CAN ENVIRONMENTAL INFORMATION RESHAPE SOCIAL NORMS? AN EXPERIMENTAL STUDY

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ABSTRACT

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We explore whether providing information about the environmental footprint of clothing production can reshape social norms and individual perceptions towards the lifespans of garments. In our study, using an incentivized coordination game, we measure how socially and personally appropriate participants find six different usage durations, ranging from "3-6 months" to "more than 4 years," across a control and a treatment group. Our analysis ultimately reveals two key insights. First, the environmental information successfully changes both social and personal norms, but this effect is observed only for the shortest clothing lifetimes. Secondly, this normative shift is entirely driven by female participants, who demonstrate a sharp decline in appropriateness ratings for the initial 3-6 month duration, while male participants do not exhibit any difference. These findings indicate that while information interventions can discourage premature clothing disposal, sustainability policies and campaigns cannot rely on a one-size-fits-all strategy and must adopt gender-differentiated approaches.

Keywords: social norms, fast fashion, sustainability, experimental economics, coordination game.

ÖZ

ÇEVRESEL BİLGİ SOSYAL NORMLARI YENİDEN ŞEKİLLENDİREBİLİR Mİ? DENEYSEL BİR ÇALIŞMA

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Bu çalışmada, giysi üretiminin çevresel ayak izine ilişkin bilgi sağlanmasının, giysi kullanım ömrüne yönelik sosyal normları ve kişisel inançları değiştirip değiştirmediğini araştırmaktayız. Çalışmamızda teşvikli bir koordinasyon oyunu (incentivized coordination game) kullanarak, katılımcıların "3-6 ay" ile "4 yıldan fazla" arasında değişen altı farklı kullanım süresini kontrol ve deney gruplarında sosyal ve kişisel olarak ne derece uygun bulduklarını ölçüyoruz. Analizimiz nihai olarak iki temel bulguyu ortaya koymaktadır. İlk olarak, çevresel bilginin hem sosyal hem de kişisel normları değiştirmede başarılı olduğu, ancak bu etkinin büyük ölçüde en kısa giysi kullanım ömürlerinde yoğunlaştığı görülmektedir. İkinci olarak, bu normatif değişimin tamamen kadın katılımcılar tarafından yönlendirildiği; kadınların ilk 3-6 aylık zaman dilimi için uygunluk değerlendirmelerinde keskin bir düşüş sergilediği, erkek katılımcıların ise anlamlı bir değişim göstermediği tespit edilmiştir. Bu bulgular, bilgi müdahalelerinin giysilerin zamanından önce elden çıkarılmasını caydırabileceğini, ancak sürdürülebilirlik politikaları ve kampanyalarının tek tip, "herkese uyan tek bir model" bazlı bir stratejiye dayanamayacağını ve cinsiyete göre farklılaştırılmış yaklaşımlar benimsemesi gerektiğini göstermektedir.

Anahtar Kelimeler: sosyal normlar, hızlı moda, sürdürülebilirlik, deneysel iktisat, koordinasyon oyunu.

To my beloved family, for their endless love and support

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CHAPTER 1

INTRODUCTION

At first glance, deciding how long to keep a simple piece of clothing like a t-shirt seems like a purely personal decision. However, in reality for most of us, these everyday decisions are rarely made in a vacuum. Many of our consumption choices are quietly shaped by the expectations of other people around us. Similarly, our clothing lifespan tends to be intimately connected with our social surroundings and is impacted by our need for social acceptance. As Bicchieri et al. (2022) emphasize, "Social norms are the informal rules we live by and many of our behaviors can be understood as motivated by their existence."

A growing body of research have demonstrated the strong power of social norms in influencing behavior in a variety of economic fields such as environmental conservation and charity activities (Bicchieri & Dimant, 2019). This is an indication of something more profound: individual decision-making is inherently social. Even when acting rationally, people base their choices on what others are doing (descriptive norms) and what others expect them to do (injunctive norms) (Yamin et al., 2019). Although the motivation behind signaling one's identity is prevalent in several industries, it stands out significantly in the fashion industry because of clothes' visual nature. (McNeill & Moore, 2015).

In this context, the fast fashion industry directly capitalizes on the consumer's "insatiable demand for newness" (Barnes & Lea-Greenwood, 2006). Major retail chains intentionally manufacture products meant to last less than ten uses, creating a vicious circle whereby one in five young women buys new clothes every week (McNeil & Moore, 2015). Ultimately, prevailing social norms encourage this pattern of action because they present this unsustainable lifestyle as normal and socially rewarded, a process that is also constantly amplified by peer pressure and social media

(Lovrić & Čagalj, 2025). Driven largely by young people who want to follow the newest trends, this continuous cycle accelerates overconsumption and reinforces a pervasive throwaway culture (Hassan et al., 2022).

This dynamic is empirically illustrated by Maguire and Fahy (2023), where the authors show that in today's global context, the social norms of novelty and variety prevail over garment longevity, resulting in consumers' inherent aversion to reusing their garments. The authors highlight the fact that this unsustainable behavior occurs among all intergenerational groups, thus preventing sustainable usage of clothes.

Yet the same social mechanisms that fuel unsustainable consumption can also work against it. When intentionally applied, social norms have a great deal of power to shape sustainable behavioral patterns. As a result, reshaping these shared social standards would be far more effective than merely attempting to change individual preferences or beliefs. This implied change is particularly important when we consider the fashion industry's nature and its status as one of the world's most environmentally damaging sectors. It ranks as the third-largest manufacturing industry globally and the second most polluting industry worldwide, right after the oil industry (Bailey et al., 2022). Its environmental impact is multidimensional: ranging from excessive water and chemical use in farming to waterway pollution from dyeing and massive textile waste generation (Boström & Micheletti, 2016). Importantly, as noted earlier, these harms are not the consequence of individual actions alone; they arise and persist through consumption patterns and shared behavioral norms (Constantino et al., 2022). Addressing the role of norms in fast fashion is therefore not an ordinary policy question; it may be a critical way forward to creating lasting change.

Based on this rationale, this study explores whether environmental information can actively reshape the social norms surrounding fast fashion consumption. In particular, we aim to understand whether exposure to environmental footprint information about a garment's production changes its perceived social and personal appropriateness across different usage durations. We also explore gender-driven variations to see how the treatment impacts different genders.

To investigate this, we designed a between-subjects experiment in which participants were randomly assigned to either a treatment or control condition. While control group

participants proceeded directly to the survey, treatment group participants were first exposed to a brief informational text highlighting the environmental costs of textile production, specifically that producing a single T-shirt requires water equivalent to approximately two months of one person's basic needs and that maximizing garment lifespan is the most effective way to reduce its environmental footprint.

All participants then completed a coordination game in which they evaluated the social appropriateness of six clothing usage durations, ranging from '3–6 months' to 'more than 4 years', aiming to match their responses with those of other randomly selected participants. Following Krupka and Weber (2013), we use this incentivized coordination game as our measure of social appropriateness. In addition to social evaluations, participants also rated each usage duration in terms of personal appropriateness, allowing us to capture both normative and individual-level responses to the environmental information.

Our analysis yields two primary findings regarding how environmental information shifts social norms. First, the treatment lowers the level of social appropriateness perception for the shortest duration of usage (3-6 months). This informational impact is concentrated; for durations exceeding 1-2 years, the treatment and control groups become statistically similar, with both tracking a converging downward trajectory in normative evaluations over the long run. Secondly, we find that this normative change is driven by female participants. Female respondents in the treatment group show a strong, statistically significant decline in social appropriateness perceptions during the initial 3-6 month period, while male respondents are not affected by the treatment at all.

This study contributes to the literature in at least two ways. First, while previous studies on social norms in consumption contexts have largely relied on self-reported measures, our study contributes to sustainability research through the use of an incentivized coordination game from experimental economics to elicit beliefs about social appropriateness. This approach provides a more incentive-compatible measure of perceived norms, as participants have a monetary incentive to accurately estimate how others evaluate each behavior, rather than simply reporting their own personal opinions.

Second, to our knowledge, this is one of the first empirical applications to investigate the effect of environmental information on normative evaluations of fast fashion consumption duration. Rather than focusing solely on shifting individual attitude or behaviour, it utilizes information as a catalyst to transform the collective normative standard. Also, while norm-based interventions have been studied in other domains such as energy use and recycling (Allcott, 2011; Thomas & Sharp, 2013), their application to clothing usage norms remains largely unexplored. Our findings have shown that environmental information exposure can shift norm perceptions at the lower end of the usage spectrum, particularly among female participants, offering new insights for the design of sustainable fashion policy and campaigns. These results provide a clear insight to policymakers and green brands: since information impacts genders differently and has a limited reach, relevant strategies or policies cannot rely on a one-size-fits-all approach.

The remainder of this paper is organised as follows. Chapter 2 reviews the relevant literature, situating the study within existing research on social norms, information-based interventions and sustainable consumption. Chapter 3 explains the experimental design in detail. Chapter 4 builds up the study's hypotheses, drawing on the insights established in the literature review. Chapter 5 presents and discusses the empirical results. Finally, Chapter 6 offers concluding remarks, reflecting on the findings and their broader implications for policy and sustainable fashion.

CHAPTER 2

LITERATURE REVIEW

The literature related to this study spans two primary subjects: the influence of social and personal norms on fast fashion consumption and the role of information-based interventions in promoting sustainable behavior.

To begin with the normative literature review, it has been demonstrated through previous literature that norms may lead to overconsumption or, when applied strategically, sustainable behavior among consumers of fast fashion (Granato and Mugge, 2025). These norms exist throughout the whole garment lifecycle, from the initial purchase phase to the ultimate disposal and are facilitated by different means such as peer pressure, social media, and descriptive norms.

The weight of evidence suggests that existing norms predominantly operate in an unsustainable direction, actively driving fast fashion consumption through a number of interrelated layers. The first of these layers includes the need for social validation among friends, family, and peers that always motivates consumers to purchase faster and more frequently. In order to analyze this phenomenon, using a 32-item questionnaire, Gadi et al. (2025) analyzed the effects of social pressure on fashion students' shopping behavior. It was found that both the need for social approval and subjective norms had a significant effect on the intentions and actions of students to make purchases. Interestingly, the study revealed that the role of social pressures and consumer self-efficacy to make effective purchases was much higher than that of the attitudes towards sustainable purchasing held by the person. This highlights that external social expectations often override individual preferences when it comes to fast fashion.

Apart from general approval, people, especially young individuals, often buy fast

fashion in an effort to fit in with their friends and keep a certain social image of themselves. In that vein, looking at consumers in Southern California, Zhou (2022) used surveys and interviews to see what motivates the relevant shopping habits. It was found out that the younger population in general frequently buys fast fashion simply to meet their friends' expectations and preserve their social status.

Also, media and social media platforms act as some other powerful norm-setters. To analyze the factors that affect fast fashion purchase intentions quantitatively, Negm (2019) examined the impact of media communication on consumer attitudes, subjective norms and perceived behavioral control in the context of fast fashion and proved its significant positive effect. Lastly, apart from buying habits, these pervasive social norms also influence how people get rid of fast fashion items. As was stated earlier, conducting case studies, Maguire and Fahy (2023) showed that prevailing social norms favor frequent purchasing and rapid disposal, which severely shortens clothing lifecycles and exacerbates textile waste.

Despite the validity of these studies that show the influence of social norms in shaping fast fashion consumption, these empirical studies use mostly subjective survey-based measures, which are susceptible to some problems, such as social desirability bias. By using surveys or interviews, they fail to incorporate the intersubjective dimension of social norms.

Our study contributes to sustainability research by introducing an experimental economics approach to measuring social norms. In addition to standard self-reported measures, we employ an incentivized coordination game where participants earn rewards based on their ratings to elicit norms in an incentive-compatible way.

While the Krupka-Weber (KW) method was originally designed for abstract lab experiments, recent studies show it is highly effective for measuring real-world social issues. For instance, d'Adda, Drouvelis and Nosenzo (2016) used this framework to study the social norms surrounding corruption and bribery. Similarly, Krupka, Weber, Crosno, and Hoover (2022) applied it to cultural norms like tipping and punctuality. Furthermore, Barr, Lane, and Nosenzo (2018) utilized the KW method to examine discrimination. Following these diverse applications, our study uses the Krupka-

Weber method for a major environmental challenge. Specifically, we use it to measure how environmental information changes collective social appropriateness judgments regarding garment lifecycles in the fast fashion industry.

Turning to the second branch of the literature, information-based strategies, including eco-labels, digital nudges, targeted messaging and educational campaigns, have demonstrated consistent potential to shift consumption choices across a range of sectors, from energy and food to tourism and retail. Yet their impact tends to be incremental and context-dependent, and they rarely close the attitude-behavior gap on their own. Studies across various contexts, including food systems and clothing markets, suggest that these interventions are essential for initiating behavioral shifts (Ran et al., 2022; Wang et al., 2025; Talukder et al., 2025).

A clear example can be seen in the study of Schäufele-Elbers et al. (2024), who looked at how information tools can address this gap to promote sustainable behavior in the context of food waste. Specifically, the researchers used an experimental design to place simple informative messages at the breakfast buffet of a 3-star hotel and to conduct surveys as well. The results obtained revealed that even though the guests had positive attitudes towards environmental sustainability, it was precisely the placement of the messages that motivated them to reduce food waste and take actions for the sake of the environment. This serves as a powerful proof of the effectiveness of a simple nudge in turning good intentions regarding the environment into sustainable behavior. Notably, although food waste naturally decreased over the course of the guests' one-week holiday, the effect of the nudge persisted for the whole period of their holiday. The scholars underline in their study that this lasting effect is highly promising for long-term sustainability, as it shows that simple information nudges can create steady, eco-friendly habits rather than just short-term changes that quickly disappear.

Regarding sustainable clothing consumption, the success of these information-based strategies largely relies on how messages are framed, their emotional appeal and the level of trust consumers place in the information source (Ries & Rese, 2025; Grappi et al., 2024). This medium of delivery is also important in the fast fashion sector since consumer knowledge about sustainability issues is usually limited (Papasolomou et al., 2022). For instance, Roozen et al. (2021) and Prashar and Kaushal (2025) showed

that simple verbal nudges can play a big role in shaping consumer behavior and increase people's willingness to pay more for eco-friendly products, especially if those consumers already care about the environment.

Existing research heavily emphasizes the impact of information interventions on individual behaviors, whereas the potential influence of such interventions to change social norms of behavior remains underexplored. ; this study addresses this gap by demonstrating that environmental information has the potential to alter normative perceptions of clothing longevity, an important precondition for behavioral change.

Thus, by combining all these insights together, our study bridges these gaps with the following dual contribution. Rather than focusing solely on shifting individual perceptions of what is appropriate, which constitutes the major part of current literature, we utilize environmental information as a catalyst to change the collective normative environment. By investigating how information alters social appropriateness judgments rather than just individual actions, this framework provides a more comprehensive look at how systemic and, consequently, more impactful behavioral shifts can be achieved in fast fashion consumption.

CHAPTER 3

HYPOTHESES

In this chapter, we present our hypotheses based on the findings of previously conducted studies in the literature. This study examines whether information-based interventions can actively reshape social norms regarding clothing longevity. The central assumption is that providing consumers with specific information about the environmental footprint of a garment would change the existing perception of the "socially acceptable" period of garment usage. If information serves as a tool for normative change, participants exposed to environmental information should exhibit a shift in their perceptions of both acceptable and unacceptable wearing patterns.

The effectiveness of information interventions as a means of promoting pro-environmental behavior has been widely proved in many spheres of sustainability, including energy-saving, waste management, and sustainable consumption (Abrahamse et al., 2007; Grilli & Curtis, 2021). Furthermore, the relationship between social norms and behavior is well established in the literature: individuals are more likely to act sustainably when they perceive such behaviors as socially accepted and expected (Cialdini et al., 1990; Bicchieri, 2005). Since information may reshape these normative perceptions, shifting what is considered both socially acceptable and unacceptable, it may serve as an indirect pathway to behavioral change by redefining the boundaries of appropriate garment use and increasing the social stigma associated with wasteful consumption. Though closely related, social and personal norms are separate concepts that impact consumer behavior in different ways. [1]

[1] Within the social norms literature, a key distinction exists between injunctive norms, which concern social approval and what individuals “ought” to do and descriptive norms, which describe the

Social norms reflect shared expectations about what society considers appropriate, operating through external validation and social acceptance. Personal norms, however, are internalized moral standards rooted in an individual's own sense of right and wrong. The relationship between social and personal norms is not one of simple opposition, however. Kim and Seock (2019) state that social norms are internalized through personal norms, affecting pro-environmental behavior both directly and indirectly. Furthermore, Pristl et al. (2020) find that personal norms completely mediate the effect of perceived social norms on purchase intentions, suggesting that the path from social expectation to individual action runs through internalized values. This study builds upon these insights in order to understand how providing information can change these shared social appropriateness toward more sustainable outcomes.

Hypothesis 1: *Participants in the treatment group who were provided with environmental information will view **shorter** usage durations as less **appropriate** and longer usage durations as more socially appropriate compared to participants in the control group.*

Literature indicates that social and personal norms are deeply connected through two main mechanisms. First, through **internalization**, shared social expectations gradually become personal moral obligations. Over time, these social norms turn into internal self-sanctions that guide how a person evaluates their own actions (Morris et al., 2015; Groot et al., 2021; Niu et al., 2023). Secondly, personal norms serve as mediators, meaning that social norms affect pro-environmental behaviors and sustainable consumption due to the fact that they modify one's moral values internally (Kim & Seock, 2019).

Since information interventions can change the social norm environment, it is expected that they are also highly likely to affect these internalized personal norms. From the point of view of this connection, we expect that environmental information will

behaviors commonly observed within a group. Both serve as powerful drivers of human action (Cialdini et al., 1990; Krupka & Weber, 2009). According to Schwartz (1973, 1977) and Bicchieri (2005), personal norms reflect an individual's internal sense of what is morally appropriate. Unlike social norms, which depend on the expectations of others, personal norms work independently of external opinion and can lead individuals to act differently from those around them when social trends conflict with their own values.

influence not only social expectations but also personal standards regarding clothing lifecycle durations. Thus, we propose the following hypothesis:

Hypothesis 2: *Participants of the experimental group will find longer usage duration as more personally acceptable and shorter usage durations as less personally acceptable than participants of the control group.*

Furthermore, the literature suggests that the role of social and personal norms is moderated by demographic variables, particularly gender (e.g., Zhao et al., 2021). Research by Zhao et al. (2021) reveals that women not only demonstrate strong intentions of green consumption but also have lower carbon footprints and purchase eco-friendly products more frequently than men. Likewise, Cedrún-Vázquez et al. (2025) found that women internalize social expectations more deeply than men; theferore, subjective norms and pro-environmental behaviors tend to be more pronounced among females. While in our research we focus on the general applicability of social norms under information intervention, the difference between genders indicates that both baseline social norms and receptivity to sustainable messaging vary significantly across gender groups. Accordingly, women may be more 'normatively responsive' to information that aligns with these preexisting normative values.

Hypothesis 3: *There will be a gender moderation effect for the impact of environmental information on social norms perception and women will show a more pronounced shift toward sustainable norms than men.*

CHAPTER 4

EXPERIMENTAL DESIGN AND PROCEDURES

This chapter outlines the experimental design and procedures used to examine how the environmental footprint of clothing influences the social norm on the use of garment lifespans. In order to provide a clear foundation for the experimental setup, this section explains how clothing lifespan is discussed in the literature and the practical operationalization of these concepts in our study.

To measure norms experimentally, it is first necessary to establish what constitutes a "normal" usage duration for a garment. While there is no single universal benchmark for a T-shirt's lifespan as durability depends on fabric quality, fashion cycles and frequency of use, existing research offers useful reference points.

A review drawing on industry and academic data found that consumers across four countries, namely, Germany, Poland, Sweden and the U.S., estimated wearing T-shirts at least monthly over a period of three to four years, which equates to roughly 40 to 80 total wears over a garment's active life (Klepp et al., 2020). Similarly, Langley et al. (2013) reported an average active use period of 3.3 years per garment in the United Kingdom. Geographic and cultural variations also play a role in clothing longevity; Payne et al. (2025) indicated that Australians expect to use their clothing longer (an average of 6.5 years across all products) than Europeans. For instance, in the T-shirt category specifically, while the Danes expected a lifespan of 4.4 years, Australians expected it to be 6.1 years. In contrast, fast fashion items can have extremely shorter lifespans, with reported in-use lifetimes for a t-shirt ranging from a single wear to 4.5 years, corresponding to a wide range of 1 to 113 wears based on the level of care and quality (Wakes et al., 2020).

Assuming a regular frequency of use 1-3 times per month allows us to validate the time intervals adopted in this experimental study on the basis of these literature benchmarks.[2] Specifically, the categories were set on the basis of the smallest and largest numbers found in the literature by setting a gap of one year between them. The shortest period (3-6 months) reflects low use of fast fashion clothes (approximately 6-18 wears), while the longest period (over 4 years) corresponds to the whole useful lifetime of a garment. As for the middle ranges (6-12 months, 1-2 years, 2-3 years, and 3-4 years), these intervals were set by dividing each of them into a year in order to detect precisely where consumers' perceptions shift. Identifying the exact duration that is considered acceptable socially is the primary goal of this research.

In response to pilot findings, the main metric structure was adapted to a time-based model while preserving the conceptual consistency with the initial measures. This approach aligns with Gwozdz et al.'s (2017) framework for analyzing consumer behavior during various stages of clothing consumption. This time-based duration provides a more reliable and clear indicator of active use of clothes and is completely consistent with the notion of clothing lifetime.

4.1. Experimental Design

To examine how environmental footprint information affects norms, a between-subjects research design was conducted using a control group and an experimental group.

The survey followed a clear order: participants first evaluated social norm appropriateness and then personal appropriateness. Table 1 presents an overview of the process.

[2] When designing the survey, determining the longevity of clothing entailed a compromise between accuracy and practicality. The lifespan of garments can be determined by counting the number of wears; however, Klepp et al.(2020) mention that counting wears is actually the most accurate way to determine the life span of garments and yet our pilot study showed that there are some practical problems in doing so. It proved quite hard for the participants to calculate the exact number of wears for a particular item of clothing over several years.

Table 1 : Experimental Design and Survey Flow

Stage	Content	Measurement Target	Order	Matching Incentive
1.	Intervention (Exposure to Environmental Information)	-	1 (Treatment Group Only)	No
2.	A - Social Evaluation (Clothing Lifespan Ranges)	Coordination with another participant	2	Yes (Money prize)
3.	B- Personal Evaluation (Same Lifespan Ranges)	Personal beliefs	3	No
4.	C- Demographics and Personal Questions	-	4	No

Participants were randomly assigned to either the control or the treatment condition at the beginning of the experiment. After signing the informed consent form, the **control group** moved directly to the first task without exposure to any environmental information.[3]

On the other hand, the **treatment group** received the following information about the environmental impact of clothing manufacturing:

"The fashion industry is one of the world's largest sources of carbon emissions, resource consumption and waste. For example, producing a single cotton T-shirt consumes about 2,700 liters of water, equivalent to roughly 2 months of drinking, eating and hygiene needs for one person. The most effective way to reduce a garment's environmental impact is to use it as many times as possible. Research shows that increasing the number of times a T-shirt is worn can significantly reduce its water and carbon footprint."

[3] The full versions of the instructions presented to both the control and treatment groups are available in the Appendix.

This intervention text mainly highlighted the fashion industry's impact on global pollution and emphasized that extending a garment's usage lifespan is the most effective strategy to reduce its negative impact on the environment. Following this, the treatment group proceeded to the exact same tasks as the control group.

The social evaluation task was the first interactive part of the survey (Section A). Participants were asked to rate the social appropriateness of six T-shirt usage durations, namely '3-6 months', '6-12 months', '1-2 years', '2-3 years', '3-4 years' to 'more than 4 years'. They read the following instructions (translated from Turkish):

> "**SECTION A: SOCIAL EVALUATION**
>
> In this section, we ask you to estimate to what extent different usage durations for a T-shirt are considered 'normal' or 'acceptable' by society. The goal here is not to reflect your own personal view, but your assessment of what is generally valid for society as a whole."

To capture social norms genuinely, this stage was designed as a matching coordination game (Krupka & Weber, 2013). Participants had to guess how other people would rate each duration using a 4-point scale: (1) Socially Most Appropriate, (2) Somewhat Socially Appropriate, (3) Socially Not Very Appropriate, and (4) Socially Not Appropriate at All.

Table 2 shows how a hypothetical participant might have filled out the response form.

Table 2: Example of a Response Form Used in the Social Evaluation Task

Usage Duration	**Socially Most Appropriate (1)**	**Somewhat Socially Appropriate (2)**	**Socially Not Very Appropriate (3)**	**Socially Not Appropriate at All (4)**
3-6 months				X
~6 months-1 year		X		
~1-2 years			X	

~2-3 years			X	
~3-4 years	x			
4+ years		x		

Note: This table provides an example of the response form and format used to elicit participants' beliefs during the social evaluation task. For instance, this hypothetical respondent has indicated that they believe most others in society would evaluate using a T-shirt for '3-6 months' as 'very socially inappropriate' while evaluating a duration of 'more than 4 years' as 'somewhat socially appropriate.'

The goal of the incentive mechanism was to anticipate how others would answer and rate accordingly. To determine the payouts, we randomly selected one duration interval at the end of the study. For example, if '3-6 months' was selected, we compared the answers of two randomly paired participants for that specific row. In Table 2, the participant chose 'Socially Not Appropriate at All' (4) for '3-6 months.' They would win the cash prize *only* if their assigned partner also chose (4) for that exact duration.

We used this incentivized game because standard surveys often suffer from "social desirability bias"; people tend to give answers that sound "good" rather than what they truly believe (Fisher, 1993) [4]. Also, individuals often confuse their personal views with society's views (Burchell et al., 2013). By paying participants to match with others, we effectively measured what they believe society expects, giving us a reliable proxy for social norms.

After finishing the coordination game, participants moved to Section B. Here, they were asked to fill out the form based on their own personal beliefs. They read the following instructions (translated from Turkish):

> "**SECTION B: PERSONAL APPROPRIATENESS EVALUATION**
>
> Similar to the previous section, below are different usage period options for a T-shirt. Please select a rating for each period that reflects your own

[4] While the fashion and consumer sustainability literature heavily relies on traditional surveys, qualitative interviews or self-reported behavior to study consumption habits, this experimental approach allows for a direct, incentive-compatible measurement of underlying social norms.

personal evaluation. When making this choice, consider only your own habits and preferences; do not think about what others might say."

Unlike the coordination game, this task had no reference group and no financial reward. Participants simply gave their honest personal ratings. This allowed us to observe the actual distribution of personal beliefs in the sample.

The final section collected background data to control for baseline differences among participants, including demographic information (age, gender) and self-reported clothing consumption habits (shopping frequency, general environmental concern).

At the very end of this section, participants were instructed to create a five-character anonymous code (e.g., KLR32) for identification purposes. Payments were distributed one week after the study concluded. A total of 2,500 TL was awarded to ten randomly selected participants, with each receiving 250 TL after successfully matching their social evaluation responses with their randomly assigned partner.[5]

4.2. Experimental Procedure

Students from the METU Economics Department were recruited to participate in the experiment. The study draws on two compulsory courses, ECON 101 (Introduction to Economics) and ECON 203 (Microeconomic Theory), across multiple sections. Sections were allocated to treatment and control groups via random assignment. Both versions of the survey were constructed digitally using the Google Forms platform, ensuring consistent formatting, efficient data collection and smooth access for participants across both conditions. The data were collected in March 2026 from a total of 112 students who participated in the study. In terms of gender distribution, the sample consisted of 59 male (52.7%) and 53 female (47.3%) participants. The mean age of the participants was 21 years. Participants accessed the survey either via a QR code distributed in class or through a paper-based format.[6] All participants were

[5] The hourly minimum wage is 146.80 TL (gross minimum wage/225 = hourly minimum wage) in Turkey in 2026.

[6] Paper-based surveys were provided as an alternative for participants who did not have a smartphone or internet access during the session.

informed that the survey aimed to explore their perspectives on the total lifespan of clothing. Before proceeding, each participant completed an informed consent form, in which they were assured of complete anonymity and that their data would be used exclusively for academic research purposes. Instructions were read aloud and participants were informed of the incentive mechanism for the task. One week after all sessions had been conducted, the participants selected to receive the prize were notified publicly through the announcements in the classes via their anonymous participant codes.

Some necessary measures were taken to ensure the ethical integrity of the study. Ethical approval for the study was obtained from the Middle East Technical University Applied Ethics Research Centre (ODTÜ UEAM) before data collection.[7]

[7] Following standard ethical practices, the study used a required consent form, guaranteed full anonymity, explained the study's goals to participants at the end and was strictly voluntary.

CHAPTER 5

RESULTS

In this section, we present the findings of the study. The structure of the results section is as follows:

Section 5.1 presents a descriptive analysis of social appropriateness ratings across the entire sample. This subsection establishes the baseline for collective normative evaluations across varying usage durations and compares the Control and Treatment groups to assess the impact of environmental footprint information on social norms.

Section 5.2 examines the empirical baseline of consumers' actual clothing habits. It analyzes self-reported garment usage durations and examines their baseline distribution by gender.

Section 5.3 evaluates the treatment effects on personal norms. Specifically, it analyzes how the information intervention alters individual assessment regarding clothing longevity by comparing the ratings of the Control and Treatment groups.

Finally, Section 5.4 introduces a gender-disaggregated analysis to investigate gender as a potential moderating variable. This subsection examines whether responsiveness to the environmental information intervention and the subsequent recalibration of both social and personal norms statistically diverge between female and male participants.

5.1. Impact of Information on Social Appropriateness

In this section we examine how environmental footprint information affects perceived

social and personal appropriateness across different usage lifespans. **Figure 1** presents the mean social appropriateness ratings for durations ranging from 3-6 months to over 4 years for both the Control and Treatment groups. **Table 3** reports the corresponding frequency distributions and Mann-Whitney U test results.

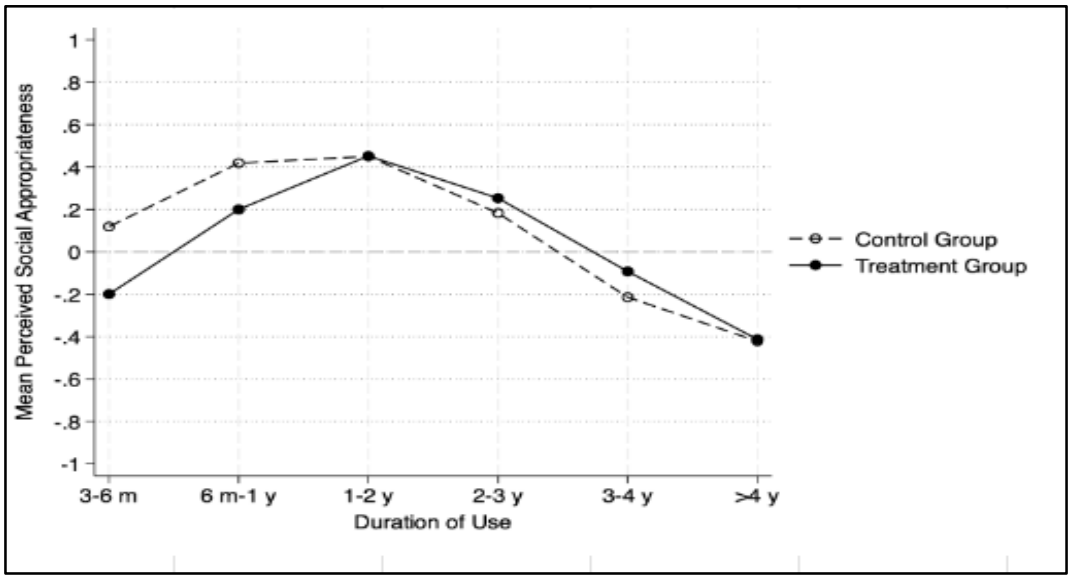

Figure 1 : Comparison of Social Norms between Control and Treatment Groups

Table 3: Statistical Overview of Perceived Social Appropriateness

	3-6 months	6-12 months	1-2 years	2-3 years	3-4 years	4+ years
Grup: Control (n=62)						
Very appropriate (+1)	41.94%	40.32%	35.48%	29.03%	16.13%	18.33%
Somewhat appropriate (+0.33)	8.06%	37.10%	48.39%	29.03%	16.13%	5.00%
Somewhat inappropriate (-0.3	25.81%	17.74%	14.52%	32.26%	37.10%	21.67%
Very inappropriate (-1)	24.19%	4.84%	1.61%	9.68%	30.65%	55.00%
Mean rating	*0.11*	*0.42*	*0.45*	*0.18*	*-0.23*	*-0.42*
Grup: Treatment (n=50)						
Very appropriate (+1)	24.00%	28.00%	38.00%	28.00%	18.00%	16.00%
Somewhat appropriate (+0.33)	14.00%	32.00%	44.00%	36.00%	20.00%	8.00%
Somewhat inappropriate (-0.3	20.00%	32.00%	16.00%	32.00%	42.00%	24.00%
Very inappropriate (-1)	42.00%	8.00%	2.00%	4.00%	20.00%	52.00%
Mean rating	*-0.2*	*0.2*	*0.45*	*0.22*	*-0.09*	*-0.42*
P-value (Mann-Whitney)	**0.037****	**0.058***	0.931	0.606	0.301	0.848

***Notes*:** Table 3 presents the frequency distribution (percentages), mean ratings and associated p-values for perceived social appropriateness across different durations of use. To reflect the direction of the norms, mean ratings are derived from a rescaled interval where +1 represents 'Very Appropriate' and -1 represents 'Very Inappropriate'. P-values are derived from Mann-Whitney U tests to identify statistically significant differences between the Control (n=62) and Treatment (n=50) groups. Statistical significance is indicated by ** $p < 0.05$ and * $p < 0.10$.

To ensure a simple and accurate understanding of the direction and strength of normative evaluations, we follow the approach of Krupka and Weber (2013) and assign evenly spaced values to the ratings, namely, -1 for 'very socially inappropriate', -0.33 for 'somewhat socially inappropriate', 0.33 for 'somewhat socially appropriate', and 1 for 'very socially appropriate'. The mean ratings cited hereafter are derived from these scores, where positive values indicate a lean toward appropriateness and negative values indicate a lean toward inappropriateness.

We then assess whether the treatment influences social and personal appropriateness evaluations of a t-shirt's usage across the specified durations.

First, we find a statistically significant difference between the Control and Treatment groups in the **3-6 month** category (p=0.037, Mann-Whitney U). This shift is most noticeable in the frequency distribution: in the Control group, **41.94%** of participants evaluated a 3-6 month usage period as "Very Appropriate"; however, this figure decreased to **24.00%** in the Treatment group. Conversely, the proportion of those rating this duration as "Very Inappropriate" rose from **24.19%** to **42.00%**. A chi-square test of independence confirms that this structural shift in the distribution is marginally significant ($\chi 2(3)=6.67$, p=0.083).

For the 6-12 month interval, although the Mann-Whitney U test suggests a marginally significant trend (p=0.058), the Chi-square test does not show a statistically significant change in the overall distribution of categories ($\chi 2(3)=4.19$, p=0.242). This suggests that while the environmental information begins to decrease social appropriateness ratings in the first year, the most robust and structurally clear impact of the treatment is concentrated on discouraging the shortest usage duration (3-6 months). no significant treatment effects were observed for all durations exceeding 12 months ($p > 0.10$).

These findings are summarized in **Result 1a:**

> **Result 1a:** The treatment significantly lowers average social appropriateness ratings for the 3-6 month usage duration compared to the Control group.

Secondly, we examine the long-term trends in social norm perception and compare

them with participants' self-reported behaviors. As illustrated in **Figure 1**, both groups follow a similar "inverted U-shape" trajectory. Perceived social appropriateness is highest at the 1-2 year interval (**mean = 0.45** for both groups) and declines steadily as the usage duration exceeds 2-3 years.

Overall, the gap between the Control and Treatment groups is most pronounced during the initial 3-6 months and becomes insignifcant as usage duration increases. There is almost no difference between the two groups for lifespans of 1-2 years (p = 0.931) and 4+ years (p = 0.848). This suggests that while the treatment effectively shifts perceptions regarding premature disposal, social norm perceptions tend to converge as the usage duration increases over time. These findings are summarized in **Result 1b:**

> **Result 1b:** The effect of treatment is confined to shorter usage durations. While the predicted shift is confirmed for early disposal, there is no significant difference between groups for usage durations exceeding one year. Therefore, Hypothesis 1 **only partially holds.**

5.2. Stated Clothing Behaviour

To understand whether participants' general clothing habits relate to their normative understandings, we also gathered self-reported data on their actual usage behavior. Before interpreting these results, we examine the descriptive distribution of the behavioral data, paying attention to the average duration of garment use. As illustrated in Table 4, this distribution shows both the mean usage periods and the frequencies of how long participants keep their clothes.

Table 4: Summary of Average Garment Use

Gender	Full Sample Total
Male (0)	Mean: 2.37 (SD: 1.09) N= 59
Female (1)	Mean: 2.45 (SD: 1.23) N= 53
Total	Grand Total: 2.41 (SD: 1.16) N= 112

Our full sample average (mean=2.41, SD=1.16) indicates that participants' garment usage habits are closer to the lower estimates found in international literature. While consumers in some developed countries report wearing T-shirts for 3 to 4.4 years (Klepp et al., 2020; Langley et al., 2013), fast-fashion habits can reduce this lifespan significantly (Wakes et al., 2020), which aligns with the lower baseline seen in our data. Regarding gender distribution, males and females report similar overall averages (mean=2.37 and mean=2.45, respectively) and a Wilcoxon rank-sum test confirms that this difference is not statistically significant (p =0.855). However, females show a slightly higher standard deviation (SD=1.23) than males (SD=1.09), indicating greater variation in their clothing habits. Overall, these figures suggest that the sample's actual behavior reflects a faster wardrobe turnover than the longer lifespans observed in regions like Australia or Northern Europe (Payne et al., 2025; Klepp et al., 2020).

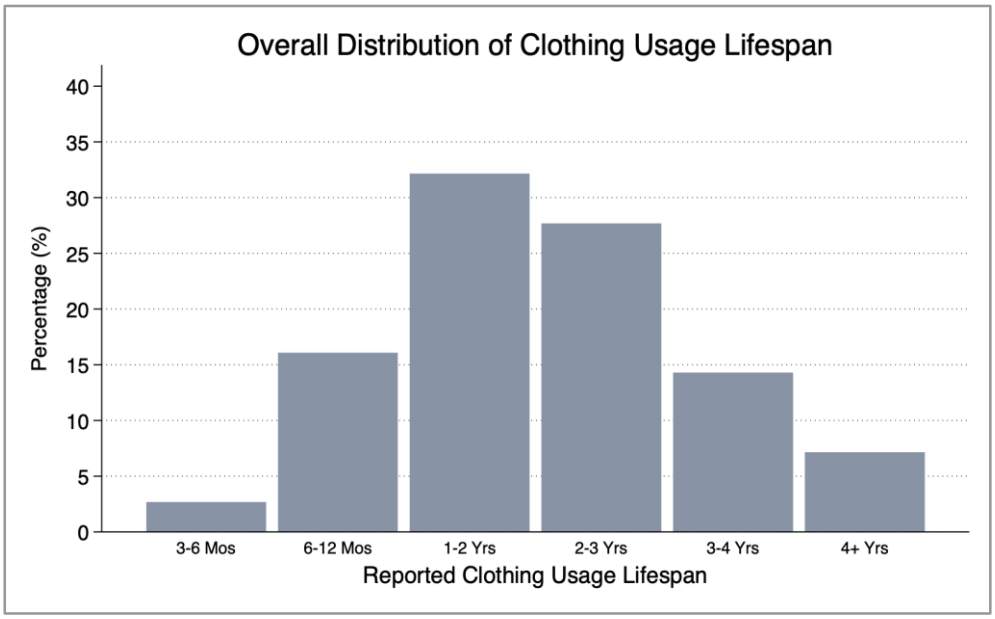

Figure 2: Distribution of Actual Clothing Usage Duration

As established in the previous section, perceived social appropriateness strongly peaks at the 1-2 year interval. Correspondingly, the histogram analysis in Figure 2 reveals that the mode (the highest bar) for actual garment usage is centered precisely around the 1-2-year mark for all participants. After establishing this empirical baseline, we can see that normative perceptions and stated clothing behaviors show a strong

structural alignment. [8] This close baseline correspondence suggests that individual clothing retention habits are heavily anchored in the shared social norms of their peer environment; this underscores why the construction of positive norm mechanisms is critical.

In conclusion, these findings show that actual consumer behavior follows local social norms and clusters around a short garment lifespan (1-2 years). This average behavior aligns with the lower limits found in fast-fashion literature, falling short of the longer usage periods observed in regions like Australia or Northern Europe (Payne et al., 2025; Klepp et al., 2020).

5.3. Impact of Information on Personal Appropriateness

Following the evaluation of social norms, we then examine **personal norm appropriateness** to determine the extent to which the treatment influences participants' own perceptions regarding usage lifespans.

As shown in Table 5 and Figure 3, the treatment shows a deterrent effect during the earliest usage scenarios. For the 3-6 month interval, a Mann-Whitney U test reveals a marginally significant difference in the overall distribution of evaluations between the two groups (p=0.057). This statistical shift is further supported by a Chi-square test on the proportions, which also indicates a shift in the distribution of participants rating the lifespan as most appropriate ($\chi 2(1)=3.10$, p=0.078. While this result remains at the margin of statistical significance, a clear descriptive shift is evident in the distribution's mode: in the Control group, the mode is 'Very Appropriate' (41.94%), however, this figure dropped to 26.00% in the Treatment group. On the other hand, the proportion of those viewing this short-term usage as "Very Inappropriate" increased from 29.03% to 48.00%. This suggests that besides impacting social norms environmental information also changes internal moral standards regarding garment longevity.

[8] Since the data reflects participants' past and actual clothing utilization habits prior to the experimental task, these baseline behaviors are structurally independent of the subsequent information intervention. Therefore, the behavioral data from both the control and treatment groups are pooled together to present the overall descriptive distribution in Figure 2.

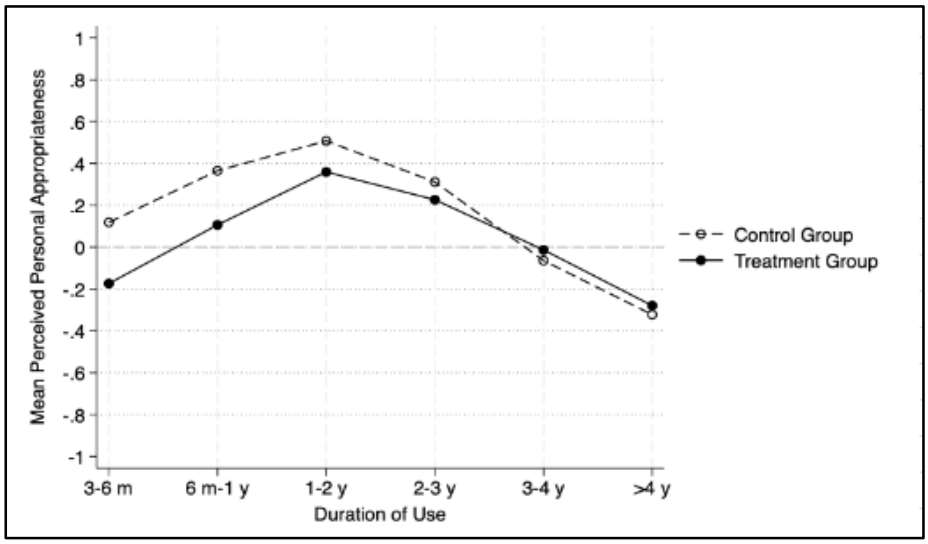

Figure 3: Comparison of Personal Norms between Control and Treatment Groups

Table 5 : Statistical Overview of Perceived Personal Appropriateness

	3-6 months	6-12 months	1-2 years	2-3 years	3-4 years	4+ years
Grup: Control (n=62)						
Very appropriate (+1)	41.94%	43.55%	50.82%	37.10%	24.19%	16.13%
Somewhat appropriate (+0.33	12.90%	29.03%	31.15%	32.26%	19.35%	16.13%
Somewhat inappropriate (-0.3	16.13%	16.13%	11.48%	20.97%	29.03%	20.97%
Very inappropriate (-1)	29.03%	11.29%	6.56%	9.68%	27.42%	46.77%
Mean rating	**0.12**	**0.37**	**0.51**	**0.31**	**-0.06**	**-0.32**
Grup: Treatment (n=50)						
Very appropriate (+1)	26.00%	30.00%	38.00%	28.00%	26.00%	18.00%
Somewhat appropriate (+0.33	20.00%	28.00%	36.00%	36.00%	20.00%	12.00%
Somewhat inappropriate (-0.3	6.00%	20.00%	18.00%	28.00%	30.00%	30.00%
Very inappropriate (-1)	48.00%	22.00%	8.00%	8.00%	24.00%	40.00%
Mean rating	**-0.17**	**0.11**	**0.36**	**0.23**	**-0.01**	**-0.28**
P-value (Mann-Whitney)	**0.057***	**0.066***	0.169	0.411	0.714	0.676

Notes: Table 5 presents the measurement of personal norm appropriateness and evaluates how these norms fluctuate in response to the provided information (treatment). It details the percentage distribution across response categories, mean ratings and p-values to assess the impact of the treatment on individual normative standards.

In the 6-12 month interval, we see that a similar trend emerges. Although the Mann-Whitney U test shows a marginally significant difference in overall evaluations (p=0.066), the difference in proportions as measured by the Chi-square test does not reach conventional statistical significance ($\chi 2(1)=2.17$, p=0.141). Nevertheless, the descriptive shift in the mode remains notable, consistent with the pattern established in the earlier usage phase. Both groups share the same mode of "Very Appropriate";

however, the percentage of the mode among all the observations goes down from 43.55% for the Control group to 30.00% for the Treatment group.

However, this difference between groups decreases over time. By the 1-2 year interval, personal appropriateness ratings for both groups reach their highest levels and align. Specifically, the distribution for both groups peaks at 'Very Appropriate,' with 50.82% in the Control and 38.00% in the Treatment group. We see that following this peak, both groups follow a synchronized downward trend for longer durations. For the 4+ years category, evaluations return to being perceived as 'Very Inappropriate' by the largest share of participants (46.77% in the Control and 40.00% in the Treatment group), indicating that very long-term use also faces normative decline.

Result 2: Similar to the social norm evaluations, the treatment significantly changes personal appropriateness ratings only for the 3-6 month and 6-12 month usage durations compared to the Control group. No significant difference between groups emerges beyond one year. Thus, Hypothesis 2 only partially holds.

5.4. Gender-Based Analysis of Normative Evaluations

To see whether gender impacts how participants respond to environmental information, this section analyzes whether the treatment affects how men and women assign social and personal appropriateness levels. We start our analysis by first looking at the patterns in which female and male participants assess social norms over the usage life spans.

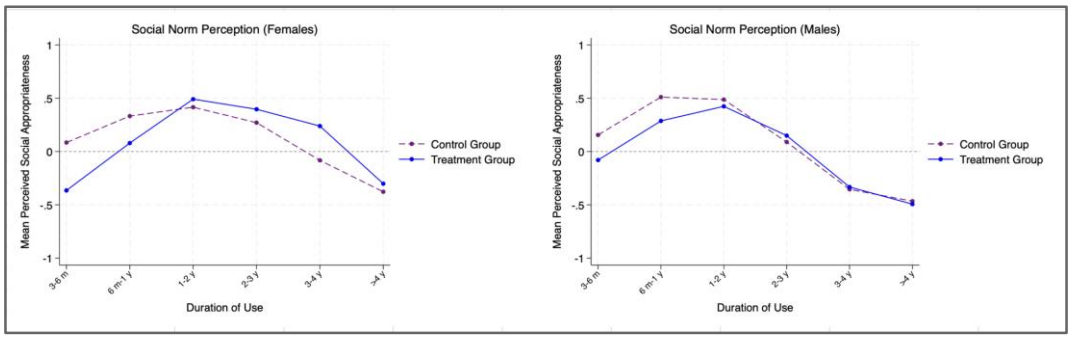

Figure 4 : Average Social Norm Perception Among Females and Males

Table 6: Descriptive Statistics of Social Norm Evaluations by Gender

Female Participants	**3-6 m**	**6 m-1 y**	**1-2 y**	**2-3 y**	**3-4 y**	**>4 y**	**Male Participants**	**3-6 m**	**6 m-1 y**	**1-2 y**	**2-3 y**	**3-4 y**	**>4 y**
Control Group (n=32)							**Control Group (n=30)**						
Very appropriate (+1)	40.62%	34.38	34.38	31.25	21.88	26.67	Very appropriate (+1)	43.33	46.67	36.67	26.67	10	10
Somewhat appropriate (+0.33)	3.12%	40.62	43.75	34.38	18.75	0	Somewhat appropriate (+0.33)	13.33	33.33	53.33	23.33	13.33	10
Somewhat inappropriate (-0.33)	34.38%	15.62	21.88	28.12	34.38	13.33	Somewhat inappropriate (-0.33)	16.67	20	6.67	36.67	40	30
Very inappropriate (-1)	21.88%	9.38	0	6.25	25	60	Very inappropriate (-1)	26.67	0	3.33	13.33	36.67	50
Mean rating	0.08%	0.33	0.42	0.27	-0.08	-0.38	*Mean rating*	0.15	0.51	0.48	0.08	-0.35	-0.46
Treatment Group (n=21)							**Treatment Group (n=29)**						
Very appropriate (+1)	19.05	19.05	42.86	38.1	38.1	19.05	Very appropriate (+1)	27.59	34.48	34.48	20.69	3.45	13.79
Somewhat appropriate (+0.33)	14.29	33.33	38.1	33.33	14.29	14.29	Somewhat appropriate (+0.33)	13.79	31.03	48.28	37.93	24.14	3.45
Somewhat inappropriate (-0.33)	9.52	38.1	19.05	28.57	42.86	19.05	Somewhat inappropriate (-0.33)	27.59	27.59	13.79	34.48	41.38	27.59
Very inappropriate (-1)	57.14	9.52	0	0	4.76	47.62	Very inappropriate (-1)	31.03	6.9	3.45	6.9	31.03	55.17
Mean rating	-0.37	0.08	0.49	0.4	0.24	-0.3	*Mean rating*	-0.08	0.28	0.42	0.14	-0.33	-0.49
P-value (Mann-Whitney)	**0.033***	0.119	0.577	0.508	0.112	0.596	**P-value (Mann-Whitney)**	0.289	0.186	0.645	0.709	0.723	0.745

Notes: Table 6 presents the descriptive statistics for female and male social norm evaluations.

As indicated in Figure 4 and Table 6, women have a distinct change in the evaluation of social norms at the initial stages of usage. At the 3-6 month time period, the difference between the control and experimental groups is significant (p=0.033). A Chi-square test also confirms that the distribution of appropriateness ratings differs significantly between the two groups ($\chi 2(3)=11.52$, p=0.009).

While 40.62% of females in the Control group view a 3-6 month usage period as "Very Appropriate," the proportion decreases to 19.05% in the Treatment group. Furthermore, 57.14% of those in the Treatment group rate this behavior as "Very Inappropriate," compared to only 21.88% in the Control group. These results indicate that, for female respondents, the given information significantly reduces the perceived social acceptability of short-term clothing use.

This pronounced shift suggests that for female participants, information regarding environmental externalities significantly alters perceptions of social acceptability in the short term. However, similar to the general trend, this divergence diminishes over time. By the 1-2 year mark, the mean scores converge (**0.42** for Control vs. **0.49** for Treatment) and the p-value increases to **0.577**, indicating that the treatment's impact fades as the usage duration increases. These findings are summarized in **Result 3a**:

> **Result 3a:** Female participants show a significant response to the treatment regarding social norm perceptions during the first three to six months of use. However, the treatment effect disappears in the long term, as social norm perceptions between groups converge for usage durations exceeding one year.

Unlike the results for female participants for whom the treatment shows a statistically significant effect exclusively within shorter duration intervals (i.e., 3-6 months), the treatment has no statistically significant effect on the social norm perceptions of males across any of the time intervals. As shown in Table 6, the differences between the Control and Treatment groups for male respondents remain statistically insignificant across all usage intervals. Specifically, in the 3-6 month category, male participants in the Treatment group had a mean score of -0.08, compared to 0.15 in the Control group (p = 0.289). While there is a slight downward trend in the Treatment group, it does not reach statistical significance.

Furthermore, as seen in Figure 4, the trajectories for both groups are remarkably similar. They follow nearly identical paths from the 1-2 year mark until the end of the study, with the strongest alignment seen in the final >4 years interval (p=0.745). These results suggest that male participants' social norm perceptions are more resilient to the information provided in this study.

> **Result 3b:** Unlike females, male participants show no statistically significant changes in social norm perception as a result of the treatment at any duration interval.

The impact of information on the personal norm appropriateness of female participants is even more pronounced and persistent than its effect on social norm perceptions. As shown in **Figure 5** and **Table 7**, the treatment leads to a statistically significant decrease in personal appropriateness ratings for the first year of the usage scenarios.

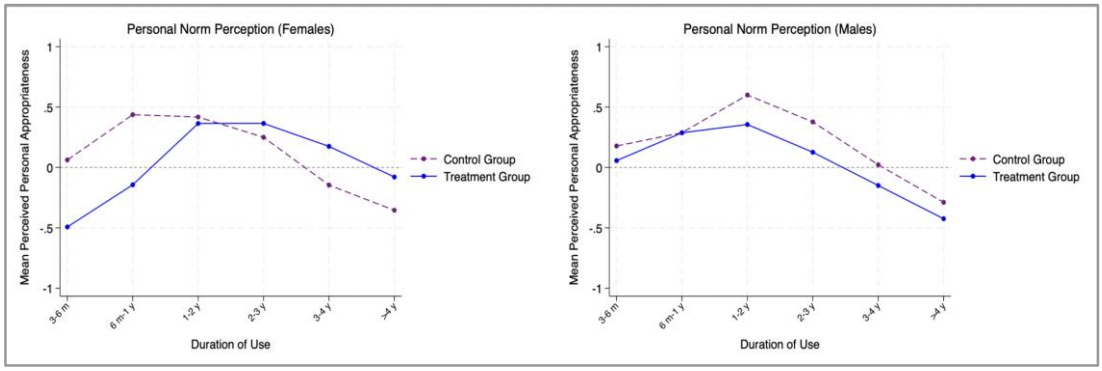

Figure 5: Average Personal Norm Perception Among Females and Males

Table 7: Descriptive Statistics of Personal Norm Evaluations by Gender

Female Participants	**3-6 m**	**6 m-1 y**	**1-2 y**	**2-3 y**	**3-4 y**	**>4 y**	**Male Participants**	**3-6 m**	**6 m-1 y**	**1-2 y**	**2-3 y**	**3-4 y**	**>4 y**
Control Group (n=32)							**Control Group (n=30)**						
Very appropriate (+1)	37.5	46.88	35.48	37.5	21.88	18.75	Very appropriate (+1)	46.67	40	66.67	36.67	26.67	13.33
Somewhat appropriate (+0.33)	15.62	28.12	48.39	25	18.75	12.5	Somewhat appropriate (+0.33)	10	30	13.33	40	20	20
Somewhat inappropriate (-0.33)	15.62	18.75	9.68	25	25	15.62	Somewhat inappropriate (-0.33)	16.67	13.33	13.33	16.67	33.33	26.67
Very inappropriate (-1)	31.25	6.25	6.45	12.5	34.38	53.12	Very inappropriate (-1)	26.67	16.67	6.67	6.67	20	40
Mean rating	*0.06*	*0.43*	*0.41*	*0.25*	*-0.14*	*-0.35*	*Mean rating*	*0.17*	*0.28*	*0.6*	*0.37*	*0.02*	*-0.28*
Treatment Group (n=21)							**Treatment Group (n=29)**						
Very appropriate (+1)	19.05	14.29	38.1	38.1	42.86	28.57	Very appropriate (+1)	31.03	41.38	37.93	20.69	13.79	10.34
Somewhat appropriate (+0.33)	9.52	33.33	38.1	33.33	14.29	14.29	Somewhat appropriate (+0.33)	27.59	24.14	34.48	37.93	24.14	10.34
Somewhat inappropriate (-0.33)	0	19.05	14.29	23.81	19.05	23.81	Somewhat inappropriate (-0.33)	10.34	20.69	20.69	31.03	37.93	34.48
Very inappropriate (-1)	71.43	33.33	9.52	4.76	23.81	33.33	Very inappropriate (-1)	31.03	13.79	6.9	10.34	24.14	44.83
Mean rating	*-0.49*	*-0.14*	*0.36*	*0.36*	*0.17*	*-0.07*	*Mean rating*	*0.05*	*0.28*	*0.35*	*0.12*	*-0.14*	*-0.42*
P-value (Mann-Whitney)	**0.017****	**0.005****	0.856	0.619	0.162	0.195	**P-value (Mann-Whitney)**	0.478	0.993	**0.07***	0.105	0.377	0.479

Notes: Table 5 and Figure 7 present descriptive statistics and graphical representations of personal norm evaluations for female and male participants, respectively.

Specifically, in the 3-6 month scenario, the difference is significant at p=0.017, with a staggering 71.43% of females in the Treatment group rating the behavior as "Very Inappropriate" on a personal level. This inhibitory effect remains highly significant in the 6-12 month scenario (p=0.005), where the mean score for the Treatment group (-0.14) remains negative while the Control group tends toward a more positive evaluation (0.43).

These findings suggest that for women, the provided information significantly shifts their internal normative criteria during the early stages of use. However, by the 1-2 year mark, these personal evaluations converge (p=0.856), suggesting that the treatment effect diminishes for longer usage durations.

We summarize this in **Result 4a:**

> **Result 4a:** For female participants, the treatment significantly lowers personal appropriateness ratings for up to one year. This means that information exerts a greater influence on moral assessments made internally by female participants rather than externally perceived socially.

To contextualize these findings about female participants, it is valuable to draw upon and discuss the concept of **"pluralistic ignorance"** proposed by Bursztyn, González and Yanagizawa-Drott (2020), where individuals systematically misperceive the normative beliefs of their peers. Our findings (Result 4a) suggest a specific structural disconnect among female participants: while

women privately possess stronger sustainable motives, they assume that society at large approves of unsustainable, short-term clothing consumption.

When exposed to the information treatment, this underlying conflict is activated. The information treatment does not only correct their estimate of external social expectations; rather, it drastically amplifies their **internalized moral criteria**, leading an overwhelming 71.43% of females to rate short-term usage as "Very Inappropriate" on a personal level. This demonstrates that for women, information interventions act as an ethical catalyst. While they may remain skeptical about how quickly broader society will abandon the "throwaway culture" (resulting in a weaker social norm shift), they immediately incorporate the environmental information within their personal ethics for at least a year.

Unlike the female subgroup, the personal norm appropriateness ratings among male

participants remain largely unaffected by the treatment. In fact, as seen in Table 7, no conventional statistically significant differences are observed between the Control and Treatment groups for males across the hypothetical usage durations, with the sole exception of a marginal divergence at the 1-2 year mark.

Notably, in the 6-12 month scenario where females showed a highly significant reaction (p=0.005) the response from male participants in both groups is virtually identical (p=0.993), with mean scores of 0.28 for both the Control and Treatment conditions. While the change at the 1-2 year mark offers a slight point of divergence, it reaches only marginal significance (p=0.070).

> **Result 4b:** For male participants, the treatment fails to induce any conventional statistically significant shifts in personal appropriateness ratings across most durations, showing only a marginal divergence at the 1-2 year duration interval (p=0.070).

Overall, these findings clearly show that the impact of the environmental footprint information on norm perception and internalization is highly gender-dependent. While the combined data might initially imply an overall treatment effect, a gender-disaggregated lens reveals that this significance is driven exclusively by the females.

To be specific, female participants display a clear, robust shift in social norm evaluations during the early stages of usage, as evidenced by the statistically significant difference in the 3-6 month interval (p=0.033). In sharp contrast, male participants show no statistically significant changes in social norm perceptions as a result of the treatment. Taken together with the personal norm analysis, where females showed high responsiveness up to a year while males remained largely resilient, save for a marginal divergence at the 1-2 year mark (p=0.070), it becomes evident that the information intervention successfully shifts both internal moral evaluations and external social expectations for women, while leaving the normative standards of men virtually intact.

CHAPTER 6

CONCLUSION

In this study, we investigated whether providing environmental impact information can reshape normative perceptions of clothing longevity by examining the social and personal appropriateness of a cotton T-shirt's usage duration. This study also makes a methodological contribution by shifting from self-reported surveys, which are often biased by social desirability to behavioral measurements. By using an experimental framework with incentivized coordination tasks based on Krupka and Weber (2012), we provide a more reliable and grounded analysis of normative change.

Our empirical findings yield three key results. Firstly, environmental treatment enables change in both social and personal norms, but this effect is highly concentrated at the lower end of clothing lifespans. The information creates an effective stigma around early clothing disposal, as participants in the treatment group rated short usage durations, such as 3-6 months, as significantly more inappropriate. The current case provides evidence of the asymmetrical nature of the normative updating process: The information builds up the ‘normative floor’ since it signals what is wasteful, but it does not establish the ‘normative ceiling’ that will encourage a longer clothing lifetime. Namely, individuals update their thresholds for what is unacceptable without necessarily redefining long-term use as actively desirable.

Secondly, the influence of information is highly moderated by gender, representing a meaningful structural divide rather than a minor statistical variance. While the combined data might suggest an overall treatment effect at first glance, an analysis of the sample divided by gender reveals that this significance is driven almost entirely by the female subgroup. Female participants show a strong and significant recalibration

of both social and personal norms during the early usage stages. This high sensitivity to environmental communication aligns with broader environmental psychology literature suggesting that women are generally more responsive to green messaging and quicker to internalize moral boundaries regarding sustainability.

Lastly, in contrast to the female sample, male participants prove to be largely unaffected by the treatment. Social norms among men do not change in any statistically significant way and their personal appropriateness ratings remain flat across virtually all durations.[9] This strong gender gap demonstrates that the internalization of environmental facts depends heavily upon pre-existing gender.

Meanwhile, the findings also point out the fact that while actual consumer behavior is fundamentally anchored in existing social norms, targeted information interventions possess the potential to stretch these behavioral boundaries. Rather than causing a radical disruption, the treatment operates as a directional nudge.

These results provide explicit directions for policy design, underlining that environmental campaigns cannot treat consumers as a homogeneous group. Instead, policymakers and sustainable brands must design targeted, segmented interventions. According to our results, the normative effect of environmental information is concentrated predominantly among female participants. When considered alongside the fact that women's clothing accounts for a disproportionately large share of the textile industry's production and consumption volume and therefore its environmental footprint, this suggests that environmental sustainability information targeted at female consumers may yield a comparatively higher impact, both in terms of normative shift and overall ecological benefit. This study captures shifts in social and personal norms, but whether these normative changes translate into actual behavioral change, such as reduced clothing disposal rates or extended garment usage, remains an open question that future research could examine.

[9] The single exception is a sole, marginal divergence at the 1-2 year mark (p=0.070).

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APPENDICES

A. EXPERIMENTAL INSTRUCTIONS AND SURVEY QUESTIONS

This section presents the English translation of the survey content (originally administered in Turkish) used to gather data for both the control and treatment groups. Please note that both groups were given identical survey content, with the sole exception of the environmental information intervention. While the Treatment group read the informative text provided prior to the questionnaire, the Control group received the same questionnaire without the "Important Information" section.

Survey Title: A Research on the Lifespan and Usage of Garments

Survey Introduction:

In this survey, we aim to understand your perspectives regarding the total lifespan and usage duration of a garment. This survey is completely anonymous, and the collected data will be utilized strictly for academic research purposes. Please answer the questions sincerely.

* Indicates required question

Informed Consent:

1. I have read and understood the informed consent text linked below. I voluntarily agree to participate in this research. *

1.1. [ ] I agree to participate.

IMPORTANT INFORMATION (Environmental Information Intervention)

[Note: This section was only shown to the Treatment Group]

The fashion industry is one of the world's largest contributors to carbon emissions, resource consumption, and waste generation. For instance, the production of a single cotton t-shirt requires an average of 2,700 liters of water. This amount of water is equivalent to what a human being needs to meet all basic necessities (drinking, cooking, and cleaning) for approximately two months. The most effective way to reduce the environmental impact of a garment is to use it as many times as possible. Research demonstrates that increasing the number of times a t-shirt is worn can significantly reduce both its water and carbon footprints.

SECTION A: SOCIAL APPROPRIATENESS EVALUATION

In this section, we ask you to provide your best estimate regarding the extent to which the total lifespan (the duration of use) of a t-shirt is considered "normal" or "acceptable" by society.

The objective of this section is not to reflect your own personal opinion, but rather to capture the normative evaluation that you believe holds true for society in general.
Instructions:

Below are six different usage duration intervals for a t-shirt ("3–6 months", "~6 months–1 year", "~1–2 years", "~2–3 years", "~3–4 years", and "more than 4 years"). For each interval, please rate how appropriate you believe most people would find this duration on a scale from 1 to 4:

- 1 = Socially Most Appropriate
- 2 = Socially Somewhat Appropriate
- 3 = Socially Not Quite Appropriate
- 4 = Socially Not Appropriate At All

CHANCE TO WIN A 250 TL CASH PRIZE

Your responses in this section will qualify you for a chance to win a cash prize:
At the end of the survey, the researcher will randomly pair you with another participant selected from the sample. Then, one of the six usage duration intervals listed above

will be selected at random. For this specific question, your response will be compared with the response of the participant you are paired with.

If your answers match exactly (for example, if the randomly selected interval is "3–6 months" and both of you selected "2 – Somewhat Appropriate"):

- Each of you will win a 250 TL cash prize.
- If your answers differ, you will not win a prize.

Important Note: This reward will be distributed to a total of 10 randomly selected participants (i.e., 5 pairs).

Social Appropriateness Rating Scale (1 to 4):

(Scale for each item: 1 = Most Appropriate ... 4 = Not Appropriate At All)

1. ~3 - 6 months
2. ~6 months - 1 year
3. ~1 - 2 years
4. ~2 - 3 years
5. ~3 - 4 years
6. 4 years or more

SECTION B: PERSONAL APPROPRIATENESS EVALUATION

Similar to the section above, the total lifespan options corresponding to different usage durations of a t-shirt are presented below.

In this section, you are expected to select an appropriateness rating that reflects your own personal evaluation for each usage duration:

- 1 = Most Appropriate
- 2 = Somewhat Appropriate
- 3 = Not Quite Appropriate
- 4 = Not Appropriate At All

When making this evaluation, please consider only your personal habits and preferences; do not take into account what others might think.

Personal Appropriateness Rating Scale (1 to 4):

(Scale for each item: 1 = Most Appropriate ... 4 = Not Appropriate At All)

1. ~3 - 6 months
2. ~6 months - 1 year
3. ~1 - 2 years
4. ~2 - 3 years
5. ~3 - 4 years
6. 4 years or more

SECTION C: PERSONAL INFORMATION (DEMOGRAPHICS)

Your Gender:

[ ] Female

[ ] Male

[ ] Prefer not to say

Your Age: _____

Following fashion trends is important to me.

(1 = Strongly Disagree ... 5 = Strongly Agree)

I am concerned about the environmental damage caused by humanity.

(1 = Strongly Disagree ... 5 = Strongly Agree)

Approximately how many t-shirts do you estimate you own? _____

On average, how long (in months/years) do you use a single t-shirt? _____

Have you purchased second-hand clothing within the past year?

[ ] Yes

[ ] No

Our survey is almost complete! *

Lastly, we kindly request you to create an anonymous participant code so that we can contact you in the event that you win the prize. Please generate a 5-character code consisting of 3 letters and 2 digits that you can easily remember (e.g., KLR32) and make sure to note it down.

B. ADDITIONAL TABLES AND DATA ANALYSIS

Table 8 : Descriptive Statistics of Sample Characteristics

Variable	N	Mean	Std. Dev.	Min	Max
Age	112	21.29	1.68	17	25
Fashion Interest	112	2.85	1.2	1	5
Environmental Concern	112	3.93	1.1	1	5
Number of T-shirts Owned	110	15.01	9.12	3	50
Average Usage Duration (years)	112	2.41	1.16	0.5	5.5
Variable	**N**	**Frequency**	**Percent**		
Gender (Female)	112	59	52.68%		
Gender (Male)	112	53	47.32%		
Second-hand Purchase (Yes)	112	42	37.50%		
Second-hand Purchase (No)	112	70	62.50%		

Notes: Fashion Interest and Environmental Concern are measured on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). Average Usage Duration is reported in years.

Table 9: Randomization Check - Control vs. Treatment Group Balance

Variable	Control (n=62) Mean	Treatment (n=50) Mean
Age	21.03	21.62
Fashion Interest	3.02	2.64
Environmental Concern	3.84	4.04
Number of T-shirts Owned	14.39	15.78
Usage Duration (years)	2.14	2.75
Second-hand Purchase (%)	45.20%	28.00%
Gender (% Female)	48.40%	58.00%

Note: Descriptive statistics for participant characteristics across experimental conditions.

Table 10: Correlation Matrix

	1	2	3	4	5	6	7
(1) Social Norm Index	1						
(2) Personal Norm Index	0.483*	1					
(3) Environmental Concern	0.023	0.086	1				
(4) Fashion Interest	0.091	-0.062	0.175	1			
(5) Usage Duration	0.192*	0.06	0.171	-0.094	1		
(6) T-shirts Owned	0.044	0.077	0.086	-0.023	0.242*	1	
(7) Second-hand Purchase	0.064	-0.065	0.101	0.206*	0.044	-0.119	1

***Note*:** * $p<0.05$. Values represent Pearson correlation coefficients. Notably, environmental concern does not significantly correlate with either norm index, suggesting that self-reported environmental attitudes do not directly translate into normative sensitivity.

Table 11: Demographic Characteristics by Gender

Variable	Male (n=59) Mean	Female (n=53) Mean	p-value
Environmental Concern	3.73	4.15	0.043*
Fashion Interest	2.39	3.36	0.000**
Usage Duration (years)	2.37	2.45	0.717
Number of T-shirts Owned	14.45	15.63	0.498
Second-hand Purchase (%)	30.50%	45.30%	0.107

***Notes*:** p-values for continuous variables are from two-sample t-tests. p-value for second-hand purchase is from Pearson chi-square test. * $p<0.05$; ** $p<0.001$.Table 4 reveals that female participants report significantly higher environmental concern and fashion interest than male participants. This pre-existing gender difference in environmental sensitivity is consistent with the main finding that normative updating in response to environmental information is driven predominantly by female participants.

C. APPROVAL OF THE METU HUMAN SUBJECTS ETHICS COMMITTEE

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ
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İlgi : İnsan Araştırmaları Etik Başvurunuz

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Sayın Esmanur Aslan,

"Can Environmental Information Reshape a Social Norm? An Experimental Study on Clothing Longevity / Çevresel Bilgi Sosyal Bir Normu Yeniden Şekillendirebilir mi? Giysi Ömrü Üzerine Deneysel Bir Çalışma" başlıklı araştırmanız ODTÜ İnsan Araştırmaları Etik Kurulu tarafından uygun görülerek 012-ODTÜİAEK-2026 protokol numarası ile onaylanmıştır.

Bilgilerinize sunarım.

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D. TURKISH SUMMARY / TÜRKÇE ÖZET

Bu çalışma, giysi üretiminin çevresel maliyetlerine ilişkin bilgilendirmenin, bireylerin kıyafet kullanım süreleri konusundaki sosyal ve kişisel normları üzerindeki etkisini deneysel bir yöntemle incelemektedir. Araştırmanın özgün katkısı, sürdürülebilirlik literatüründe yaygın biçimde kullanılan öz-bildirim temelli yaklaşımların ötesine geçerek deneysel iktisat yöntemlerini norm ölçümüne entegre etmesinde ve bilgi müdahalesinin kolektif normatif çerçeveler üzerindeki etkisini araştırmasında yatmaktadır. Bu bağlamda çalışma, sürdürülebilir tüketim araştırmalarına hem metodolojik hem de tematik açıdan katkı sunmayı hedeflemektedir.

Araştırmanın temel motivasyonu, hızlı moda endüstrisinin yarattığı çevresel zarar ile bu tahribatı besleyen sosyal normlar arasındaki yapısal ilişkiye dayanmaktadır. Moda sektörü, dünya genelinde petrol sektörünün hemen ardından en fazla kirlilik yaratan ikinci sektör konumundadır ve bu durum yalnızca bireysel tüketim tercihlerinin değil, aynı zamanda kolektif davranış kalıpları ve paylaşılan toplumsal normların bir ürünüdür. Söz konusu normlar; akran etkisi, sosyal medya ve betimleyici normlar aracılığıyla satın alma kararlarından elden çıkarma alışkanlıklarına kadar giysi yaşam döngüsünün her aşamasını derinden etkilemektedir. Hızlı moda endüstrisinin beslediği tüketim kültürü, özellikle genç demografik gruplar arasında kıyafetleri kısa süreli kullanıp atma alışkanlığını pekiştirmekte ve bu davranışı toplumsal düzeyde 'normal' ve hatta arzu edilir kılmaktadır. Büyük firmalar ve perakende zincirleri, neredeyse on kullanımdan daha az dayanacak şekilde tasarlanmış kıyafetler üretmekte ve genç kadın tüketicilerin önemli bir bölümünün haftada en az bir kez yeni kıyafet satın aldığı bir tüketim döngüsünü beslemektedir(McNeil ve Moore, 2015). Bu bağlamda, bireylerin kıyafet kullanım süreleri konusundaki normlarını dönüştürmenin, yalnızca bireysel tutum değişikliklerini hedeflemekten çok daha etkili ve kalıcı sonuçlar doğurabileceği öngörülmektedir. Sosyal normların bu belirleyici rolü göz önüne alındığında, yalnızca bireysel tutumları değil paylaşılan normatif standartları dönüştürmenin daha etkili ve kalıcı bir strateji olup olmayacağı sorusu araştırmanın çıkış noktasını oluşturmaktadır. Çalışmanın dayandığı literatür iki temel eksende şekillenmektedir. Normatif literatür incelendiğinde, mevcut araştırmaların sosyal normların hızlı moda tüketimini hem

besleyebileceğini hem de stratejik biçimde kullanıldığında frenleyebileceğini ortaya koyduğu görülmektedir (Granato ve Mugge, 2025). Bu dinamiğin en belirgin katmanlarından biri, bireyleri daha sık ve daha hızlı satın almaya yönelten sosyal onay arayışıdır. Gadi ve diğerleri (2025), 32 soruluk bir anket aracılığıyla moda öğrencileri üzerinde yürüttükleri araştırmada dışsal sosyal beklentilerin ve öznel normların, bireylerin kendi sürdürülebilirlik tutumlarını büyük ölçüde geride bıraktığını göstermektedir. Çalışma özellikle dikkat çekici bir bulgu ortaya koymaktadır: bireylerin alışveriş kararlarında kişisel çevre tutumlarından çok sosyal çevrelerinin beklentileri ve akranlarının onayı belirleyici olmaktadır. Bu durum, dışsal sosyal baskıların bireysel tercihler üzerinde güçlü ve sistematik bir üstünlük kurduğunu açıkça ortaya koymaktadır. Benzer şekilde Zhou (2022), Güney Kaliforniya'daki tüketiciler üzerinde anket ve görüşme yöntemiyle yürüttüğü araştırmada, özellikle genç tüketicilerin arkadaş çevrelerinin beklentilerini karşılamak ve sosyal statülerini korumak amacıyla hızlı moda ürünlerine yöneldiğini saptamıştır. Bu bulgu, moda tüketiminin salt estetik ya da işlevsel bir tercihin ötesinde derinlemesine sosyal bir anlam taşıdığını gözler önüne sermektedir. Kıyafet seçimlerinin ve yenileme sıklığının bireyin sosyal kimliğiyle bu denli sıkı bir ilişki içinde olması, bu alandaki normatif müdahalelerin neden özellikle kritik bir öneme sahip olduğunu açıkça ortaya koymaktadır.

Medya ve sosyal medya platformları da bu normların şekillenmesinde kritik bir rol üstlenmektedir. Negm (2019), nicel bir araştırma tasarımıyla hızlı moda satın alma niyetlerini etkileyen faktörleri incelemiş ve medya iletişiminin tüketici tutumları, öznel normlar ve algılanan davranışsal kontrol üzerinde güçlü, olumlu ve istatistiksel olarak anlamlı bir etki yarattığını ortaya koymuştur. Influencer kültürü ve sosyal medya platformlarının sürekli yenilenen içerik akışı, kıyafetlerin tek kullanımlık ya da çok kısa süreli birer nesne olarak algılanmasını normalleştirmekte ve bu algıyı giderek daha geniş demografik gruplara yaymaktadır. Son olarak Maguire ve Fahy (2023), vaka çalışması yöntemiyle yürüttükleri araştırmada hâkim sosyal normların yalnızca satın alma alışkanlıklarını değil, aynı zamanda elden çıkarma kalıplarını da belirlediğini ve bu durumun giysi yaşam döngüsünü önemli ölçüde kısalttığını vurgulamıştır. Araştırmacılar, bu sürdürülemez tüketim pratiğinin yalnızca belirli bir kuşakla sınırlı kalmadığını; aksine farklı nesiller arasında yaygın biçimde gözlemlendiğini ve sürdürülebilir kıyafet kullanımının önünde yapısal bir engel

oluşturduğunu ileri sürmektedir. Tüm bu bulgular bir arada değerlendirildiğinde, sosyal normların hızlı moda tüketimini besleyen güçlü ve çok katmanlı bir mekanizma oluşturduğu görülmektedir.

Bununla birlikte söz konusu çalışmaların büyük çoğunluğu öz-bildirime dayalı ölçüm araçlarına başvurmakta ve bu durum sosyal beğenilirlik yanlılığı gibi metodolojik kısıtlamalara zemin hazırlamaktadır. Bireyler çoğu zaman kendi kişisel görüşlerini toplumun genel beklentileriyle özdeşleştirme eğilimi taşımakta; bu da norm ölçümünde bir sapma yaratma ihtimali taşımaktadır. Mevcut çalışma bu boşluğu doldurmak amacıyla deneysel iktisat yaklaşımını sürdürülebilirlik araştırmalarına entegre etmektedir. Krupka ve Weber (2013) tarafından geliştirilen teşvik uyumlu koordinasyon oyunu çerçevesi, katılımcıların diğer bireylerle eşleşme güdüsüyle hareket etmelerini sağlayarak normları çok daha güvenilir biçimde ölçme imkânı sunmaktadır. Bu yöntem, yolsuzluk ve rüşvet normlarından kültürel davranış kurallarına, ayrımcılık pratiklerinden sosyal beklentilere kadar çeşitli alanlarda başarıyla uygulanmıştır. Mevcut çalışma, Krupka-Weber yöntemini ilk kez hızlı moda bağlamına taşıyarak hem metodolojik hem de tematik açıdan literatüre bir katkı sunmaktadır.

Literatürün ikinci kolu olan bilgi temelli müdahaleler incelendiğinde, eko-etiketler, dijital dürtmeler ve eğitici kampanyalar gibi stratejilerin enerji, gıda ve perakende gibi çeşitli sektörlerde tüketim tercihlerini sürdürülebilir yönde etkileyebildiği görülmektedir. Ancak bu müdahalelerin etkisi genellikle kademeli ve bağlama özgüdür; ayrıca tutum ile davranış arasındaki uçurumu tek başına kapatmalarının zor olduğu görülmektedir. Schäufele-Elbers ve diğerlerinin (2024) bir otel kahvaltı büfesinde yürüttüğü saha deneyi, basit bilgilendirme mesajlarının gıda israfını azaltmada somut ve kalıcı bir etki yarattığını göstermektedir. Araştırmacılar, konukların çevresel sürdürülebilirliğe önceden olumlu bir tutum taşımasına karşın, davranışsal değişimi tetikleyen unsurun bizzat büfedeki bilgilendirme mesajları olduğunu saptamıştır. Dahası bu etki, konukların tatil boyunca gıda israfının doğal olarak azaldığı bir dönemde bile sürmüş; bu durum, bilgi temelli dürtmelerin kısa süreli değil kalıcı alışkanlık değişikliklerine zemin hazırlayabileceğine dair umut verici bir kanıt sunmuştur. Sürdürülebilir giyim tüketimi bağlamında ise bu müdahalelerin etkinliğinin mesajın çerçevelenme biçimine, duygusal çekiciliğine ve bilgi kaynağına duyulan güvene bağlı olduğu görülmektedir. Tüketicilerin

sürdürülebilirlik konusundaki bilgi düzeylerinin genel olarak sınırlı kaldığı hızlı moda sektöründe bu iletişim boyutu özellikle belirleyici bir işlev üstlenmektedir. Roozen ve diğerleri (2021) ile Prashar ve Kaushal'ın (2025) bulgularına göre basit sözel dürtmeler alışveriş tercihlerini anlamlı düzeyde etkileyebilmekte ve çevre bilincine sahip tüketicilerde çevre dostu ürünler için ödeme istekliliğini artırabilmektedir. Mevcut literatür bilgi müdahalelerinin bireysel davranışlar üzerindeki etkisini yoğun biçimde ele almakla birlikte, bu müdahalelerin kolektif sosyal normları dönüştürme potansiyelini büyük ölçüde göz ardı etmektedir. Mevcut çalışma tam da bu noktada özgün bir katkı sunmakta; çevresel bilgiyi yalnızca bireysel tutumları değiştirmek için değil, paylaşılan normatif ortamı dönüştürmek için bir katalizör olarak konumlandırmaktadır.

Çalışmanın hipotezleri üç temel öngörü üzerine kurulmaktadır. Birinci hipotez, bilgi temelli müdahalelerin enerji tasarrufu, atık azaltımı ve sürdürülebilir tüketim gibi çeşitli alanlarda çevre yanlısı davranışı olumlu yönde etkilediğini gösteren geniş literatürden beslenmektedir. Bu doğrultuda, çevresel bilgiye maruz kalan deney grubu katılımcılarının kısa kullanım sürelerini daha az uygun, uzun kullanım sürelerini ise daha fazla sosyal açıdan uygun bulması beklenmektedir. Sosyal ve kişisel normların birbiriyle olan derin bağına dayanan ikinci hipotez ise içselleştirme mekanizmasını temel almaktadır. Paylaşılan sosyal beklentilerin zamanla kişisel ahlaki standartlara dönüştüğü ve kişisel normların sosyal normların davranış üzerindeki etkisini tam olarak aracıladığı göz önüne alındığında, çevresel bilginin yalnızca sosyal normları değil bireylerin içsel değerlendirme ölçütlerini de dönüştürmesi beklenmektedir. Sosyal beklentilerden bireysel eyleme uzanan yol büyük ölçüde içselleştirilmiş değerler aracılığıyla işlemekte olup bu dinamik, bilgi müdahalesinin hem sosyal hem de kişisel normatif algılar üzerinde eş zamanlı bir etki yaratmasını mümkün kılmaktadır. Üçüncü hipotez ise cinsiyetin bu süreçteki düzenleyici rolüne odaklanmaktadır. Kadınların daha güçlü çevre bilincine sahip olduğunu, daha düşük karbon ayak izi bıraktığını ve çevre dostu ürünleri erkeklere kıyasla daha sık tercih ettiğini ortaya koyan Zhao ve diğerleri (2021) ile kadınların sosyal beklentileri erkeklere kıyasla çok daha derinden içselleştirdiğini gösteren Cedrún-Vázquez ve diğerleri (2025) gibi çalışmalar, bu hipotezin teorik zeminini oluşturmaktadır. Bu doğrultuda bilgi müdahalesinin kadın katılımcılar üzerinde daha belirgin ve istatistiksel olarak daha anlamlı bir normatif dönüşüm yaratması öngörülmektedir. Söz

konusu hipotez aynı zamanda politika tasarımına yönelik pratik çıkarımlar açısından da önem taşımakta; olası bir cinsiyet farklılaşması, müdahalelerin hangi gruplara nasıl yönlendirilmesi gerektiğine dair önemli ipuçları sunmaktadır.

Deneysel tasarım açısından çalışma, gruplar arası bir düzenek benimsemektedir. Kontrol grubu herhangi bir ön bilgilendirme yapılmaksızın doğrudan anket aşamasına geçerken, deney grubu öncelikle moda endüstrisinin çevresel maliyetlerini özetleyen kısa bir metin okumuştur. Bu metin, tek bir pamuklu tişört üretiminin yaklaşık 2.700 litre su gerektirdiğini, bunun yaklaşık iki aylık kişisel su ihtiyacına eşdeğer olduğunu ve bir kıyafetin kullanım ömrünü uzatmanın en etkili çevre dostu strateji olduğunu vurgulamıştır. Kullanım süresi kategorileri, mevcut literatürdeki en düşük ve en yüksek değerler esas alınarak belirlenmiştir: en kısa kategori olan 3-6 aylık dilim hızlı modada gözlemlenen düşük kullanım yoğunluğunu temsil ederken, 4 yılı aşan kategori bir kıyafetin tam kullanım potansiyelini yansıtmaktadır. Aradaki dilimler ise tüketici algılarının tam olarak nerede değiştiğini saptayabilmek amacıyla birer yıllık aralıklarla yapılandırılmıştır. Bu kategorizasyon, uluslararası literatürde tişörtler için önerilen kullanım aralıklarıyla uyumlu olup araştırmanın dış geçerliliğini güçlendirmektedir.
Her iki grup da aynı sırayla üç aşamalı bir anketi tamamlamıştır. İlk aşamada Krupka-Weber koordinasyon oyunu çerçevesinde sosyal uygunluk değerlendirmesi yapılmıştır. Katılımcılardan her bir kullanım süresinin toplum tarafından ne ölçüde uygun bulunacağını dört puanlı bir ölçek üzerinden tahmin etmeleri istenmiş; bu tahminler, katılımcıların rastgele eşleştirildikleri diğer bir katılımcıyla örtüşmesi durumunda maddi ödül kazanacakları teşvikli bir yapı içinde gerçekleştirilmiştir. Bu mekanizma son derece önemli bir metodolojik işlev üstlenmektedir: katılımcılar ödülü kazanmak için kendi kişisel görüşlerini değil, toplumun gerçekten ne düşündüğüne dair en iyi tahminlerini bildirmek zorunda kalmaktadır. Bu sayede standart anketlerin sıkça maruz kaldığı sosyal beğenilirlik yanlılığı ve kişisel ile toplumsal görüşlerin karıştırılması gibi sorunların önüne geçilmekte; norm ölçümü çok daha güvenilir ve teşvik uyumlu bir zeminde gerçekleştirilmektedir. İkinci aşamada katılımcılar aynı kullanım sürelerini herhangi bir dış referans ya da maddi teşvik olmaksızın yalnızca kendi kişisel görüşlerine göre değerlendirmiştir. Bu aşama, sosyal beklentiler ile bireysel değerler arasındaki mesafeyi ölçmeye ve bilgi müdahalesinin bu iki boyutu ne ölçüde ve nasıl farklı biçimlerde etkilediğini anlamaya imkân tanımaktadır. Son

aşamada ise demografik bilgilerin yanı sıra alışveriş sıklığı ve çevre duyarlılığı gibi bireysel özelliklere ilişkin veriler toplanmıştır. Koordinasyon oyununun teşvik yapısı kapsamında sosyal değerlendirme yanıtlarını rastgele eşleştirilen partnerleriyle örtüştürmeyi başaran katılımcılar arasından seçilen on kişiye çalışma sonrasında toplam 2.500 TL ödeme yapılmıştır. Veriler Mart 2026'da ODTÜ İktisat Bölümü'nün iki zorunlu dersinden toplam 112 öğrenciden toplanmıştır. Örneklemin yüzde 52,7'si erkek, yüzde 47,3'ü kadın olup yaş ortalaması 21'dir. Bölüm atamaları rastgele gerçekleştirilmiş ve çalışma ODTÜ Uygulamalı Etik Araştırma Merkezi'nin onayıyla yürütülmüştür.

Bulgular dört temel alan çerçevesinde şekillenmektedir. Sosyal norm algısına ilişkin sonuçlar incelendiğinde, çevresel bilgi müdahalesinin en güçlü ve istatistiksel olarak en belirgin etkisini 3-6 aylık kullanım diliminde ürettiği görülmektedir. Kontrol grubunda katılımcıların yüzde 41,94'ü bu kısa süreli kullanımı sosyal açıdan "çok uygun" bulurken bu oran deney grubunda yüzde 24'e gerilemiş; kullanımı "hiç uygun değil" olarak değerlendirenlerin oranı ise yüzde 24,19'dan yüzde 42'ye yükselmiştir. Mann-Whitney U testi bu farkın istatistiksel olarak anlamlı olduğunu teyit etmektedir. Ki-kare bağımsızlık testi de bu dağılımsal dönüşümün marjinal düzeyde anlamlı olduğunu doğrulamıştır. 6-12 aylık dilimde müdahalenin etkisi marjinal düzeyde sürmekle birlikte genel dağılımda istatistiksel anlamlılık eşiğine ulaşılamamıştır. Daha uzun kullanım sürelerinde ise deney ve kontrol grupları arasındaki fark giderek silinmekte; 1-2 yıl ve üzerindeki tüm kategorilerde iki grubun değerlendirmeleri birbirine yakınsamaktadır. Her iki grubun sosyal uygunluk algısı 1-2 yıllık noktada zirveye ulaşmakta, ardından birbirine paralel bir düşüş seyri izlemektedir. Bu örüntü son derece önemli bir kavramsal çıkarım sunmaktadır: çevresel bilgi, erken elden çıkarmayı toplumsal düzeyde damgalayarak bir "normatif taban" oluşturmakta, yani bireylerin neyin kabul edilemez olduğuna dair eşiğini aşağı çekmektedir. Ancak müdahale, uzun süreli kullanımı aktif biçimde özendiren ve kolektif onayı bu yönde yeniden yapılandıran bir "normatif tavan" inşa etme kapasitesinden yoksun kalmaktadır. Başka bir deyişle bireyler, bilgi müdahalesi aracılığıyla neyin israf sayılacağını öğrenmekte; ancak uzun süreli kullanımı normatif açıdan güçlü biçimde arzu edilir ya da prestijli bulmaya başlamamaktadır. Bu asimetrik normatif güncelleme mekanizması, bilgi müdahalelerinin dönüştürücü kapasitesini hem ortaya koymakta hem de sınırlandırmaktadır.

Katılımcıların bildirdikleri gerçek giysi kullanım alışkanlıkları da bu normatif tabloyla güçlü bir yapısal uyum sergilemektedir. Örneklemin ortalama kullanım süresi yaklaşık 2,41 yıl olarak ölçülmüş; bu değer Avustralya veya Kuzey Avrupa gibi bölgelerdeki ortalamaların gerisinde kalmakla birlikte uluslararası hızlı moda literatürünün alt sınırlarıyla örtüşmektedir. Sosyal uygunluk algısının zirveye ulaştığı 1-2 yıllık dilimin aynı zamanda gerçek davranışın en sık kümelendiği nokta olması, tüketici davranışının hâkim sosyal normlara ne denli derinden bağlı olduğunu somut biçimde ortaya koymaktadır. Bu yapısal örtüşme tesadüfi değildir; bireyler kıyafetlerini ne kadar süre saklayacaklarına karar verirken büyük ölçüde çevrelerindeki insanların ne yaptığını ve toplumun ne beklediğini esas almaktadır. Norm ile gerçek davranış arasındaki bu güçlü uyum, pozitif norm mekanizmalarının inşasının neden kritik bir sürdürülebilirlik stratejisi olduğunu da gözler önüne sermektedir. Cinsiyet açısından ise erkek ve kadın katılımcıların ortalama kullanım süreleri arasında istatistiksel olarak anlamlı bir fark bulunmamakla birlikte, kadınların daha yüksek standart sapma sergilemesi bu grupta kıyafet alışkanlıklarının çok daha heterojen bir yapıya sahip olduğuna işaret etmektedir. Bu bulgu, kadın katılımcılar arasında hem çok kısa hem de oldukça uzun kullanım sürelerinin eş zamanlı olarak var olduğuna, dolayısıyla bu grubun kıyafet tüketimi bağlamında içsel olarak da belirgin biçimde ayrışan alt gruplara ayrıştığına işaret etmektedir.

Kişisel norm değerlendirmeleri incelendiğinde, müdahalenin sosyal norm bulgularına paralel ancak bazı önemli nüanslar barındıran bir örüntü izlediği görülmektedir. Deney grubundaki katılımcılar 3-6 aylık kullanımı kişisel açıdan anlamlı biçimde daha uygunsuz bulmuş; bu etki 6-12 aylık dilimde de kısmen sürmüş, ancak 1-2 yıllık noktada her iki grubun değerlendirmeleri yeniden yakınsamıştır. Bu bulgular, çevresel bilginin yalnızca bireylerin sosyal beklentilerini değil içselleştirilmiş ahlaki standartlarını da etkileyebildiğini ortaya koymaktadır. Bireyler çevresel maliyetlere ilişkin somut verilerle karşılaştıklarında bu bilgiyi yalnızca toplumsal bir beklenti olarak değil, kendi kişisel sorumluluk alanları içinde de değerlendirmektedir. Bununla birlikte, bu dönüşümün uzun süreli kullanım dilimlerine yansımaması, müdahalenin bireysel değer sistemleri üzerindeki dönüştürücü kapasitesinin de sınırlı kaldığını açıkça göstermektedir. Sosyal norm bulgularındaki asimetrik yapı kişisel norm düzeyinde de kendini yinelemektedir: bilgi müdahalesi, kısa süreli kullanımı kişisel açıdan da damgalamakta; ancak uzun süreli kullanımı aktif biçimde kişisel düzeyde

arzulanır kılamamaktadır. Kişisel değerlendirmelerin 4 yılı aşan kullanım sürelerinde her iki grup için de "çok uygunsuz" kategorisine doğru kayması, çok uzun süreli kullanımın da hem sosyal hem de kişisel açıdan normatif bir sınıra takıldığına işaret etmektedir; bu durum, sürdürülebilirlik iletişiminin yalnızca kısa süreli kullanımı caydırmakla değil uzun süreli kullanımın normatif statüsünü yükseltmekle de ilgilenmesi gerektiğini ortaya koymaktadır.

Çalışmanın en çarpıcı bulgularını ortaya koyan cinsiyet bazlı analizde, normatif güncelleme mekanizmasının belirgin biçimde cinsiyete özgü bir yapı sergilediği görülmektedir. Sosyal norm değerlendirmeleri açısından kadın katılımcılar bilgi müdahalesine güçlü ve istatistiksel olarak anlamlı bir tepki göstermiştir. Deney grubundaki kadınlarda 3-6 aylık kullanımı "çok uygun" bulanların oranı yüzde 40,62'den yüzde 19,05'e gerilerken bu süreyi "hiç uygun değil" olarak değerlendirenlerin oranı yüzde 21,88'den yüzde 57,14'e yükselmiştir. Bu fark hem Mann-Whitney U testi hem de Ki-kare testi aracılığıyla istatistiksel olarak doğrulanmıştır. Kadın katılımcılardaki bu belirgin dönüşüm, 1-2 yıllık kullanım diliminde iki grubun değerlerinin yakınsamasıyla birlikte yavaş yavaş zayıflamakta ve uzun dönemli kullanım sürelerinde istatistiksel anlamlılığını yitirmektedir.

Kişisel norm düzeyindeki bulgular kadın katılımcılar için çok daha çarpıcı bir tablo sunmaktadır. Deney grubundaki kadınların yüzde 71,43'ü 3-6 aylık kullanımı kişisel olarak "çok uygunsuz" bulmuştur. Bu yüksek duyarlılık 6-12 aylık dilimde de sürmüş; söz konusu kategoride deney grubundaki kadınların ortalama puanı negatif seyretmiş, yani grup genel olarak bu süreyi kişisel açıdan uygunsuz bulmuşken kontrol grubundaki kadınlar bu süreye yönelik olumlu bir değerlendirme eğilimini korumaya devam etmiştir. Bu bulgu, kadın katılımcılar arasında muhtemelen var olan "çoğulcu cehalet" dinamiğiyle ilişkilendirilebilir: kadınlar bireysel olarak çevresel sürdürülebilirliğe güçlü bir bağlılık taşısalar da toplumun kısa süreli kıyafet kullanımını geniş ölçüde onayladığını varsaymış olabilirler. Çevresel bilgi bu gizil gerilimi açığa çıkararak hem sosyal hem de kişisel normlarda belirgin bir sıkılaşmayı tetiklemiştir. Müdahale, kadınlar için salt bir sosyal beklenti düzeltme mekanizması olarak değil daha ziyade etik bir katalizör olarak işlev görmüştür: kadınlar "throwaway culture"ın toplumsal düzeyde ne hızla terk edileceğinden görece şüphe duyarlarken çevresel verileri kendi kişisel sorumluluk çerçevelerine derhal entegre etmişler ve içsel standartlarını belirgin biçimde sıkılaştırmışlardır. Bu örüntü, daha önce sosyal

beklentiler ile bireysel değerler arasında var olan yapısal gerilimin bilgi müdahalesiyle görünür hâle geldiğine ve kadınların bu gerilimi öncelikle kendi iç değerlendirme standartlarını dönüştürerek çözüme kavuşturduğuna işaret etmektedir.

Erkek katılımcılar söz konusu olduğunda ise bulgular köklü biçimde farklılaşmaktadır. Sosyal norm değerlendirmelerinde erkekler bilgi müdahalesine hiçbir kullanım diliminde istatistiksel olarak anlamlı bir tepki vermemiştir. Deney ve kontrol gruplarındaki erkeklerin değerlendirmeleri tüm zaman dilimlerinde birbirine yakın seyretmiş; özellikle 4 yılı aşan kullanım kategorisinde iki grup neredeyse özdeş bir görünüm sergilemiştir. Kişisel norm değerlendirmelerinde de erkek katılımcılar büyük ölçüde benzer bir örüntü izlemiş; yalnızca 1-2 yıllık dilimde marjinal düzeyde bir farklılaşma gözlemlenmiştir. Kadınların 6-12 aylık dilimde son derece güçlü bir tepki sergilediği noktada erkeklerin her iki gruptaki değerlendirmeleri birbirine neredeyse özdeş düzeyde kalmıştır. Bu bulgular, erkeklerin hem sosyal beklentilerinin hem de içselleştirilmiş ahlaki standartlarının çevresel bilgi müdahalesine karşı kayda değer bir direnç sergilediğini ortaya koymakta ve normatif güncelleme sürecinin cinsiyetler arasında temel olarak farklı mekanizmalar aracılığıyla işlediğine işaret etmektedir. Bu direncin kaynağı yalnızca çevresel duyarlılıktaki bireysel farklılıklara değil, erkeklerin moda tüketimini çevre bağlamında ele alış biçimlerine ve çevresel mesajların bu grup üzerindeki özgün iletişimsel sınırlılıklarına da bağlanabilir. Nitekim çevre psikolojisi literatürü, erkeklerin çevresel bilgiyi kadınlara kıyasla daha düşük bir duygusal yoğunlukla işleme ve bu bilgiyi kendi tüketim pratikleriyle daha az ilişkilendirme eğiliminde olduğuna işaret etmektedir.

Sonuç bölümünde üç temel kavrayış öne çıkmaktadır. Birincisi, çevresel bilginin normatif dönüşüm yaratma kapasitesi mevcuttur; ancak bu kapasite giysi kullanım spektrumunun yalnızca alt ucuyla sınırlı kalmaktadır. Müdahale, kısa süreli kullanımı toplumsal düzeyde damgalayan bir "normatif taban" oluşturmakta; ancak uzun süreli kullanımı aktif biçimde özendiren ve kolektif onayı bu yönde yeniden tanımlayan bir "normatif tavan" inşa edememektedir. Bu asimetrik yapı, bilgi temelli müdahalelerin hem sınırlarını hem de potansiyelini bir arada yansıtmaktadır. İkincisi, gözlemlenen normatif güncelleme neredeyse bütünüyle kadın katılımcılar tarafından yönlendirilmekte olup müdahalenin cinsiyete göre önemli ve sistematik biçimde farklılaştığı görülmektedir. Bu farklılaşma, yalnızca bireysel tepkilerdeki küçük bir varyansı değil, temel bir yapısal ayrışmayı yansıtmaktadır. Üçüncüsü, gerçek tüketici

davranışının mevcut sosyal normlara güçlü biçimde hizlandığı yani kişilerin etraflarındaki insanların ne yaptığına bakarak davrandığını göstermektedir. Bu bağlamda bilgi müdahalesi müdahalenin köklü bir dönüşüm yaratmak yerine hafif bir dürtme işlevi üstlendiği anlaşılmaktadır.

Bu bulgular, politika tasarımı açısından bazı önemli ve uygulanabilir çıkarımlar sunmaktadır. Sürdürülebilir moda kampanyaları tüketicileri homojen bir kitle olarak ele almamalıdır. Çevresel bilginin etkisinin ağırlıklı olarak kadın katılımcılar üzerinde yoğunlaştığı göz önüne alındığında, tekstil sektöründe orantısız biçimde büyük bir tüketim ve üretim payına sahip olan kadın tüketicilere yönelik hedeflenmiş çevresel iletişim stratejileri hem normatif dönüşüm hem de genel ekolojik kazanım açısından çok daha yüksek bir etki potansiyeli taşımaktadır. Sosyal medya kampanyaları, influencer iş birlikleri ve marka iletişimlerinin kadın tüketicilerin çevresel duyarlılığını ve içselleştirme eğilimini merkeze alan bir çerçevelemeyle tasarlanması, normatif değişimin hem hızını hem de derinliğini artırabilir. Tek tip ve herkese eşit biçimde uygulanan kampanyaların yetersiz kaldığı, buna karşın cinsiyet farklılıklarını dikkate alan, hedeflenmiş ve çok katmanlı norm temelli müdahalelerin tüketim davranışlarında daha kalıcı bir dönüşümün önünü açabileceği değerlendirilmektedir. Bununla birlikte bu normatif değişimin fiili tüketim davranışına ne ölçüde yansıyacağı sorusu yanıtsız kalmakta ve yürütülecek gelecekteki araştırmalar için kritik ve verimli bir inceleme alanı oluşturmaktadır.

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