoxical phenomenon that happens when selecting from a wide range of possibilities, which can be harmful to decision-making processes, leading to decision paralysis and decreased satisfaction.

2.1.1 What moderates the choice overload effect?

Recent findings highlight that while having more options can initially enhance satisfaction by providing a sense of control and variety, there comes a tipping point where the abundance of choices leads to overwhelm and decision fatigue. Understanding the factors that influence this tipping point is key to identifying what moderates the choice overload effect and determining when an extensive assortment is beneficial versus when it becomes detrimental.

A study from Reutskaja and Hogarth (2009) explores the relationship between the number of choice alternatives and consumer satisfaction. It suggests that choice satisfaction follows a reversed U-shaped function relative to the number of options, meaning that both outcome and process satisfaction increase up to a certain point as the number of options increases, but then decrease when the options become too numerous, emphasizing the complexity of increasing choices and consumer satisfaction.

Chernev and Hamilton (2009) proved that the relationship between assortment size and option attractiveness is concave, implying that the marginal impact of assortment size on choosing reduces as the attractiveness of options grows. Furthermore, they found that smaller assortments are preferred primarily when the overall attractiveness of the alternatives in the choice set is relatively high, while larger assortments are preferred when they contain relatively less attractive options.

Further research has also explored the potential occurrence of choice overload. In a series of three studies, Scheibehenne et al. (2009) analyze the conditions that make choice overload negative effects more or less likely to arise. They examined the moderating effect of assortment sizes, the attractiveness of the sets, and the necessity of justifying selections. They found that the need for individuals to justify their decisions considerably mitigates the adverse effect of having too many options to choose from. This indicates that when people believe they must justify their decision, the overwhelming feeling associated with having too many options is minimized. This suggests that the choice overload effect may not necessarily result in negative results, depending on individual conditions, such as the requirement for justification.

Goodman and Malkoc (2012) proved that consumers prefer greater assortments when making immediate decisions, whereas they prefer smaller assortments when making distant decisions.

According to Sethuraman et al. (2022), this conclusion may be attributed to the perceived difficulty of future decision-making tasks compared to current ones.

Other research from Chernev (2006) highlighted that customers who focus exclusively on the first stage of the decision-making process (determining an assortment) are more likely to prefer the decision freedom provided by larger assortments, whereas consumers who focus on the second stage of the process (selecting a product from the readily available assortment) are more likely to prefer the decision simplicity provided by smaller assortments. In trying to understand why, when choosing among assortments, consumers often prefer the variety offered by larger assortments even if they then tend to be less confident in their choices from these larger assortments compared to smaller ones, the study concludes that consumers tend to overestimate their need for variety and flexibility. In exploring factors influencing this tendency, the study focuses on how consumers' decision focus —specifically the salience of the task of choosing from the selected assortment— affects their assortment choices. The research posits that the degree to which consumers focus on the subsequent task of choosing from the selected assortment influences their initial choice among assortments. When the task of choosing a specific item is more salient, consumers are more likely to prefer smaller assortments, which simplifies the decision process.

These findings seem to be consistent with research from Gao and Simonson (2015), according to which increasing assortment size has a greater effect on the likelihood that customers will make a purchase when the first-choice focus is on whether to buy from a certain set of options, rather than first selecting the best available alternative.

Research from Sethuraman et al. (2022), proved that consumers find it easier to decide “whether to buy” rather than “what to buy”, and that increasing the number of options available has a favorable impact on consumers' purchasing decisions if the choice is between buying or not buying, rather than selecting the best alternative.

Overall, the literature concludes that when the decision-making focus is on selecting from the assortment rather than on selecting from the chosen collection, a greater assortment is desirable. Nonetheless, other elements may influence consumers' preferences for small versus large assortment sizes.

Research from Boyd and Bahn (2009) reveals that in high-risk situations, consumers prefer a wider variety of options because these are perceived as reducing decision-making uncertainty. A study by Wan et al. (2009) demonstrated that the negative effect of choice overload is more likely to occur in people with weak short-term memory ability. Using three separate stimuli to

assess short-term memory capacity and an actual choice task, they provided evidence that short-term memory has a moderating effect on the choice overload effect.

Research from Haynes (2009) proved that time also impacts the effect of choice overload. Specifically, in the study, the number of alternatives accessible was manipulated together with the amount of time participants had to make choices (limited or extended decision time). After making their decisions, participants evaluated the decision-related difficulties, task enjoyment, satisfaction, and regret. The study proved that participants who had a limited amount of time to choose among a greater variety of possibilities felt their decisions to be more difficult and frustrating than those in the other situations.

Chernev (2003) examined how product assortment size influences consumer choice when customers have specified attribute preferences. This study reveals that people with defined preferences prefer larger assortments and engage in more selective, alternative-based thinking. Those who do not have such preferences, on the other hand, exhibit complete attribute-based processing. This indicates that preference clarity can influence how consumers navigate choice complexity, affecting their decision-making and satisfaction with the selection process.

Additionally, the concept of choice architecture, discussed by Thaler and Sunstein (2008), suggests that structuring choices carefully can mitigate the negative effects of choice overload, highlighting the importance of how options are presented to individuals.

Chernev et al. (2015) investigated the paradox of choice overload by examining the elements that influence customers' reactions to big assortments. This meta-analysis combined data from 99 observations from 53 studies focusing on the number of available options and four major moderators: choice set complexity, decision task difficulty, preference ambiguity, and decision objective. They found that higher levels of these features often enhance choice overload, influencing pleasure, regret, choice deferral, and switching probability. This study makes an important contribution by revealing that larger assortment sizes lead to choice overload, particularly when these moderating variables are considered. However, according to the authors, more research may reveal elements other than the four identified in the study that are likely to influence choice overload.

Then, research from Adriatico et al. (2022), aimed to demonstrate whether and when, in the context of choice overload, decision paralysis occurs.

They examined how each of the different predictors of choice overload -decision task difficulty, choice set complexity, preference uncertainty, decision goal, and asymmetric information- would be impacted by the number of accessible alternatives. Findings showed that decision task difficulty and asymmetric information have a direct impact on choice overload, contributing to

the high risk of decision paralysis. Overall, the study proved that when many options are available, buyers find it harder to decide, sometimes deciding to abandon their purchase.

2.2 Purchase Intention

Purchase intention implies the desire of a customer to buy a product or service. Purchase intention indicates that after having made an evaluation, the consumer has decided to acquire the product (Younus et al., 2015). Consequently, purchase intention can be defined as a consumer's reported probability or predisposition to buy a specific product or service in the future. This concept captures the inclination of individuals towards making a purchase decision, and it is influenced by various factors such as attitudes, subjective norms, perceived behavioral control, and brand awareness, among others (Younus et al., 2015).

Chang and Wildt (1994), conceptualize purchase intention as the likelihood or willingness of consumers to buy a product or service, influenced by their perceived value of that product or service.

The application of purchasing intentions is theoretically supported by social psychology models that relate attitudes to behaviors (Morwitz and Schmittlein, 1992). Numerous studies that assessed the correlation between consumers' claimed purchase intent and their actual behavior can be found in the literature.

Various research (Granbois and Summers 1975; Taylor et al. 1975) found a strong positive correlation between intent and conduct. However, it was proven that product type affects the predictive validity of claimed purchasing intent. For instance, Warshaw discovered positive correlations between stated intent and nondurable goods purchases (1980).

Then, Juster (1966) discovered weak but positive correlations between actions and declared intent for durable commodities.

According to Day et al. (1991), it appears that the poor predictive performance of buying intentions scales is primarily related to the way intentions are measured. In their research, Day et al. (1991) proved that the Juster Scale outperforms buying intentions scales as a predictor of consumer purchases. This scale has been proven effective in both face-to-face and self-completion surveys and useful for forecasting periods ranging from three months to a year. However, while its ability to predict car purchases with accuracy is well-established, its effectiveness for other types of items shows more variability.

More recently, Kimery and McCord (2002) detailed that, in the context of e-commerce, purchase intention reflects customers' willingness to buy from e-retailers and is influenced by their attitudes towards the online store. Their research highlights that positive attitudes towards

the website —shaped by factors such as trust, user experience, and perceived value— typically result in higher purchase intentions. Furthermore, purchase intention serves as a valuable predictor of actual consumer purchasing behaviors in online shopping environments too. They demonstrated that understanding purchase intention can effectively forecast consumer behavior and refine strategies for e-retailers. Consequently, buying intention is widely recognized as a reliable predictor of online customer purchasing behavior (Nisar & Prabhakar, 2017).

Overall, research evaluation concludes that intentions are strong but not always reliable predictors of future purchasing behavior, and that predictive capacity varies widely throughout items and prediction models.

Understanding the impact of assortment size -and so of choice overload effect- on consumers' purchase intention is a critical component of a retailer's decision regarding how many items to stock in each product category.

2.3 Retail Channels

Sales channels can be broadly divided into two types: online and offline. Each category includes a variety of approaches and platforms, each with a unique combination of benefits and challenges.

2.3.1 Online Retail Channel

Electronic commerce (e-commerce) refers to the process of selling and purchasing goods and services via computer networks such as the Internet (Jain et al., 2021). E-commerce can be organized into five categories: business-to-consumer (B2C), business-to-business (B2B), business-to-government (B2G), consumer-to-consumer (C2C), and mobile commerce (Chen et al., 2014).

Recently, e-stores have evolved as a popular shopping channel, and the Internet's revolutionary impact on how businesses market and sell their products has influenced both marketers and customers.

While businesses consider new and beneficial ways to promote their services to their clients, consumers are likewise engaging in previously unheard-of purchasing behaviors (Nagar & Gandotra, 2016).

E-commerce growth provides various advantages over traditional retail formats or brick-and-mortar stores, including increased flexibility, enhanced market outreach, cheaper cost structures, faster transactions, larger product ranges, higher convenience, and personalization

(Brynjolfsson et al., 2009). For instance, retailers can provide extra product variations (e.g., color or size) that were not accessible during the consumer's in-store visit (Weber and Maier, 2020).

Among the various key advantages that e-commerce offers, the possibility of being presented with an extensive product range directly influences consumer behavior and preferences in this specific retail channel.

Indeed, concerning product assortment, it was proved that online shoppers prefer an extensive selection of products. This is because of the ability to track down specific goods or services (Gounaris and Dimitriadis, 2003), and since, according to the common belief, a diverse range of products is linked to higher customer satisfaction (Chintagunta et al., 2012).

Looking at the drawbacks of e-commerce purchases, Nisar and Prabhakar (2017) note that consumers often complain about not being able to touch and feel products, difficulties in returning items, and general disappointment upon receiving their purchases. This perceived hazard leads customers to prefer purchasing high-risk products in physical stores (Lee & Tan, 2003).

To counteract this trend, research shows that providing diverse product offerings can reduce the perceived risks. Boyd and Bahn (2009) demonstrate that when a transaction is perceived as risky, individuals prefer to choose from numerous options. In the context of online shopping, a wide variety of products can give the impression that the online store is more reputable and well-stocked, which can increase consumers' confidence in the retailer and the perceived value of their shopping experience. Consequently, online shoppers likely prefer to choose from a wide variety of options to mitigate perceived dangers.

Overall, offering a wide variety of products can help mitigate perceived risks associated with online shopping. Therefore, in contradiction to the arguments proposed by the choice overload theory, larger choice sets can be beneficial in online shopping settings.

Moser et al. (2017) explore the relationship between the size of product option sets, decision-making styles, and satisfaction with choices in e-commerce. Contrary to choice overload theory predictions, their study found that the size of product option sets does not significantly impact choice satisfaction for either maximizers or satisfiers. These findings challenge the applicability of choice overload theory to e-commerce settings. This discrepancy may be because traditional research on choice overload was mostly conducted in physical retail environments or controlled laboratory settings. Recent studies suggest that online shoppers behave differently since they are accustomed to, and perhaps even expect, large choice sets on both marketplaces and store-

specific e-commerce. The ease of searching, and comparing products online may mitigate the potential for choice overload.

2.3.2 Offline Retail Channel

While online sales channels have grown in popularity, they account for only 20% of total global retail sales (Statista, 2024). This highlights the persistent dominance of brick-and-mortar stores in the retail landscape and underscores the importance of physical retail experiences in driving overall consumer spending.

Offline sales channels include traditional means of selling items or services that do not involve the Internet. Offline retailers can be categorized according to the means they use in their selling activities; specifically, it is possible to distinguish between fixed stores, street vendors and special types of sales (Castaldo et al., 2020). Focusing on fixed stores, it is possible to divide them into modern and traditional. Modern stores are particular points of sales that have appeared in recent years that differ from traditional “mom-and-pop” stores.

Among modern store formats, supermarkets, hypermarkets, discount stores, convenience stores, cash and carry stores, and specialty stores are widely spread.

2.4 Consumer Expertise

Consumer expertise is defined by a consumer's accumulated knowledge and skills across various dimensions that enhance their ability to perform product-related tasks effectively (Alba and Hutchinson, 1987).

Generally, as consumers become more familiar with a product, their expertise regarding that product increases. However, since various tasks demand distinct forms of expertise, the enhancement of task performance is influenced by diverse experiences. Furthermore, the effective execution of a specific task typically requires a combination of multiple types of knowledge. Overall, it is possible to identify five dimensions of consumer expertise, which are: cognitive effort, the mental effort consumers invest in learning and understanding product-related information; cognitive structure, how consumers organize and categorize product knowledge in their minds; analysis, the ability to compare different products based on their features and benefits; elaboration, the ability to integrate new product information with existing knowledge; memory, how well consumers recall product information and experiences (Alba and Hutchinson, 1987).

Mitchell and Dacin (1996) examined how consumer expertise influenced purchasing decisions. Their study found that expert consumers are better at processing product information, which reduces the cognitive effort required during purchase decisions. Moreover, they were found to be more able to filter relevant details, allowing them to make quicker and more confident choices, even when faced with complex or numerous options. Generally, consumers' expertise helps them navigate purchases more efficiently than less knowledgeable consumers.

Studies by Jayachandran et al. (2004), Rao and Monroe (1988), and Alba and Hutchinson (1987), reached similar conclusions, highlighting how consumer knowledge about a product is a key factor in decision-making, significantly influencing purchasing decisions.

This has also been proven to happen in the context of choice overload. According to Misuraca et al. (2021), experience and product knowledge play a central role when consumers choose from sets presenting many options.

Since experts are generally better at managing complex choices due to their familiarity with the field, which helps them navigate through options more efficiently, consumer expertise helps mitigate the effects of choice overload. Overall, expertise can lead to better decision-making outcomes even under conditions of choice overload, enabling more efficient and effective information processing and decision-making.

2.4.1 How to Assess Consumer Expertise

As previously discussed, an expert consumer is someone who has substantial knowledge and experience in a specific sector or product category, allowing them to make informed and strategic purchasing decisions for goods or services. They are highly competent in evaluating product quality, value, and reliability, as well as navigating the market's huge assortment of alternatives.

More accurately, research from Mitchell and Dacin (1996) evaluates a variety of consumer expertise measures by testing their ability to predict the optimal decisions in three stimulus-based choice problems. Findings suggest that it is possible to measure consumer expertise through a combination of subjective knowledge (self-assessment of one's knowledge), objective knowledge (accuracy of information about the product), and product usage (experience with using the product).

Other Research from Park et al. (1994) also indicates that self-assessed knowledge is positively connected to the level of product-related experience. A more recent study from Wirtz & Mattila (2003) reveals a significant positive relationship between subjective knowledge (self-assessed knowledge) and objective knowledge too.

This correlation suggests that individuals' perceptions of their own knowledge about a product or service tend to align with their actual, objectively measured knowledge. This alignment indicates that self-assessments can be a reliable indicator of a consumer's true knowledge level, contributing to understanding how knowledge impacts consumer behavior, such as decision-making processes and loyalty to services or products.

However, it is important to highlight that some researchers disagree about this positive relationship. In particular, a study by Alba and Hutchinson (2000) on consumer knowledge suggests that sometimes customers are overconfident and believe they know more than they actually do.

2.5 Motivation for Model Development and Research Questions

Over the last twenty years, the choice overload effect has been repeatedly studied from both psychological and behavioral perspectives, trying to highlight its causes and elements that can either mitigate or exacerbate it, as well as its limitations. Due to the contradictions in the research findings, scholars have attempted to present various thorough analyses to explain the effect of the too-much-choice. Scheibehenne et al. (2010) performed a comprehensive meta-analysis of the phenomenon, analyzing 50 previous research.

They employed a statistical approach to determine the distribution and average impact sizes across studies. They concluded that the average impact of assortment size on choice overload is nonsignificant, finding little evidence of choice overload. Moreover, according to their research, moderators identified in previous studies may be critical elements in providing consistent explanations for the development of the choice overload effect in certain conditions. In their meta-analysis, Chernev et al. (2015) took into account 99 observations, demonstrating that, when moderating variables are considered, the effect of the assortment size on choice overload is significant. They also highlighted the need for future research to identify other factors in addition to the ones considered in the study that are likely to influence choice overload.

Generally, different variables have been studied to understand what moderates the negative effect of choice overload.

While there might not be a specific study that perfectly matches the investigation of how consumer expertise impacts purchase intention in the context of choice overload, several studies have explored related themes. These studies often look at the interaction between consumer knowledge or expertise and various elements of decision-making, including the number of choices available (Iyengar and Lepper, 2000; Chernev et al., 2015).

Surprisingly, few studies are focused on the channel through which products are offered, even if, as previously discussed, this plays a pivotal role in influencing purchasing decisions. Different retail channels can significantly alter the shopping experience and the way information is presented and processed by consumers. Consequently, analyzing the interplay between retail channels and choice overload will offer insights into how environmental and contextual factors shape consumer decision processes (Kumar and Venkatesan, 2005; Brynjolfsson et al., 2009).

Given that previous research has not thoroughly investigated consumer expertise and retail channels as moderators, this study aims to deepen the understanding of how these factors influence the choice overload effect, which results from a large assortment size.

Finally, considering that previous studies on choice overload had not given much attention to the beauty industry, focusing mainly on grocery products and electronic devices, the researcher decided to measure the impact of choice overload on purchase intention in this specific industry.

2.6 Proposed Theoretical Model

In this section, the theoretical model that serves as the focus of this research is presented.

The research aimed to empirically test a theoretical model aimed at evaluating if the impact of choice overload on purchase intent differs in expert and non-expert consumers who purchase in online and offline beauty product shopping settings. More specifically, the study is meant to examine how the effect of choice overload, which results from large assortment size, on purchase intention, is moderated by the retail channel through which the purchase is happening, and the level of consumer expertise.

According to the purpose of the study, three research questions have been identified:

- 1) How does choice overload impact purchase intention?
- 2) Is there a difference in the impact that choice overload has on purchase intent in different retail channels?
- 3) Does consumer expertise mitigate the negative effect of choice overload on purchase intention?

To answer these questions, three hypotheses have been developed based on the literature review:

H1: Consumers tend to be less willing to make purchases under choice overload conditions.

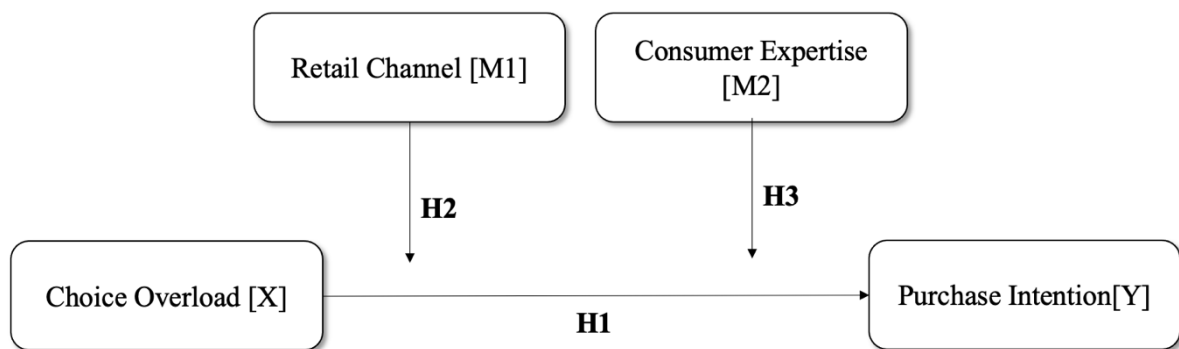
H2: Purchasing through the online retail channel reduces the negative impact of choice overload on purchase intent.

H3: If consumers are knowledgeable about the product, the negative impact of choice overload on purchase intention is reduced.

The proposed model can be divided into two components: the primary effect and the moderation (Figure 1).

The first element, the major effect, defines the situation: a context of choice overload, and so a large choice set condition, reduces buying intention and influences the decision-making process. However, considering that choice overload is a context-dependent phenomenon, and multiple factors may interfere with its occurrence (Chernev, 2003; Iyengar & Lepper, 2000) other variables must be considered. Consequently, the model takes into account two other components, two moderators of the main effect: the retail channel chosen to purchase, and the level of expertise that consumers have about the specific product category.

Figure 1 - Overall Model



3. RESEARCH METHODOLOGY

3.1 Research design

This research study used a three-stage data collection technique.

The first stage broadly investigated the concept of choice overload in the beauty industry through one focus group. The second step was a pre-test instrumental for the main experiment, intended to develop the experimental stimuli. The last stage was the primary experiment, which employed an online questionnaire instrumental to the data analysis.

Table 1 presents a summary of the three stages' objectives.

Table 1 - Data Collection Methods Summary

Stage	Data Collection Method	Objectives
1	Focus group	1) To gain a better understanding of how people make decisions while shopping for products online
		2) To identify specific positive and negative experiences with the purchase decision-making process
		3) To identify the right product category among beauty items to test the phenomenon
2	Pre-Test	1) Determine the optimum number of options for experimental stimuli development
3	Main Experiment	1) Test the hypotheses that have been derived from the literature

The following sections present information on each stage's processes, highlighting descriptive statistics for each sample, experimental stimuli, and measuring tools.

3.2 Stage 1 - Focus Group

3.2.1 Procedures

The primary goals of the focus groups were to gain a better understanding of the choice overload phenomenon, to discover how consumers perceive choice overload in the beauty industry, and to determine which product category would be most beneficial to focus the research on.

The focus group was held in English, and the researcher guided the discussion. The discussion was video-recorded and transcribed for further data analyses.

3.2.2 Sample

No specific criteria were used to select participants. A text message was sent to 15 students from the “Universidade Catolica Portuguesa” (both full-time students and exchange students who had no previous relationship with the researcher), inviting them to participate in the focus group, which would be held six days later, at 9 PM at the researcher's house. Of these, 10 accepted the invite and participated in the focus group, of which 7 were Italian, 1 was German and 2 were Portuguese, both males and females from 22 to 28 years old. The diversity of the group provided a broad perspective on consumer behavior across different European markets.

3.2.3 Instruments

A semi-structured guide was created to lead and manage the focus group discussions (detailed focus group guide available in Appendix A). The guide was organized into six main sections. The initial section served both as an introduction to the study and as an icebreaker to help participants feel comfortable and encourage an open discussion.

It was followed by a section regarding general shopping habits in the beauty industry, focusing on participants' usual considerations when purchasing beauty products, their shopping frequency, and shopping channels more frequently used.

The third section delved into experiences with choice overload, investigating participants' memories of having faced overwhelming product choices and their impact on their decision-making processes.

In the fourth section, the discussion focused on the identification of critical product categories. Participants were asked to discuss various beauty product categories they commonly shop for, centering on those where they have experienced feelings of overwhelm due to the assortment sizes. The discussion aimed to brainstorm some product categories that were considered most critical to choice overload according to the participants.

In the fifth section, participants were asked to rank the beauty product categories previously identified based on their perceived need for easier decision-making, reflecting their experiences with choice overload. This ranking exercise aimed to specifically identify which category was most impacted by choice overload, providing clear direction for further detailed study. Participants discussed their rankings and provided insights into why, in their opinion, certain categories felt more overwhelming than others. This prioritization was crucial for selecting the specific product categories for the next phase of the research, ensuring the research focuses on areas where choice overload is most significant.

The final section of the focus group included a Q&A session for participants to ask any remaining questions and express additional thoughts, followed by closing remarks.

3.3 Stage 2 – Pretest

3.3.1 Procedures

In this preparatory phase, instrumental to the main research, the primary objective was to determine two pivotal thresholds related to the assortment of product options presented to participants. Firstly, the pre-test aimed to identify the quantity of products at which participants begin to feel overwhelmed, indicating the onset of choice overload. Secondly, it sought to establish the minimum number of product options necessary for participants to feel that they have sufficient choices to proceed with a decision.

3.3.2 Sample

Forty people, from 18 to 60 participated in the pre-test. Most of the respondents, 66% of them, were below 25. Over 80% of them were Italians. Table 2 shows the respondents' characteristics.

Table 2 - Characteristics of Respondents in the Pre-Test

Characteristic	Category	Sample (Freq.)	Sample (%)
Age	18-24	21	52%
	25-34	3	8%
	35-44	4	10%
	45-54	12	30%
Gender	Female	22	55%
	Male	18	45%
Country of Residence	Italy	33	82%
	Germany	5	13%
	France	2	5%
Shopping Frequency	Once a year	20	50%
	Every few months	13	33%
	Once a month	7	18%
	More than once a month	0	0%

3.3.3 Instruments

An online survey was created and distributed to collect the data necessary to perform the analysis (see the full pre-test questionnaire in Appendix B). The survey presented participants with four distinct visual stimuli, each depicting an assortment of sunscreen products in different quantities. The assortment sizes were carefully selected to represent a range of potential shopping experiences, from a limited to a vast selection. Each participant was presented with just one scenario, and the presentation of the stimulus was randomized. Upon viewing each scenario, participants were prompted to respond to three questions crafted to capture their subjective experiences: they assessed the degree of overwhelm induced by the product options available on a scale from 1 (not at all overwhelming) to 7 (extremely overwhelming); they evaluated whether the number of options felt inadequate for making a well-informed decision, with responses ranging from 1 (far too few) to 7 (sufficient); and they indicated their likelihood of purchasing the presented assortment, with options ranging from 1 (very unlikely) to 7 (very likely). Each scenario received 10 ratings.

The insights gathered from these responses were instrumental in establishing the threshold numbers for product options that were considered non-overwhelming and sufficient for

consumer decision-making, thereby setting the stage for the subsequent experimental phases of the research. Two scenarios (the one presenting 5 items and the one depicting 20 items) were excluded from the stimuli development.

3.4 Stage 3 – Main Experiment

3.4.1 Procedures

Through the main experiment, data needed to test the proposed hypotheses and answer the research questions were collected.

Firstly, the research aimed to empirically test the impact of the number of available choices on purchase intention. Second, the moderating effect of consumer expertise on this relationship was investigated. Then, the research aimed to test how the relationship between choice overload and purchase intention is moderated by the retail channel chosen. Finally, all the variables were put together through a multivariate linear regression analysis and a linear discriminant analysis to evaluate the overall effect.

This study measured variables through a combination of constructs and stimuli. All the study's constructs were measured using empirically established scales.

To account for the differences in the impact that choice overload has in retail channels, online and offline environments were distinguished.

For the online channel, a screenshot of a retailer's webpage was presented, while for the offline channel, a picture of a shelf in a physical shop was shown. Consequently, a 2 (number of choices) by 2 (retail channel: offline vs online) factorial design was employed. Four scenarios were developed. Participants were randomly but evenly assigned to one of the four scenarios.

3.4.2 Stimuli

Specifically, to examine the impact of choice overload on purchase intention within the sun protectors product category, the study employed four distinct stimuli, reflecting varying (but equal) levels of product assortment both online and offline. These stimuli include: a screenshot from a retailer's webpage showcasing a limited (10) range of sun protectors, representing a scenario of low-choice overload; a screenshot from the same retailer's webpage displaying a vast array (30) of sun protectors, creating a high-choice overload environment; a photograph of a supermarket, pharmacy, or beautician's shelf that offers a few (10) sun protectors, simulating a physical retail setting with limited options; a photograph of the same shelf but stocked with a

huge variety (30) of sun protectors options, representing a high choice overload scenario. As previously stated, participants were randomly but evenly assigned to one of these conditions.

3.4.3 Instruments

As previously discussed, an online survey composed of four sections was designed and distributed. The full questionnaire is in Appendix C.

The first section involved screening questions related to the frequency and recency of sunscreen product usage, along with questions about online shopping frequency, as well as the typical purchase locations for such products. This section aimed to identify the participants' basic habits and eligibility for the study.

In the second section, questions focused on the level of consumer expertise regarding sunscreen products. Participants were asked to rate their agreement with several statements on a 7-point Likert scale, assessing their familiarity with various sunscreen products, understanding of product characteristics, and overall knowledge compared to the average consumer.

The third section presented participants with an image representing a shopping scenario. They were asked to respond to questions as if they were considering purchasing a sunscreen product in that scenario. This section aimed to capture the decision-making process and behavioral intentions in a controlled setting.

The final section presented two manipulation questions and then collected basic demographic information, including age, gender, and country of residence.

3.4.4 Sample

A non-probability sampling strategy was employed, specifically selecting a convenience sample, to target individuals aged 18 to 55+. This approach aligns with methodologies employed in prior studies by scholars such as Gourville & Soman (2005), Chernev (2006), and Chernev & Hamilton (2009), who have similarly leveraged convenience sampling for data collection.

A total of 233 valid responses were collected for the study. Initially, 311 respondents started the questionnaire for the main experiment. Nevertheless, the number of usable responses diminished to 233 after eliminating ineligible responses, including 33 incomplete surveys, 44 with missing data, and 1 identified outlier. For the final analysis, the focus was on a subset of 214 participants. This subsection was determined after excluding 19 individuals who selected

'never' in response to the question regarding purchase frequency, as their data were not pertinent to the study objectives.

The final sample consisted of 214 participants with a balanced gender distribution. The majority were female, accounting for 57.0% (n=122) of the sample. Male participants comprised 41.6% (n=89) of the sample. A small proportion identified as non-binary or third gender, representing 0.9% (n=2). Additionally, 0.5% (n=1) of the participants preferred not to disclose their gender. The age distribution of the 214 participants is predominantly skewed towards younger age groups. The largest age group is 18–24 years old, comprising 73.8% (n=158) of the sample. Participants aged 25–34 years make up 17.8% (n=38), while those aged 35–44 years represent only 0.9% (n=2). The 45–54 years age group constitutes 5.6% (n=12), and participants aged 55 and older make up 1.9% (n=4) of the sample. This age distribution indicates a strong representation of younger individuals, particularly those in the 18–24 age range, which may influence the generalizability of the findings to older populations.

Among the 214 respondents, the vast majority of the sample, 89.7% (n=192), are from Italy. Different countries are represented as follows: France (1.4%, n=3), Germany (0.9%, n=2), Portugal (1.9%, n=4), and other countries collectively make up 6.1% (n=13) of the sample. This concentration indicates a predominantly Italian sample, which may impact the generalizability of the findings to other national contexts.

Regarding the frequency of purchase, diverse purchasing behaviors were observed among the 233 valid responses. As previously discussed, 8.2% (n=19) of the respondents stated that they never make purchases. The majority, 33.9% (n=79), reported making purchases occasionally. A significant portion of the sample, 21.0% (n=49), indicated that they make purchases several times a week. Daily purchasers accounted for 16.7% (n=39) of the respondents; conversely, 20.2% (n=47) reported making purchases rarely. This distribution suggests a varied range of purchasing frequencies, with occasional and weekly purchases being the most common among the participants.

In terms of the frequency of use, among respondents who purchase sunscreen products, 36.0% (n=77) reported having used the product more than six months before completing the survey. Those who used the product within the previous month constituted 17.8% (n=38) of the sample, while 18.7% (n=40) reported usage between one and three months before. Additionally, 18.2% (n=39) used the product four to six months earlier, and 9.3% (n=20) did not remember their last usage.

3.4.5 Questions

Choice overload. The impact of choice overload was assessed by presenting respondents with either a limited or extensive range of options, reflecting the procedures from Iyengar & Lepper (2000) and Adriatico et al. (2022). The number of alternatives displayed (assortment size) was derived from the pre-test. Following Iyengar & Lepper's (2000) study, participants were asked about the extent to which they felt the decision process had been enjoyable, challenging, or frustrating. A seven-point Likert scale was applied with "1" as "Strongly Disagree" and "7" as "Strongly Agree."

Consumer expertise. Consumer expertise was measured through self-assessment, supported by findings from various research (Park et al., 1994; Mitchell and Dacin, 1996; Wirtz & Mattila, 2003) that highlight the correlation between self-assessed knowledge and objective knowledge. The self-report assessments of knowledge included four different knowledge measures adapted from the literature (Mitchell and Dacin, 1996). These being: "I am familiar with the product", "I understand which characteristics of sunscreen products are important for providing maximum protection and satisfaction", "I know a lot about the product", and "I consider myself knowledgeable about sunscreen products compared to the average consumer". Following the literature, a seven-point Likert scale was used, ranging from low familiarity or knowledge to high.

Purchase intent. A 7-point Likert scale using three items was employed to measure purchase intention (Grewal et al., 1998). Participants stated their level of agreement with three statements: "I would purchase a sunscreen product from the assortment shown", "I would consider purchasing from the assortment shown", and "There's a high probability that I would consider buying from the assortment shown". Moreover, to gain a more complete understanding, another question composed of two items was employed (Pavlou & Fygenson, 2006): "I intend to purchase this product within the next 30 days", and "I plan to purchase this product within the next 30".

Manipulation check questions. Two questions were asked in the survey to assess the effectiveness of the stimuli. The first manipulation check question aimed to confirm that participants understood the shopping channel presented to them. They were asked "What type of shopping environment was described in the scenario you read?" and had to select between two options: "An online shopping platform accessible through the internet" and "A physical store where customers can visit in person." This question ensured that participants correctly perceived the shopping context as intended in the scenario.

The second manipulation check question addressed the number of stimuli presented. Participants were asked "How would you consider the shopping alternatives available in the scenario you read?" and had to choose between "Limited Choice", "Sufficient Choice", and "Abundant Choice". This question verified that participants perceived the intended variation in the number of product choices presented to them.

Table 3 - Survey Questions Development

Framework	Measures	Items	Scale	Reference	Cronbach α
IV	Choice Overload	3	7-point Likert scale	Iyengar & Lepper, 2000	>0.7
Moderator	Consumer Expertise	4	7-point Likert scale	Mitchell and Dacin, 1996	0.74
Moderator	Retail Channel	Stimuli	na	na	na
DV	Purchase Intention	3	7-point Likert scale	Grewal et al., 1998	0.92
		2	7-point Likert scale	Pavlou & Fygenson, 2006	>0.7

4. RESULTS

Different data analysis procedures have been carried out in order to test the hypotheses that were developed to address the research questions.

This chapter presents the findings of data analyses as follows: sample analysis, manipulation checks, factors development, hypotheses testing, model testing, and linear discriminant analysis. IBM SPSS Statistics 29 was the software employed for the data analysis.

4.1 Sample analysis

In the present study, some preliminary checks have been performed to ensure the validity of the statistical analyses.

Normality and independence of observations were assumed. Normality was assumed based on the theoretical distribution of the data, while independence of observations was considered reasonable given the nature of the sample and the study design.

Levene's Test was used to test the assumption of homogeneity of variances between groups. Levene's Test for equality of variances yielded non-significant results for all variables considered ($p \geq 0.05$). This indicates that there are no substantial differences in variances among the groups, confirming the assumption of homoscedasticity for the sample examined.

Then, the Variance Inflation Factor (VIF) was computed to assess the presence of multicollinearity among variables in the regression model.

VIF values were found to be between 1.015 and 1.995, suggesting that multicollinearity was not a significant problem in the analyses. This implies that the regression coefficients can be considered reliable and interpretable.

4.2 Manipulation checks

Channel Manipulation Check. The first manipulation check results, which assessed participants' recognition of the retail channel they were exposed to in the specific scenario, indicate a significant association between the scenarios presented and the channel identified.

The Pearson Chi-Square test produced a value of 67.580 with 3 degrees of freedom ($p < 0.001$), confirming that the manipulation of the scenarios was effective. Both the Phi coefficient and Cramer's V were 0.562, demonstrating a robust relationship between the manipulated variable (scenario) and the perceived retail channel. This high degree of association suggests that the participants effectively recognized the scenarios, with substantial differences in channel identification across the conditions.

Table 4 - Channel Manipulation Check Results

Test	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	67.580	3	<0.001
Likelihood ratio	72.559	3	<0.001
Measure			
Phi	0.562	0.001	
Cramers'V	0.562	<0.001	

Choice Overload Manipulation Check. The second question aimed to investigate the internal validity of the other experimental stimuli, and the number of choices. The question aimed to find out whether participants in abundant choice groups felt they had too much choice. In contrast, those in the limited choice groups thought there were sufficient or too few selection alternatives.

The contingency table analysis results, testing the scenario manipulation's effectiveness concerning the perceived amount of choice, are displayed below. The Pearson Chi-Square test yielded a value of 34.530 with 6 degrees of freedom ($p < 0.001$), indicating a statistically significant association between the scenarios and the perceived amount of choice.

The Cramer's V value of 0.284 and the Phi coefficient of 0.402, both statistically significant ($p < 0.001$), suggest a moderate association strength, confirming that different scenarios distinctly influenced participants' perceptions of choice availability.

Table 5 - Choice Overload Manipulation Check Results

Test	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	34.530	6	<0.001
Likelihood ratio	39.772	6	<0.001
Measure			
Phi	0.402	0.001	
Cramers'V	0.284	<0.001	

Overall, the manipulation checks proved that participants correctly identified and reacted to the elements of every scenario. This confirms that the experimental conditions were successful in simulating varying shopping environments.

4.3 Factors Development

As previously discussed, the online questionnaire employed to collect data included questions adapted from prior studies. A Principal Component Analysis (factor analysis) with a Varimax rotation was conducted to consolidate the responses to the various questionnaire items related to the same variable, and internal reliability was assessed using Cronbach's Reliability Test. This procedure allowed us to identify overall and specific factors for the different dimensions studied, specifically consumer experience, choice overload, and purchase intention, in the various scenarios.

Factor analysis of the three-item "Consumer Expertise" scale confirmed the unidimensional structure of the construct. Principal Component Analysis extracted a single factor explaining 79.44% of the total variance. Each item showed high factorial loadings (0.885 to 0.897), suggesting strong internal consistency. These results support construct validity and confirm that the items form a consistent measure of consumer expertise. The scale also demonstrates excellent internal reliability, with a Cronbach's Alpha of 0.871.

Moving to the first scenario, the one presenting few options in the offline retail channel, factor analysis identified two principal components for purchase intention, explaining 85.15% of the total variance, with communalities ranging from 0.672 to 0.951 post-extraction (Cronbach's Alpha equal to 0.850).

For the choice overload variable, the factor developed explained 65.98% of the total variance, with communalities going from 0.545 to 0.755 post-extraction. These results highlight significant dimensions of purchase intention and choice overload in contexts with limited offline alternatives. The Cronbach's Alpha of 0.742 confirmed the internal reliability.

In the second scenario, presenting many alternatives available in an offline shelf, factor analysis found a dominant factor for choice overload, explaining 64.33% of the total variance, with post-extraction communalities ranging from 0.537 to 0.761 and a Cronbach's Alpha equal to 0.722. For purchase intention, two principal components explained 91.11% of the total variance, with communalities ranging from 0.863 to 0.933 post-extraction. The Cronbach's Alpha was found to be 0.941, confirming the reliability of the factor.

In the third scenario, showing few options in the online retail channel, factor analysis identified a significant factor for choice overload, explaining 51.30%, and a Cronbach's alpha equal to 0.512, indicating good internal consistency among the variables. For purchase intention, the analysis revealed two principal components explaining a substantial part (85.27%) of the total

variance, with post-extraction commonalities from 0.788 to 0.09, indicating that the model captured a significant part of the variance of each variable, with a Cronbach's alpha of 0.882. Finally, in the fourth scenario, the one depicting many options online, factor analysis showed a dominant factor for choice overload, explaining 62.63% of the total variance, indicating strong internal consistency among the variables. The Cronbach's alpha for this factor was 0.684. Concerning purchase intention, the analysis identified two principal components explaining 83.37% of the total variance, with post-extraction commonalities and Cronbach's alpha (0.735) indicating that the factor captured a significant part of the variance of each variable, and had good internal reliability.

4.4 Bivariate Analysis

A series of t-tests were conducted to investigate the effects of choice overload, sales channel, and consumer expertise on purchase intention.

These bivariate analyses were performed following the creation of two clusters for the consumer expertise variable (experts and non-experts) and the choice overload variable (high level of choice overload and low level of choice overload) by cluster analysis. As previously stated, Levene's test for equality of variances was not significant for any of the variables, indicating that the assumption of homogeneity of variances was met for all t-tests.

The first test's results revealed that choice overload has a significant negative effect on purchase intention. Participants with lower choice overload showed a mean purchase intention of 0.123 (SD=0.963), while those with higher choice overload reported a mean of -0.210 (SD=1.013). The mean difference of 0.333 was statistically significant ($t(212)=2.393$, $p=0.018$). The magnitude of the effect, as measured by Cohen's d (0.982), indicates a considerable impact of choice overload on purchase intention.

Conversely, the comparison between purchase intention in physical stores and online showed no significant differences. Both groups reported a mean purchase intention of 0.000, with standard deviations of approximately 0.995. The t-test confirmed that there were no statistically significant differences in purchase intention between the two groups ($t(212)=0.000$, $p=1.000$). This indicates that consumers' intentions to purchase are unaffected by the medium through which they are shopping.

Then, a t-test was conducted to assess the effect of consumer expertise on purchase intention. The results indicated a significant difference between the two clusters. Participants with lower expertise reported a mean purchase intention of 0.235 (SD=0.947), while those with greater expertise showed a mean of -0.143 (SD=0.997). The mean difference of -0.378 was statistically

significant ($t(212)=-2.742$, $p=0.007$). This indicates that consumers with higher expertise tend to have lower purchase intentions compared to those with lower expertise. The effect size, measured by Cohen's d (0.978), suggests a large and practically significant difference, highlighting that lower expertise is associated with a significantly higher purchase intention in the context of sun protectors.

Table 6 - T-Test Results

Variable	Mean (Low)	SD (Low)	Mean (High)	SD (High)	Mean Difference	t	p-value	Cohen's d
Choice Overload (High vs Low)	0.123	0.963	-0.210	1.013	0.333	2.393	0.018	0.982
Sales Channel (Physical vs Online)	0.000	0.995	0.000	0.995	0.000	0.000	1.000	na
Consumer Expertise (High vs Low)	0.235	0.947	-0.143	0.997	-0.378	-2.742	0.007	0.978

4.5 Hypothesis Testing

After establishing the experiment's internal and external validity using manipulation checks and identifying potential variables through factor analysis, multiple statistical analyses were run to test the hypotheses.

4.5.1 Main effect

The first hypothesis was developed to analyze the effect of choice overload, given by a large assortment size, on consumers' purchase intent.

H1: Consumers tend to be less willing to make purchases under choice overload conditions.

A linear regression analysis was conducted to examine the validity of hypothesis 1; the results of the regression analysis provided support for this hypothesis. The multiple correlation coefficient was found to be equal to 0.263, indicating a small but notable correlation between choice overload and purchase intention. The coefficient of determination (R-squared) was 0.069, which means that 6.9% of the variance in purchase intention is explained by the variation in choice overload. This finding underscores the relevance of choice overload in influencing consumer behavior, although it also suggests the presence of other influential factors not captured by this model. The ANOVA results further confirm the statistical significance of the regression model ($F=15.750$, $p<0.001$), indicating that the model reliably predicts purchase

intention based on choice overload levels. The regression coefficient for choice overload was -0.263 ($t=-3.969$, $p<0.001$), demonstrating that higher choice overload levels are associated with a decrease in purchase intention. This negative relationship confirms the hypothesis that greater choice overload adversely affects consumers' decision-making processes, reducing the likelihood of purchasing. In conclusion, the analysis validates the hypothesis by showing a statistically significant negative impact of choice overload on purchase intention.

Table 7 - Hypothesis 1 Test Results

Model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.263	0.069	0.065	0.9602

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	14.522	1	14.522	15.75	<.001
Residual	195.478	212	0.922		
Total	210	213			

Coefficients

	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
Choice Overload	-0.263	0.066	-0.263	-3.969	<.001

4.5.2 Interactions

Hypothesis 2 and Hypothesis 3 were developed to test the two moderations.

H2: Purchasing through the online retail channel reduces the negative impact of choice overload.

H3: If consumers are knowledgeable about the product, the negative impact of choice overload on purchase intention is reduced.

For hypothesis two, the regression analysis conducted produced significant results. The regression model showed a multiple correlation coefficient of 0.290, indicating a moderate correlation between predictors and purchase intention. However, the R-squared value (0.084) suggests that only 8.4% of the variance in purchase intention can be explained by the predictors included in the model, implying the presence of other unconsidered factors influencing purchase intention.

Analysis of variance (ANOVA) confirmed the statistical significance of the overall model ($F=6.410$, $p<0.001$), indicating that the regression model reliably predicts purchase intention based on levels of choice overload and use of the use of the online sales channel.

However, the results do not support the moderating effect of the online sales channel. The regression coefficient for the interaction between choice overload and online sales channel ($B=0.243$, $p=0.068$) suggests that purchasing through the online channel does not significantly mitigate the negative effect of choice overload on purchase intention. Moreover, the coefficient for the online sales channel ($B=0.000$, $p=1.000$) shows no significant direct effect on purchase intention, too. Conversely, the coefficient for choice overload ($B=-0.376$, $p<0.001$) indicates a significant negative effect on purchase intention.

Table 8 - Hypothesis 2 Test Results

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.290	0.084	0.071	0.957

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1	17.616	3	5.872	6.41	<0.001
Residual	192.384	210	0.916		
Total	210	213			

Coefficients

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
Retail Channel	0.000	0.131	0.000	1.000	1.000
Choice Overload	-3.760	0.090	-0.376	-4.163	<0.001
Interaction Choice Overload & Retail Channel	0.243	0.132	0.166	1.837	0.068

To test hypothesis three, whether the negative effect of choice overload on purchase intention is moderated by consumer expertise, a regression analysis was performed. The regression model produced a multiple correlation coefficient of 0.321, indicating a moderate correlation between the predictors (choice overload, consumer experience, and their interaction) and purchase intention. The R square of 0.103 implies that 10.3% of the variance in purchase intention can be explained by the model, suggesting the importance of the included predictors. Analysis of variance (ANOVA) confirmed the statistical significance of the overall model ($F=8.050$, $p<0.001$), indicating that the regression model is adequate to predict purchase

intention based on the levels of consumer choice overload and experience as well as their interaction.

However, the interaction coefficient between choice overload and consumer experience ($B=-0.033$, $p=0.569$) was not statistically significant, suggesting that consumer expertise does not significantly moderate the negative effect of choice overload on purchase intention. Overall, the results showed that although choice overload reduces purchase intention ($B=-0.292$, $p<0.001$) and consumer experience also negatively impacts purchase intention ($B=-0.184$, $p=0.006$), the interaction between these two factors is not significant.

Therefore, the hypothesis that consumer experience mitigates the negative effect of choice overload is not supported by the data.

Table 9 - Hypothesis 3 Test Results

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate		
0.321	0.103	0.090	0.947		

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1	21.658	3	7.219	8.05	<0.001
Residual	188.342	210	0.897		
Total	210	213			

Coefficients

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
Choice Overload	-0.292	0.066	-0.292	-4.402	<0.001
Interaction Choice Overload & Consumer Expertise	0.033	0.057	0.038	0.570	0.569
Consumer Expertise	-0.184	0.066	-0.185	-2.797	0.006

4.6 Overall Model Test

After having tested the individual hypotheses regarding the effect of choice overload, sales channel, and consumer expertise on purchase intention through a series of linear regressions, a multivariate regression was conducted to test the theoretical model proposed. This approach allowed the overall impact of all independent variables considered simultaneously to be assessed, providing a more complete view of the model and the relationships between variables.

The model test demonstrated a moderate correlation between the predictors and purchase intention, with a multiple correlation coefficient of 0.351. The R square value of 0.123 indicates that the model can explain 12.3% of the variance in purchase intention, with an adjusted R square of 0.102. The ANOVA results confirmed the statistical significance of the overall model ($F=5.854$, $p<0.001$), validating its predictive capability.

The analysis revealed that consumer expertise significantly reduces purchase intention ($B=-0.193$, $p=0.004$), and that choice overload also has a significant negative impact on the independent variable ($B=-0.432$, $p<0.001$). However, the interaction between consumer expertise and choice overload was not significant ($B=-0.066$, $p=0.263$), suggesting that consumer expertise does not moderate the impact of choice overload on purchase intention. Additionally, the sales channel through which consumers purchase (online versus offline) did not have a significant direct effect on purchase intention ($B = 0.053$, $p = 0.523$). Interestingly, the interaction between choice overload and the retail channel adopted showed a significant positive effect ($B=0.291$, $p=0.032$), indicating that the negative impact of choice overload on purchase intention can be mitigated when consumers shop online.

Table 10 - Model Test Results

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
0.351	0.123	0.102	0.941

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1	25.907	5	5.181	5.854	<0.001
Residual	184.093	208	0.885		
Total	210	213			

Coefficients

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
Consumer Expertise	-0.193	0.066	-0.195	-2.934	0.004
Interaction Consumer Expertise & Choice Overload	-0.066	0.059	-0.076	-1.122	0.263
Choice Overload	-0.432	0.092	-0.432	-4.677	<0.001
Retail Channel	0.053	0.130	0.027	0.406	0.685
Interaction Retail Channel & Choice Overload	0.291	0.135	0.199	2.157	0.032

4.7 Linear Discriminant Analysis

Lastly, in this study, a linear discriminant analysis (LDA) was applied to examine the impact of choice overload, consumer experience, and sales channel (online vs. offline) on purchase intention. Before performing this analysis, respondents were distinguished into two groups according to their level of purchase intent through cluster analysis.

Box's Test of Equality of Covariance Matrices was not significant (Box's $M=2.483$, $F(6, 25554.101)=0.401$, $p=0.879$), suggesting that the covariance matrices are equal between the groups. This supports the assumption that LDA can be applied without concern for variance-covariance heterogeneity.

However, the eigenvalue of 0.054 indicates the proportion of total variance explained by the discriminant function relative to the unexplained variance. Such a low value suggests that the discriminant function explains very little of the variance between the groups, meaning its ability to differentiate between clusters with varying purchase intent is rather limited. This is further reflected in the low canonical correlation of 0.226, which directly relates to the eigenvalue, confirming the weak discriminating power of the function. Additionally, the Wilks' Lambda of 0.949, being close to 1, implies that a significant portion of the variance remains unexplained by the discriminant function, consistent with the low eigenvalue and modest difference between the groups.

The results of the analysis show that the choice overload variable is the main discriminator between consumers with high and low purchase intention, with a Wilks' Lambda of 0.962 ($F(1, 212)=8.349$, $p=0.004$), indicating a significant difference between the groups.

Additionally, the analysis revealed that the other variables, consumer expertise (Wilks' Lambda=0.995, $F(1, 212)=1.079$, $p=0.300$) and sales channel (Wilks' Lambda=0.998, $F(1, 212)=0.394$, $p=0.531$), were not significant discriminators between the groups. This indicates that neither the consumer experience nor the sales channel significantly impacts the differentiation between consumers with high and low purchase intentions.

Table 11 - Linear Discriminant Analysis Test Results

Test of Equality of Group Means					
Variable	Wilks' Lambda	F	df1	df2	Sig.
Consumer Expertise	0.995	1.079	1	212	0.3
Choice Overload	0.962	8.349	1	212	0.004
Retail Channel	0.998	0.394	1	212	0.531
Test Results					
	Metric	Value			
	Box's M	2.483			
	F	0.401			
	df1	6			
	df2	25554.10			
	Sig.	0.879			

5. DISCUSSION AND CONCLUSION

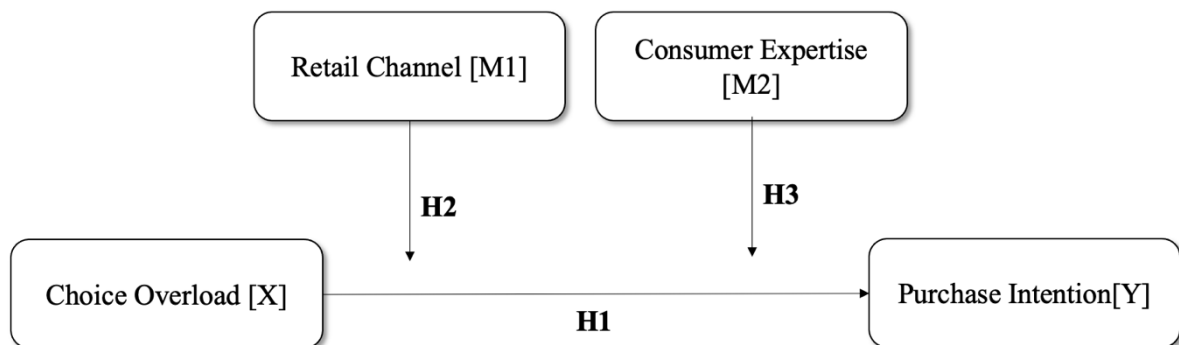
5.1 Main Findings & Conclusions

Previous studies proved that while decision-makers find a greater number of choices more attractive, offering a wide array of options often has negative effects on their purchase intention, confidence in the choice, and satisfaction with the selected option.

The presented study was designed to test if and how the negative impact of choice overload on purchase intention is moderated by the level of consumer expertise and the retail channel adopted (Figure 2).

After having analyzed the literature, three hypotheses were developed to answer the research questions, and the overall model was designed. A survey was distributed, and statistical tests were performed to test the results. This chapter discusses the study's findings and conclusions.

Figure 2 - Tested Model



The proposed model was built on a main effect, the impact of choice overload on purchase intention, and considered as moderator consumer expertise and the retail channel adopted to purchase. The model was tested in the context of beauty products, specifically focusing on the purchase of sun protectors.

To answer the first research question, “How does choice overload impact purchase intention?”, a regression analysis was performed.

In accordance with the literature, findings showed that a larger number of sunscreen options available negatively impact consumer purchase intent. Across all the analyses run, choice overload consistently demonstrated a significant negative impact on consumers’ purchase intention of sunscreens, both alone and alongside other variables.

To address the second research question, concerning the differences in the impact that choice overload has on purchase intent in different retail channels, the second hypothesis was derived from the literature. The study revealed that the retail channel alone does not significantly moderate the impact of choice overload on purchase intention in the context of sun protectors. This means that the likelihood of consumers making a purchase when faced with too many choices is not directly influenced by whether they are shopping online or in physical stores. However, the multivariate regression conducted to test the whole theoretical model revealed that the interaction between choice overload and the retail channel was significant when other variables were considered, indicating that if various factors affecting the decision-making process are present, the negative effect of choice overload is mitigated when consumers shop online.

To answer the third research question, whether consumer expertise mitigates the negative effect of choice overload on purchase intent, the third hypothesis was developed. However, this hypothesis was proven not to be acceptable. The regression model developed to test it demonstrated that, while choice overload has a negative impact on purchase intent, this impact was not significantly moderated by consumer expertise, meaning that even consumers who have a deep knowledge about the product category, felt frustrated or did not enjoy making the choice when many product alternatives were present. In contradiction with the literature, which states that expertise always helps consumers manage more options efficiently, the study proved that both knowledgeable and less knowledgeable consumers were equally affected by choice overload.

Ultimately, the linear discriminant analysis (LDA) supported the findings of the study's prior analyses. It found that choice overload is a key variable in identifying consumers with different degrees of purchase intent, suggesting that when consumers are faced with an overwhelming number of choices, their likelihood of making a purchase decreases. Interestingly, the analysis also indicated that neither the level of consumer expertise nor the sales channel (whether online or offline) plays a significant role in differentiating between consumers with higher or lower purchase intentions. This finding implies that regardless of how knowledgeable consumers are, or which purchasing platform they use, the overwhelming effect of too many choices remains a central factor.

5.2 Managerial / Academic Implications

5.2.1 Managerial Implications

The study provides important insights into how choice overload influences purchase intention and how consumer expertise may mitigate this relationship. These findings are critical for retailers looking to optimize product assortments and store layouts in order to improve the shopping experience and raise sales conversion rates.

Additionally, understanding how consumers' behaviors differ in online and offline channels enables retailers to develop tailored strategies specific to each shopping environment. The results of this study thus have three main managerial implications, which are discussed in detail below.

Firstly, the results demonstrating the negative impact of choice overload on purchase intentions of sun protectors highlight the critical need for retailers to strategically define and design their product assortments. Retailers must aim to achieve a balance between providing adequate variety to satisfy diverse consumer preferences and preventing the negative consequences associated with an excessive number of options.

This insight is particularly relevant from a category management perspective. Category management is “a process that involves managing product categories as business units and customizing them -on a store-by-store basis- to satisfy customer needs” (Nielsen, 1992).

According to this research, presenting a too-deep offer (like a high number of particular styles or formats of a particular product line) can have detrimental effects on consumers' purchase intention. In the context of this study, this is especially relevant for retailers that sell sunscreen products, including both supermarkets that offer beauty and healthcare products and beauty stores. These retailers must adopt strategies to manage choice overload effectively in order to enhance the shopping experience and drive purchase intentions.

Secondly, in terms of channel strategies, the study's findings underscore the importance of adopting differentiated strategies for managing choice overload across different retail channels (Table 10).

According to the study evidence, in the context of choice overload, the use of advanced technological tools on online platforms can play a crucial role in alleviating the negative effects associated with excessive options.

Consequently, retailers should enhance their online shopping environments by adopting advanced technological tools to limit the negative effects of having too many options. For example, online retailers can implement advanced filtering options that allow consumers to restrict their choices based on specific criteria, such as price range, brand, or product features.

Additionally, clear and intuitive categorization of products can help consumers find what they are looking for without feeling overwhelmed by the vast array of options.

Similarly, in physical retail environments, strategies are concerned not only with an accurate and limited product selection but also with an effective store layout and design (Table 11). For instance, supermarkets can simplify the shopping experience by offering curated products in a limited number of product formats within each product line (e.g., three options for protectors 15+, 30+, and 50+) and bundles. This approach allows consumers to satisfy their needs with a convenient, one-stop shopping experience without being overwhelmed by too many options.

Hypermarkets may choose to offer a wider variety of products, but they should ensure that these are presented in an organized manner, using effective signage and layout design. Additionally, labels can be strategically used to highlight best-sellers and guide consumers towards the most suitable options.

Meanwhile, more detailed or niche products can be left to specialty stores, which are better equipped to meet specific needs. Beauty stores, for instance, can focus on providing expert guidance and personalized recommendations, either through well-trained staff in physical stores or through virtual consultations online.

Table 12 - Strategies to Address Choice Overload According to Retail Channel

Retail environment	Strategies to address choice overload
Online	1) Advanced filtering tools: implement filters that allow consumers to narrow down choices based on specific criteria (e.g., price, brand, features) to reduce choice overload
	2) Clear product categorization: organize products into clear, intuitive categories to simplify decision-making and help consumers quickly find what they need
	3) Recommendation systems: Use personalized recommendations to highlight relevant options, thereby minimizing the overwhelming effect of too many choices
Offline	1) Curated product assortments: limit the number of options available in-store to strike a balance between variety and simplicity, reducing the likelihood of choice overload
	2) Effective store layout and signage: design the store layout with clear signage to guide consumers efficiently through their choices, making it easier to navigate extensive assortments
	3) Personalized assistance from well-trained staff: equip staff with the knowledge to help consumers make informed decisions, reducing the cognitive burden associated with too many options

Table 13 - Strategies to Address Choice Overload According to Retail Format

Retailer Type	Product assortment	Store Layout & Design	Consumer assistance
Supermarkets	Limited width and depth, bundles, limited formats per product line	Clear categorization, limited shelf space	Guided signage to essential products
Hypermarkets	A bit wider and deeper, but with emphasis on organized categories	Well-organized layout, effective signage for easy navigation	Use of labels for best-sellers and highlights on new products
Beauty Stores	Wide and deep selection catering to niche needs, but tailored assortment	Specialized sections per product type, aesthetic design, focused displays	Expert staff recommendations, personalized advice, virtual consultations

Finally, according to this study, both expert and non-expert consumers are equally susceptible to the adverse impacts of having too many choices, regardless of their level of product knowledge. This understanding challenges the assumption that expert consumers are better equipped to navigate extensive assortments without experiencing choice overload. Consequently, since both expert and non-expert consumers experience the negative effects of choice overload equally, retailers should implement a consistent approach to managing product variety across all customer segments. This means that strategies designed to mitigate choice overload —such as limiting excessive options, using clear categorization, and providing decision aids— should be applied universally by all store formats. For instance, specialty stores provide a diverse selection of products within a narrow category, sometimes intending to appeal to knowledgeable and passionate customers. However, since both specialists and non-experts are susceptible to choice overload, providing too many options may overwhelm all clients, resulting in the abandonment of the transaction.

5.2.2 Theoretical Implications

The study's findings have several significant theoretical implications, enhancing consumer behavior literature through the understanding of how customer knowledge and retail channels influence the choice overload phenomenon. This contributes to filling gaps in the literature concerning the differential effects of choice overload across different channels, and to expand the present literature about the role of consumer expertise.

This study corroborates previous findings that choice overload negatively impacts purchase intention. It extends the theoretical framework by studying this effect within the specific context of sunscreen products, demonstrating that an increased number of choices can overwhelm consumers, leading to lower purchase intentions. This reinforces the need for theories of

consumer decision-making to incorporate the cognitive limitations and psychological discomfort associated with excessive choices.

Then, the significant interaction between choice overload and the retail channel in mitigating the negative effects of choice overload adds a new dimension to the understanding of the retail channel's role. Theoretical models should consider the distinct cognitive processing and decision-making aids available in online shopping platforms, which can alleviate the stress of choice overload. This finding suggests that the digital context provides unique mechanisms to manage choice overload, unlike physical retail settings.

The findings regarding the role of consumer expertise require future theories on consumer expertise to consider that even the purchase intent of highly knowledgeable consumers can be negatively impacted when faced with too many choices. Moreover, the differential impacts observed across online and offline channels, and among different levels of choice overload, suggest that decision-making processes are highly context-dependent.

Overall, these results underscore the necessity for consumer decision-making theories to incorporate contextual and situational variables, such as retail environment and product category.

5.3 Limitations and Future Research

5.3.1 Limitations

As with most empirical research, this study is subject to certain limitations. The limitations of this study will be described and discussed before presenting recommendations for future research.

Firstly, the present study is limited in its scope due to the predominantly young respondents (18-24 years old), the majority of whom are from Italy, leading to an overrepresentation of the Italian market.

Secondly, assessing purchase intention based solely on a list of statements in a questionnaire does not accurately reflect typical evaluation situations. In real-world scenarios, purchase decisions are often influenced by a complex interplay of factors such as emotions, social influences, and contextual elements that cannot be fully captured through structured survey responses. This method may therefore oversimplify the decision-making process and fail to account for the dynamic and situational nature of consumer behavior.

Thirdly, the four scenarios presented to the respondents were created by the researcher using digital tools, and they may not fully reflect reality. Nevertheless, significant efforts were made to make the task realistic and relevant to reduce the degree of artificiality.

Fourth, even if constructs' measurements were derived from the literature, potential limitations exist relative to these.

Finally, conceptually, the study is limited in scope due to the lack of additional potentially significant factors that may have been included in the model. However, as previously discussed, this study takes into account components and relationships that differ from those considered by past studies in this field.

The current study empirically tested the proposed theoretical model despite the limitations. Although consumer expertise was found not to be a significant moderator for the negative impact that choice overload has on purchase intent, the findings supported the framework and contributed to a better understanding of the decision-making process when consumers face choice overload. However, more studies are needed to examine the impact of various moderators on the presented relationship and to expand the understanding of the choice overload effect.

5.3.2 Future Research

This study proposed a model that may serve as a starting point for further research on the choice overload effect. This section suggests various prospective research directions.

First, this study examines the moderating effects of consumer expertise and retail channels on the impact of choice overload on purchase intent in the context of sun protectors. Thus, it would be interesting to apply the model and test the effect in several fields to see if consumers' purchasing intentions will change when faced with too many product options in a different product context.

Second, since the effect of one of the proposed moderators (consumer expertise) was not statistically significant, future studies are needed to identify other moderators that could exacerbate or ease the effect that choice overload has on purchase intent.

Third, the study focused on assessing the impact of being presented with too many choices on purchase intent. More research can be done to investigate the impact of choice overload on several end factors, such as post-purchased satisfaction.

Fourth, additional researchers can expand on the sample's demographics. Even though this study attempted to gather a large sample, it focused mainly on university students. To increase the effectiveness of the suggested theoretical model, various demographic groups should be investigated. For instance, it would be informative to conduct this study entirely on Gen X (44-59) and compare the results to existing findings.

BIBLIOGRAPHY

- Adriatico, J. M., Cruz, A., Tiong, R. C., & Racho-Sabugo, C. R. (2022). An Analysis on the Impact of Choice Overload to Consumer Decision Paralysis. *Journal of Economics, Finance and Accounting Studies*, 4(1), 55-75. <https://doi.org/10.32996/jefas.2022.4.1.4>
- Alba, J. W., & Hutchinson, J. W. (1987). Dimensions of Consumer Expertise. *Journal of Consumer Research*, 13(4), 411–454.
- Alba, J. W., & Hutchinson, J. W. (2000). Knowledge Calibration: What Consumers Know and What They Think They Know. *Journal of Consumer Research*, 27(2), 123–156. <https://doi.org/10.1086/314317>
- Boyd, D. E., & Bahn, K. D. (2009). When Do Large Product Assortments Benefit Consumers? An Information-Processing Perspective. *Journal of Retailing*. <https://doi.org/10.1016/j.jretai.2009.05.008>
- Brynjolfsson, E., Hu, Y. J., & Rahman, M. S. (2009). The Impact of Channel Alignment on Consumer Decision Making in Multichannel Retail Environments. *Management Science*, 55(6), 982-997
- Castaldo, S., Grosso, M., & Premazzi, K. (2020). *Retail and Channel Marketing*. Edward Elgar Publishing.
- Chang, T., Wildt, A. R. (1994). Price, Product Information, and Purchase Intention: An Empirical Study. *Journal of the Academy of Marketing Science*. <https://doi.org/10.1177/0092070394221002>
- Chen, C. X., Martin, M., & Merchant, K. A. (2014). The effect of measurement timing on the information content of customer satisfaction measures. *Management Accounting Research*, 25(3), 187–205. <https://doi.org/10.1016/j.mar.2013.12.003>
- Chernev, A. (2003). Product assortment and individual decision processes. *Journal of Personality and Social Psychology*, 85(1), 151–162. <https://doi.org/10.1037/0022-3514.85.1.151>
- Chernev, A. (2006). Decision Focus and Consumer Choice among Assortments. *Journal of Consumer Research*, 33(1), 50–59. <https://doi.org/10.1086/504135>
- Chernev, A., Böckenholt, U., & Goodman, J. (2015). Choice overload: A conceptual review and meta-analysis. *Journal of Consumer Psychology*, 25(2), 333–358. <https://doi.org/10.1016/j.jcps.2014.08.002>
- Chernev, A., Hamilton, R. (2009). Assortment Size and Option Attractiveness in Consumer Choice Among Retailers. *Journal of Marketing Research*. *Journal of Marketing Research*. 46. 410-420. 10.1509/jmkr.46.3.410.

- Chintagunta, P. K., Chu, J., & Cebollada, J. (2012). Quantifying transaction costs in online/offline grocery channel choice. *Marketing Science*, 31(1), 96–114. <https://doi.org/10.1287/mksc.1110.0678>
- Day, D., Gan, B., Gendall, P., & Esslemont, D. (1991). *Predicting Purchase Behaviour*. Marketing bulletin, 2(5), 18-30.
- Diehl, K., & Poynor, C. (2010). Great Expectations?! Assortment Size, Expectations, and Satisfaction. *Journal of Marketing Research*, 47(2), 312–322. <https://doi.org/10.1509/jmkr.47.2.312>
- Gao, L., & Simonson, I. (2015). The positive effect of assortment size on purchase likelihood: The moderating influence of decision order. *Journal of Consumer Psychology*, 26(4), 542–549. <https://doi.org/10.1016/j.jcps.2015.12.002>
- Granbois, D. H., Summers, J. O. (1975). Primary and secondary validity of consumer purchase probabilities. *Journal of Consumer Research*, 1(4), 31–38. <https://doi.org/10.1086/208605>
- Grewal, D., Krishnan, R., Baker, J., & Borin, N. (1998). The effect of store name, brand name and price discounts on consumers' evaluations and purchase intentions. *Journal of Retailing*, 74(3), 331–352. [https://doi.org/10.1016/s0022-4359\(99\)80099-2](https://doi.org/10.1016/s0022-4359(99)80099-2)
- Goodman, J. K., & Malkoc, S. A. (2012). Choosing here and now versus there and later: The moderating role of psychological distance on assortment size preferences. *Journal of Consumer Research*, 39(4), 751–768. <https://doi.org/10.1086/665047>
- Gounaris, S., & Dimitriadis, S. (2003). Assessing service quality on the web: Evidence from business-to-consumer portals. *Journal of Services Marketing*, 17(5), 529–548. <https://doi.org/10.1108/08876040310486302>
- Gourville, J. T., & Soman, D. (2005). Overchoice and Assortment Type: When and Why Variety Backfires. *Marketing Science*, 24(3), 382–395. <https://doi.org/10.1287/mksc.1040.0109>
- Hadar, L., & Sood, S. (2014). When Knowledge Is Demotivating. *Psychological Science*, 25(9), 1739–1747. <https://doi.org/10.1177/0956797614539165>
- Haynes, G. A. (2009). Testing the boundaries of the choice overload phenomenon: The effect of number of options and time pressure on decision difficulty and satisfaction. *Psychology and Marketing*, 26(3), 204–212. <https://doi.org/10.1002/mar.20269>
- Inbar, Y., Botti, S., & Hanks, K. (2011). Decision speed and choice regret: When haste feels

- like waste. *Journal of Experimental Social Psychology*, 47(3), 533–540.
<https://doi.org/10.1016/j.jesp.2011.01.011>
- Jain, V., Malviya, B., & Arya, S. (2021). An Overview of Electronic Commerce (e-Commerce). *The Journal of Contemporary Issues in Business and Government*, 27(3), 665–670.
- Jayachandran, S., Hewett, K., & Kaufman, P. (2004). Customer Response Capability in a Sense-and-Respond Era: The Role of Customer Knowledge Process. *Journal of the Academy of Marketing Science*, 32(3), 219–233.
<https://doi.org/10.1177/0092070304263334>
- Juster, F. T. (1966). Consumer Buying Intentions and Purchase Probability: An Experiment in Survey Design. *Journal of the American Statistical Association*, 61(315), 658–696.
<https://doi.org/10.2307/2282779>
- Kimery, K. M., & McCord, M. (2002). Third-party assurances: Mapping the Road to Trust in eRetailing. *Journal of Information Technology Theory and Application*, 4(2).
- Kumar, V., & Venkatesan, R. (2005). Multichannel Customer Behavior and Value. *Journal of Interactive Marketing*, 19(2), 130–148.
- Lee, K. S., & Tan, S. J. (2003). E-retailing versus physical retailing. *Journal of Business Research*, 56(11), 877–885. [https://doi.org/10.1016/s0148-2963\(01\)00274-0](https://doi.org/10.1016/s0148-2963(01)00274-0)
- Long, X., Sun, J., Dai, H., Zhang, D., Zhang, J., Chen, Y., Hu, H., & Zhao, B. (2021). Choice Overload with Search Cost and Anticipated Regret: Theoretical Framework and Field Evidence. Social Science Research Network. <https://doi.org/10.2139/ssrn.3890056>
- Mitchell, A., Dacin, P. (1996). The Assessment of Alternative Measures of Consumer Expertise. *Journal of Consumer Research*, 23(3), 219–239. <https://doi.org/10.1086/209479>
- Misuraca, R., Reutskaja, E., Fasolo, B., & Iyengar, S. (2021). How much choice is “good enough”? Moderators of information and choice overload. In R. Viale (Ed.), *Routledge handbook of bounded rationality* (pp. 637–649). Routledge/Taylor & Francis Group.
- Morwitz, V. G., Schmittlein, D. (1992). Using Segmentation to Improve Sales Forecasts Based on Purchase Intent: Which “Intenders” Actually Buy? *Journal of Marketing Research*, 29(4), 391–405. <https://doi.org/10.2307/3172706>
- Moser, C., Phelan, C., Resnick, P., Schoenebeck, S., & Reinecke, K. (2017). No Such Thing as Too Much Chocolate. <https://doi.org/10.1145/3025453.3025778>
- Nagar, K., & Gandotra, P. (2016). Exploring choice overload, internet shopping anxiety, variety

- seeking and online shopping adoption relationship: Evidence from online fashion stores. *Global Business Review*, 17(4), 851–869.
<https://doi.org/10.1177/0972150916645682>
- Nisar, T. M., & Prabhakar, G. (2017). What factors determine e-satisfaction and consumer spending in e-commerce retailing? *Journal of Retailing and Consumer Services*, 39, 135–144. <https://doi.org/10.1016/j.jretconser.2017.07.010>
- Park, C. W., Mothersbaugh, D. L., & Feick, L. (1994). Consumer knowledge assessment. *Journal of Consumer Research*, 21(1). <https://doi.org/10.1086/209383>
- Pavlou, P.A., Fygenon., M (2006). Understanding and Predicting Electronic Commerce Adoption: An Extension of the Theory of Planned Behavior. *MIS Quarterly*, 30(1), 115.
<https://doi.org/10.2307/25148720>
- Rao, A.R. and Monroe, K.B. (1988) The Moderating Effect of Prior Knowledge on Cue Utilization in Product Evaluations. *Journal of Consumer Research*, 15, 253-264.
<http://dx.doi.org/10.1086/209162>
- Reutskaja, E. and Hogarth, R.M. (2009), Satisfaction in choice as a function of the number of alternatives: When “goods satiate”. *Psychology & Marketing*, 26, 197-203. <https://doi.org/10.1002/mar.20268>
- Scheibehenne, B., Greifeneder, R., & Todd, P. M. (2009). What moderates the too-much-choice effect? *Psychology & Marketing*, 26(3), 229–253. <https://doi.org/10.1002/mar.20271>
- Scheibehenne, B., Greifeneder, R., & Todd, P. M. (2010). Can There Ever Be Too Many Options? A Meta-Analytic Review of Choice Overload. *Journal of Consumer Research*, 37(3), 409-425. <https://doi.org/10.1086/651235>
- Sethuraman R., Gázquez-Abad J.C., Martínez-López J. (2022). The effect of retail assortment size on perceptions, choice, and sales: Review and research directions. *Journal of Retailing*, 98(1), 24-45. <https://doi.org/10.1016/j.jretai.2022.01.001>.
- Shafiq, R., Raza, I., & Zia-ur-Rehman, M. (2011). Analysis of the factors affecting customers’ purchase intention: The mediating role of perceived value. *African Journal of Business Management*, 5(26). <https://doi.org/10.5897/ajbm10.1088>
- Simonson, I., & Tversky, A. (1992). Choice in context: Tradeoff contrast and extremeness aversion. *Journal of Marketing Research*, 29(3), 281–295.
<https://doi.org/10.2307/3172740>
- Schwartz, B. (2004) *The paradox of choice: Why more is less*. Harper Collins.
- Schwartz, B., Ward, A., Monterosso, J., Lyubomirsky, S., White, K., & Lehman, D. R. (2002).

- Maximizing versus satisficing: Happiness is a matter of choice. *Journal of Personality and Social Psychology*, 83(5), 1178–1197. <https://doi.org/10.1037/0022-3514.83.5.1178>
- Taylor, J. W., Houlahan, J. J., & Gabriel, A. C. (1975). The Purchase Intention Question in New Product Development: A Field Test. *Journal of Marketing*, 39(1), 90-92. <https://doi.org/10.1177/002224297503900119>
- Younus, S., Rasheed, F. and Zia, A. (2015) Identifying the Factors Affecting Customer Purchase Intention. *Global Journal of Management and Business Research: A Administration and Management*, 15, 9-14.
- Wan, E. W., Hong, J., & Sternthal, B. (2009). The Effect of Regulatory Orientation and Decision Strategy on Brand Judgments. *Journal of Consumer Research*, 35(6), 1026–1038. <https://doi.org/10.1086/593949>
- Warshaw, P. R. (1980). A new model for predicting behavioral intentions: An alternative to Fishbein. *Journal of Marketing Research*, 17(2), 153-172. <https://doi.org/10.2307/3150927>
- Weber, A., Maier, E. (2020). Reducing competitive research shopping with Cross-Channel delivery. *International Journal of Electronic Commerce*, 24(1), 78–106. <https://doi.org/10.1080/10864415.2019.1683706>
- Wirtz, J., & Mattila, A. S. (2003, December). The effects of consumer expertise on evoked set size and service loyalty. *Journal of Services Marketing*, 17(7), 649–665. <https://doi.org/10.1108/08876040310501223>

APPENDICES

Appendix A Stage 1 Focus Group Topic Guide

1. Introduction and icebreaker (10 minutes)

- Brief explanation of the structure and the purpose of the focus group
- Participants' brief introduction (name, country of origin, and one favorite beauty product they use regularly)

2. General shopping habits in the beauty industry (15 minutes)

- How often do you shop for beauty products?
- Where do you usually purchase beauty products?
- What factors do you consider when buying beauty products (e.g., brand, price, ingredients, recommendations)?
- Do you prefer to shop online or in physical stores?
- Why?

3. Experiences with choice overload (20 minutes)

- Have you ever felt overwhelmed by the number of beauty product options available? Can you describe that experience?
- In which shopping environments (online, offline) do you feel this overload most acutely?
- In your opinion, how does choice overload affect your decision-making process (e.g., difficulty in choosing, buying impulsively, or not purchasing at all)?

4. Identification of critical product categories (20 minutes)

- What types of beauty products do you usually buy (e.g., skincare, makeup, hair care, sun protection)?
- For which beauty products do you experience the most difficulty in making a choice?
- Why?
- Are there specific categories where you feel there are too many similar options?

5. Prioritization of product category (20 minutes)

- Among the different category discussed so far, which categories did you rank as the most overwhelming? Please provide 3 to 5
- Why?
- Are there specific features of these products (e.g., similar packaging, claims, ingredients) that contribute to choice overload?
- Which category do you think would benefit most from research into choice overload?

6. Conclusion and Final Thoughts (5 minutes)

- Summary of the key points discussed
- Discussion of additional thoughts or comments participants would like to share
- Final Q&A and thanking

Appendix B

Stage 2 Pretest Questionnaire

Start of Block: Demographics

Q1 How old are you?

- ☐ 18-24
- ☐ 24-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55+

Q2 What is your gender

- ☐ Female
- ☐ Male
- ☐ Prefer not to say
- ☐ Other

Q3 Which is your country of residence?

- ☐ Italy
- ☐ Portugal
- ☐ Germany
- ☐ Other

Q4 How often do you shop sunscreen/sun protectors?

- ☐ Weekly
- ☐ Monthly
- ☐ Twice a year
- ☐ Once a year
- ☐ Never

End of Block: Demographics

Start of Block: 5 Alternatives

Please evaluate how you feel about the selection size.



Q5 Considering the scenario previously shown, please answer the following questions

0 1 2 3 4 5 6 7

How overwhelming do you find this number of options? (1 = Not at all overwhelming, 7 = Extremely overwhelming) ()



Do you feel this number of options is too few to make a good decision? (1 = Far too few, 7 = Sufficient) ()	
How likely would you be to make a purchase in this scenario? (1 = Very unlikely, 7 = Very likely) ()	

Q6 Based on the images you saw, what would you say is the ideal number of product options for you when shopping in a physical store?

End of Block: 5 Alternatives

Start of Block: 10 Alternatives

Please evaluate how you feel about the selection size.



Q7 Considering the scenario previously shown, please answer the following questions

0 1 2 3 4 5 6 7

How overwhelming do you find this number of options? (1 = Not at all overwhelming, 7 = Extremely overwhelming) ()	
---	--

Do you feel this number of options is too few to make a good decision? (1 = Far too few, 7 = Sufficient) ()	
How likely would you be to make a purchase in this scenario? (1 = Very unlikely, 7 = Very likely) ()	

Q8 Based on the images you saw, what would you say is the ideal number of product options for you when shopping in a physical store?

End of Block: 10 Alternatives

Start of Block: 20 Alternatives

Please evaluate how you feel about the selection size.



Q9 Considering the scenario previously shown, please answer the following questions

0 1 2 3 4 5 6 7

How overwhelming do you find this number of options? (1 = Not at all overwhelming, 7 = Extremely overwhelming) ()	
---	--

Do you feel this number of options is too few to make a good decision? (1 = Far too few, 7 = Sufficient) ()	
How likely would you be to make a purchase in this scenario? (1 = Very unlikely, 7 = Very likely) ()	

Q10 Based on the images you saw, what would you say is the ideal number of product options for you when shopping in a physical store?

End of Block: 20 Alternatives

Start of Block: 30 Alternatives

Please evaluate how you feel about the selection size.



Q11 Considering the scenario previously shown, please answer the following questions

0 1 2 3 4 5 6 7

How overwhelming do you find this number of options? (1 = Not at all overwhelming, 7 = Extremely overwhelming) ()	
---	--

Do you feel this number of options is too few to make a good decision? (1 = Far too few, 7 = Sufficient) ()	
How likely would you be to make a purchase in this scenario? (1 = Very unlikely, 7 = Very likely) ()	

Q18 Based on the images you saw, what would you say is the ideal number of product options for you when shopping in a physical store?

Appendix C

Stage 3 Main Experiment

Start of Block: Introduction

Welcome to this survey, which is part of my Master's thesis research. Please be assured that all data collected in this survey will be treated with strict confidentiality and anonymity, and will be used exclusively for the purposes of this research. By clicking on "Next", you agree to participate in the questionnaire and to share your data in accordance with the terms stated. Thanks for the help!

End of Block: Introduction

Start of Block: Screening Questions

Q1 How often do you use sunscreen products?

- ☐ Daily
- ☐ Some times a week
- ☐ Occasionally
- ☐ Rarely

☐ Never

Skip To: End of Survey If How often do you use sunscreen products? = Never

Q2 When did you last purchase sunscreens?

☐ Within the last month

☐ 1-3 months ago

☐ 4-6 months ago

☐ More than 6 months ago

☐ I do not remember

Q3 Where do you usually buy your sunscreen products? (Select all that apply)

☐ Pharmacy or drugstore

☐ Supermarket or grocery store

☐ Specialty beauty or cosmetic store

☐ Online marketplace (e.g., Amazon, eBay)

☐ Direct from the brand's website

End of Block: Screening Questions

Start of Block: Consumer Expertise

Please rate your agreement with the following statements on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree)

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I am familiar with various sunscreen products available on the market (1)	☐	☐	☐	☐	☐	☐	☐
I understand which characteristics of sunscreen products are important for providing maximum protection and satisfaction (2)	☐	☐	☐	☐	☐	☐	☐
I know a lot about the product (3)	☐	☐	☐	☐	☐	☐	☐
I consider myself knowledgeable about sunscreen products compared to the average consumer (4)	☐	☐	☐	☐	☐	☐	☐

End of Block: Consumer Expertise

Start of Block: 10 Product Shelf

In this section, you will be presented with an image representing a shopping scenario. Please answer the questions as if you were considering purchasing a sunscreen product in this scenario.



Please rate your agreement with the following statements on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree)

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree or disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I enjoyed making the choiche (1)	☐	☐	☐	☐	☐	☐	☐
I found it difficult to decide which sun protector to pick (2)	☐	☐	☐	☐	☐	☐	☐
I felt frustrated when making the choice (3)	☐	☐	☐	☐	☐	☐	☐

Please rate your agreement with the following statements on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree)

	Strongly disagree (1)	Somewhat disagree (2)	Disagree (3)	Neither agree or disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I would purchase a sunscreen product from the assortment shown (1)	☐	☐	☐	☐	☐	☐	☐
I would consider purchasing from the assortment shown (2)	☐	☐	☐	☐	☐	☐	☐
There's a high probability that I would consider buying from the assortment shown (3)	☐	☐	☐	☐	☐	☐	☐

Please rate your agreement with the following statements on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree)

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I intend to purchase this product within the next 30 days (1)	☐	☐	☐	☐	☐	☐	☐
I plan to purchase this product within the next 30 days (2)	☐	☐	☐	☐	☐	☐	☐

End of Block: 10 Product Shelf

Start of Block: 30 Product Shelf

In this section, you will be presented with an image representing a shopping scenario. Please answer the questions as if you were considering purchasing a sunscreen product in this scenario.



Please rate your agreement with the following statements on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree)

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I enjoyed making the choice (1)	☐	☐	☐	☐	☐	☐	☐
I found it difficult to decide which sun protector to pick (2)	☐	☐	☐	☐	☐	☐	☐
I felt frustrated when making the choice (3)	☐	☐	☐	☐	☐	☐	☐

Please rate your agreement with the following statements on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree)

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I would purchase a sunscreen product from the assortment shown (1)	☐	☐	☐	☐	☐	☐	☐
I would consider purchasing from the assortment shown (2)	☐	☐	☐	☐	☐	☐	☐
There's a high probability that I would consider buying from the assortment shown (3)	☐	☐	☐	☐	☐	☐	☐

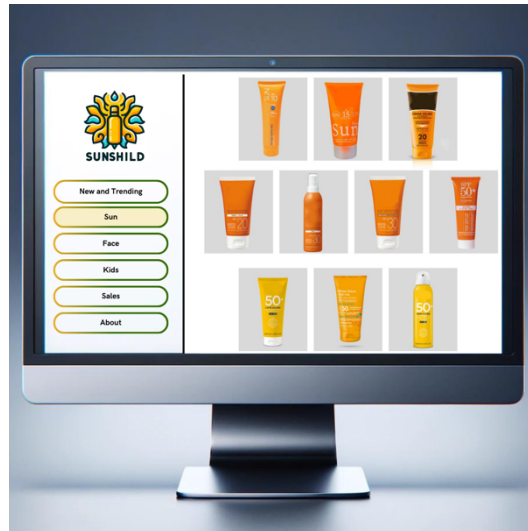
Please rate your agreement with the following statements on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree)

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I intend to purchase this product within the next 30 days (1)	☐	☐	☐	☐	☐	☐	☐
I plan to purchase this product within the next 30 days (2)	☐	☐	☐	☐	☐	☐	☐

End of Block: 30 Product Shelf

Start of Block: 10 Product Web

In this section, you will be presented with an image representing an online shopping scenario. Please answer the questions as if you were considering purchasing a sunscreen product in this scenario.



Please rate your agreement with the following statements on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree)

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I enjoyed making the choiche (1)	☐	☐	☐	☐	☐	☐	☐
I found it difficult to decide which sun protector to pick (2)	☐	☐	☐	☐	☐	☐	☐
I felt frustrated when making the choice (3)	☐	☐	☐	☐	☐	☐	☐

Please rate your agreement with the following statements on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree)

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I would purchase a sunscreen product from the assortment shown (1)	☐	☐	☐	☐	☐	☐	☐
I would consider purchasing from the assortment shown (2)	☐	☐	☐	☐	☐	☐	☐
There's a high probability that I would consider buying from the assortment shown (3)	☐	☐	☐	☐	☐	☐	☐

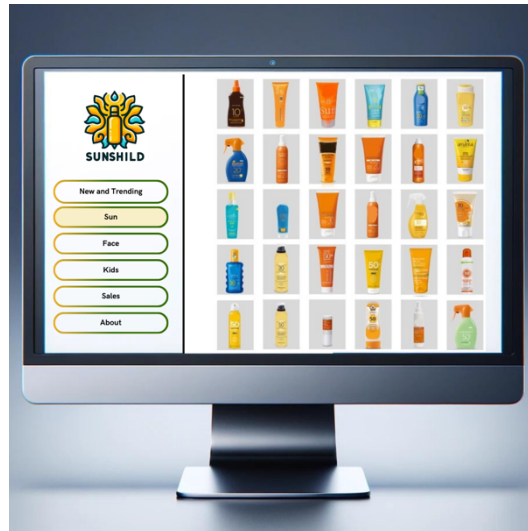
Please rate your agreement with the following statements on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree)

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I intend to purchase this product within the next 30 days (1)	☐	☐	☐	☐	☐	☐	☐
I plan to purchase this product within the next 30 days (2)	☐	☐	☐	☐	☐	☐	☐

End of Block: 10 Product Web

Start of Block: 30 Product Web

In this section, you will be presented with an image representing an online shopping scenario. Please answer the questions as if you were considering purchasing a sunscreen product in this scenario.



Please rate your agreement with the following statements on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree)

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I enjoyed making the choiche (1)	☐	☐	☐	☐	☐	☐	☐
I found it difficult to decide which sun protector to pick (2)	☐	☐	☐	☐	☐	☐	☐
I felt frustrated when making the choice (3)	☐	☐	☐	☐	☐	☐	☐

Please rate your agreement with the following statements on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree)

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I would purchase a sunscreen product from the assortment shown (1)	☐	☐	☐	☐	☐	☐	☐
I would consider purchasing from the assortment shown (2)	☐	☐	☐	☐	☐	☐	☐
There's a high probability that I would consider buying from the assortment shown (3)	☐	☐	☐	☐	☐	☐	☐

Please rate your agreement with the following statements on a 7-point Likert scale (1 = Strongly Disagree, 7 = Strongly Agree)

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
I intend to purchase this product within the next 30 days (1)	☐	☐	☐	☐	☐	☐	☐
I plan to purchase this product within the next 30 days (2)	☐	☐	☐	☐	☐	☐	☐

End of Block: 30 Product Web

Start of Block: Manipulation Question

What type of shopping environment was described in the scenario you read?

- ☐ An online shopping platform accessible through the internet
- ☐ A physical store where customers can visit in person

How would you consider the shopping alternatives available in the scenario you read?

- ☐ Limited Choice
- ☐ Sufficient Choice
- ☐ Abundant Choice

End of Block: Manipulation Question**Start of Block: Demographics**

How old are you?

- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55+

Which is your gender?

- ☐ Male
- ☐ Female
- ☐ Non-binary / third gender
- ☐ Prefer not to say

Which is your country of residence?

- ☐ Italy
- ☐ Portugal
- ☐ Germany
- ☐ France
- ☐ Other