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## Article

# Influences on Consumer Engagement with Sustainability and the Purchase Intention of Apparel Products

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**Abstract:** Apparel and textile products are filling landfills and contributing to extensive waste found across the world. Much of the textile waste is due to the typical consumer not being aware of the care for, disposal of, and sustainable options for textile products. To identify consumers' intention to engage in sustainable practices and the intention to purchase sustainable apparel options, this study measured consumers' attitudes, subjective norms, and perceived behavioral controls. Data were collected from a sample of 397 participants through a Qualtrics online survey disseminated on Amazon's MTurk. Results of the multiple regression analysis yielded three of note: (1) a positive attitude toward recycling and the environment is related to a higher intention to engage in sustainable behavior, (2) a positive attitude toward green apparel products leads to a higher intention to purchase sustainable products, and (3) family and friends and the convenience of finding sustainable apparel products in stores have also influenced the purchase of sustainable apparel. Thus, this study provides significant insights into both intention to engage in sustainable behavior and the intention to purchase sustainable products and serves as a foundation for future studies on the sustainable engagement and purchase intention toward sustainable products.



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**Keywords:** recycling; sustainability; apparel; theory of planned behavior

## 1. Introduction

The availability of fast fashion has encouraged less expensive clothing to become popular, leading to overconsumption among consumers. Compared to previous decades, current manufacturing practices are typically outsourced to facilities abroad that can manufacture cheap apparel at high volumes. Almost 98% of apparel products sold in the USA are made in other countries, and the average cost of an apparel product is less than \$15. However, it is clear that this increased manufacture and consumption of apparel products has an adverse effect on the environment [1]. Many apparel products that are discarded are of poor quality and construction or are not routinely worn by the consumer due to changes in trends or personal style [2]. Between the years 1999 and 2009, post-consumer textile waste in the United States increased from 8.3 million tons to 11.3 million tons of waste. The amount of textile waste per year continued to increase and was expected to reach 16.1 million tons by 2019. Unfortunately, most of this waste is 100% recyclable, but around 85% of textile waste continues to be thrown in landfills [1].

The apparel industry has a negative environmental impact, but the effect can be decreased as the reuse and recycling of textiles has been found to be more beneficial than incineration and landfilling. For the industry to be considered sustainable, the impact per apparel product must be reduced by 30–100% by 2050. To achieve this reduction, consumers must prolong each apparel product's usability as many products are discarded even when usable [3]. Often, worn or stained apparel will be thrown away, while products that are in good condition are more likely to be recycled [4]. This waste warrants a closer look at sustainable consumption, which is defined as the individual understanding of the long-term impacts of their own consumption behavior [5,6]. Sustainable consumption is

driven by sustainable engagement, which is typically characterized by pro-environmental and prosocial influences on sustainable consumption [7].

Due to the apparel industry's need to cut down on environmental waste and consumers' increasing interests in sustainable initiatives, it is essential to identify consumers' engagement with sustainability through the purchase intention, care for, and disposal of apparel products. The theory of planned behavior was used as a foundation to explain such consumer behaviors, as the theory highlights that attitude, subjective norms, and perceived behavioral control influence consumers' purchase intention and engagement. Our research question focuses on "What influences impact the intention to engage in sustainable consumption behaviors and the intention to purchase sustainable products?". To this end, the purpose of this study is to understand the influences of attitude, family and friends, convenience, and price, on the engagement and purchase intention of sustainable products. A quantitative survey was disseminated to 403 participants (397 usable responses), and results outline many considerations for consumers and retailers alike. Thus far, few current research articles examine the consumers' product lifecycle—from purchase, care, disposal, and the intention to engage in sustainable behaviors, and we thus aim to fulfill that need.

## 2. Literature Review

### 2.1. Consumerism

Consumerism revolves around the premise that material products are valuable and that life may not be complete without possessions, which may outshine social relationships or experiences. In particular, apparel products are purchased for hedonic purposes beyond their inherent utilitarian purpose, and shopping is considered a recreational activity for millions of consumers [8]. Beyond the act of shopping and consuming apparel products, many consumers only think of environmental problems from a supply perspective and do not consider the linkages between consumption and environmental degradation. Consumption must be considered in conversations about sustainability, as encouraging recycling and reducing waste is not enough [9]. Currently, consumers have some sustainable choices available but may be reluctant to make sustainable choices in their consumption habits in favor of products that have rapid turnover [10].

### 2.2. Sustainability in the Fashion Industry

Sustainable apparel is defined as 'clothing which incorporates one or more aspects of social and environmental sustainability' [11], but a sustainable supply chain considers the triple bottom line. For consumers who are interested in sustainable products, supporting companies that practice the triple bottom line is essential [11]. Over one billion apparel and accessory products are produced every year, adding over \$3 trillion to the global economy. The cost of producing these items involves extensive resources, including water, cotton, and energy. In addition, three-fifths of the products purchased are discarded within one year [12]. While sustainable initiatives begin with production, it must also include a change in consumer consumption patterns. Since trends in apparel products change quickly, it is difficult to promote the reuse or extended use of the product [13]. If all of the trashed apparel and textile products were recycled, the Environmental Protection Agency estimates that the reduced impact would be the equivalent of the carbon dioxide emissions of 7.3 million cars [14].

Consumers have limited awareness of the unsustainable impact of apparel consumption and have a limited understanding of sustainability in general. Despite attempts to educate consumers on the challenges of sustainable apparel consumption, it has become clear that the premise of sustainability itself will not elicit changes in consumption patterns. In order for change to take place, consumers must understand the role that the care for and disposal of apparel products have on environmental sustainability [15].

Delaying the disposal of an apparel product helps sustainability. However, it is essential to permanently reduce needless waste through making thoughtful purchases and using already purchased apparel to the end of its lifecycle [16]. Recycling reduces

the volume of textile waste in landfills, as well as the resources such as water, fibers, and chemical dyestuffs. There is a significant lack of recovery of apparel waste when attempting to recycle textiles, as consumers do not typically have the necessary knowledge on how to dispose of their apparel in a sustainable way, including the proper recycling method [17].

Some communities in the United States have attempted to facilitate the recycling of apparel through recycling contests and corresponding prizes. Overall, consumers' positive emotions found when recycling can overshadow the negative emotions associated with being wasteful. Thus, a call for research on the factors that influence waste, reuse, and recycling was made by Sun and Trudel [4], which would lead to actionable initiatives for policymakers.

Consumers must also communicate with others about sustainability in order for it to 'catch on' among their peer groups. In a study by Youn and Jung, consumer data on sustainability were analyzed and determined that consumers were talking the most about "eco-friendly", "recycle", and "ethical". These terms are broad in nature and signal a way for retailers to communicate with consumers [18]. Researchers must also continue research on sustainable apparel to help the industry, even though active research on sustainability in the apparel industry has dramatically increased since 2005 [19].

### 2.3. Theory of Planned Behavior

The theory of planned behavior (TPB) is a widely known model that helps predict and explain human behavior. The TPB was adapted from the theory of reasoned action (TRA), which focuses on two general behaviors. First, individuals process information and act in a rational manner. Once intention is established, the behavior will result. Second, attitude and subjective norms help to build intention [20]. Since the TPB focuses on the decision-making process and the motivations behind human behavior, this model and its three constructs were investigated as predictors of behavioral intention: attitude, subjective norms, and perceived behavioral control [21]. The TPB also traditionally includes the actual behavior in which the consumer would engage, however, actual behavior can be difficult to measure. Extant literature has also excluded actual behavior, including Kang et al. [22]. Thus, this study has focused on intention and excluded the variable of behavior from the model.

### 2.4. Attitude

Attitude can be defined as the degree to which a person has a favorable or unfavorable evaluation [23] of a product, service, or behavior. The definition can also include the perception of engagement in a behavior, as well as the consequences that may result from the behavior. Attitude has also been found to positively impact behavioral intention [16]. Thus, if people have a positive attitude toward sustainability and the environment, it is more likely that they will make positive changes in their consumption decisions. Overall, attitude will help us to understand the challenges that consumers have when adopting a more sustainable lifestyle [24].

Attitude has been found to be directly related to behavior in regard to sustainability and, more specifically, recycling. Consumers feel good when recycling, helping to form a positive attitude toward the behavior. While environmental concerns may not be the main motivating factor, a positive attitude toward recycling leads to sustainable behavior [25].

**Hypothesis 1 (H1).** *Positive attitudes towards recycling apparel items lead to a higher intention to engage in sustainable behavior.*

**Hypothesis 2 (H2).** *Positive attitudes towards the environment lead to a higher intention to engage in sustainable behavior.*

**Hypothesis 3 (H3).** *Positive attitudes towards green products lead to a higher intention to purchase sustainable apparel.*

### 2.5. Subjective Norms

A subjective norm is defined as the perceived social pressure from family and friends to perform a set behavior. People have an innate drive for approval, and significant others' opinions and actions influence resulting behavior [21]. This component of the TPB measures individuals' feelings about the social pressures they encounter when engaging in certain behaviors. In relation to this study, it has been found that people have been influenced to engage in sustainable behaviors if peers demonstrated sustainable behavior [23]. Consumers want to be seen doing the right thing by their peers, leading to the subjective norm serving as a strong predictor on a behavioral outcome. Thus, consumers' intention to recycle and buy sustainable products is predicted to depend on the subjective norm [24].

Consumers feel social pressure to purchase more sustainable products, and this has a key impact on sustainable consumption. A more significant impact is also found when consumers want a positive social image. Thus, subjective norms have positively influenced behavioral intentions towards purchasing sustainable products [26].

**Hypothesis 4 (H4).** *Family and friends influence the intention to engage in sustainable practices.*

**Hypothesis 5 (H5).** *Family and friends influence the intention to purchase sustainable apparel.*

### 2.6. Perceived Behavioral Control

Perceived Behavioral Control (PBC) can be defined as the perceived ease or difficulty of completing a behavior. To achieve the behavior, there are many elements that must be controlled, including the resources, skills, and abilities to reach the outcome. If someone perceives less control over an outcome, then the behavioral intention decreases for that activity [21].

Two main influences, convenience and price, have been found to be primary contributors to PBC when purchasing products. For sustainable products to be viable options for consumers, the products must be of good value and easily accessible. The higher price of green products can be a deterrent for consumers. However, consumers have been found to pay a higher price if the products are of higher quality than other options. Brand recognition also helps support the selection of green products. Despite the higher price point, a primary driver of green consumption is the perceived benefit to the environment [26].

**Hypothesis 6 (H6).** *Convenience of purchasing green products will have a positive influence on intention to engage in sustainable behaviors.*

**Hypothesis 7 (H7).** *Convenience of purchasing green products will have a positive influence on the intention to purchase sustainable apparel.*

**Hypothesis 8 (H8).** *Price of green products will have a positive influence on the intention to engage in sustainable behaviors.*

**Hypothesis 9 (H9).** *Price of green products will have a positive influence on intention to purchase sustainable apparel.*

### 2.7. Behavioral Intention to Engage and Purchase

Behavioral intention serves as an antecedent to predicting an outcome behavior and highlights the likelihood of actual engagement in that behavior. When intentions are strong, there is a higher probability of people carrying out that behavior. In relation to recycling, the behavioral intention would be a process that fits into the consumers' lifestyles. Thus, recognizing processes in which people can engage can help identify potential outcomes that may work for others [21]. To test the relationships between behavioral intention and other variables in this study, the TRB model was followed.

### 3. Methods

This quantitative study used thirty-seven, five-point Likert-type survey questions adapted from previous literature [22–24] and was reviewed by a panel of apparel industry experts. The survey items were presented to participants in a traditional online survey format and the adapted questions representing the TPB were located at the beginning of the survey, while demographic questions appeared at the end. The adapted questions were found in extant literature, some of which used the TPB model as a foundation for their study. Overall, nine questions represented attitude, two questions for subjective norms, nine questions for PBC, six questions for intention to engage, and four questions for the intention to purchase. Survey questions were coded (1 = Definitely Not, 2 = Not, 3 = Neither Yes or No, 4 = Yes, 5 = Definitely Yes) and averaged to represent the construct for analysis. The survey questions, their connections to the TPB, and the corresponding codes are available in Appendix A.

The survey was distributed in 2019 to consumers of legal age, regardless of geographic location in the USA or other demographic variables. Access to Amazon Mechanical Turk's workers was used to recruit a convenience sample of participants, in which the survey was presented on MTurk and housed on Qualtrics. All participants were paid \$0.10 for completing the survey, and the only condition to participation (beyond legal age) included their routine purchasing of consumer products, either in-store or online. The condition was put in place to ensure the consumer has dealt with the need to dispose of products throughout a given year. As the data were collected, responses in Qualtrics were automatically coded in preparation for analysis. Within 24 hours, a total of 403 responses were collected. Upon review of the data, six responses were removed due to consistent response patterns or missing responses. All survey items were found to have a Cronbach's Alpha of 0.7 or higher, as shown in Table 1.

Multiple regression analyses using SPSS software were used to determine the acceptance or rejection of hypotheses. As all regression assumptions were met, the researchers determined that regression was a sufficient test over structural equation modeling. Correlations for each variable are also available in Table 2.

**Table 1.** Cronbach's Alphas per Variable.

Mean, SD, and Cronbach's Alpha Per Variable							
Variables	Intention to Engage	Intention to Purchase	Attitude toward Green Apparel	Attitude toward Environment	Attitude toward Recycling	PBC Convenience	Social Norm
Mean	19.28	17.70	8.93	10.70	11.70	23.94	5.99
SD	4.443	4.937	3.305	2.781	2.857	4.945	2.364
Cronbach's $\alpha$	0.882	0.918	0.833	0.758	0.882	0.763	0.876

**Table 2.** Correlations.

Correlations Between Variables							
	1	2	3	4	5	6	7
1. Intention to Engage	1.00	0.837 **	0.522 **	0.775 **	0.717 **	0.332 **	0.492 **
2. Intention to Purchase	0.837 **	1.00	0.522 **	0.748 **	0.674 **	0.299 **	0.522 **
3. Attitude Toward Green Apparel	0.522 **	0.522 **	1.00	0.600 **	0.316 **	0.193 **	0.670 **
4. Attitude Toward the Environment	0.775 **	0.748 **	0.600 **	1.00	0.689 **	0.297 **	0.582 **
5. Attitude Toward Recycling	0.717 **	0.674 **	0.316 **	0.689 **	1.00	0.344 **	0.352 **
6. PBC	0.332 **	0.299 **	0.193 **	0.297 **	0.344 **	1.00	0.202 **
7. Social Norm	0.492 **	0.522 **	0.670 **	0.582 **	0.352 **	0.202 **	1.00

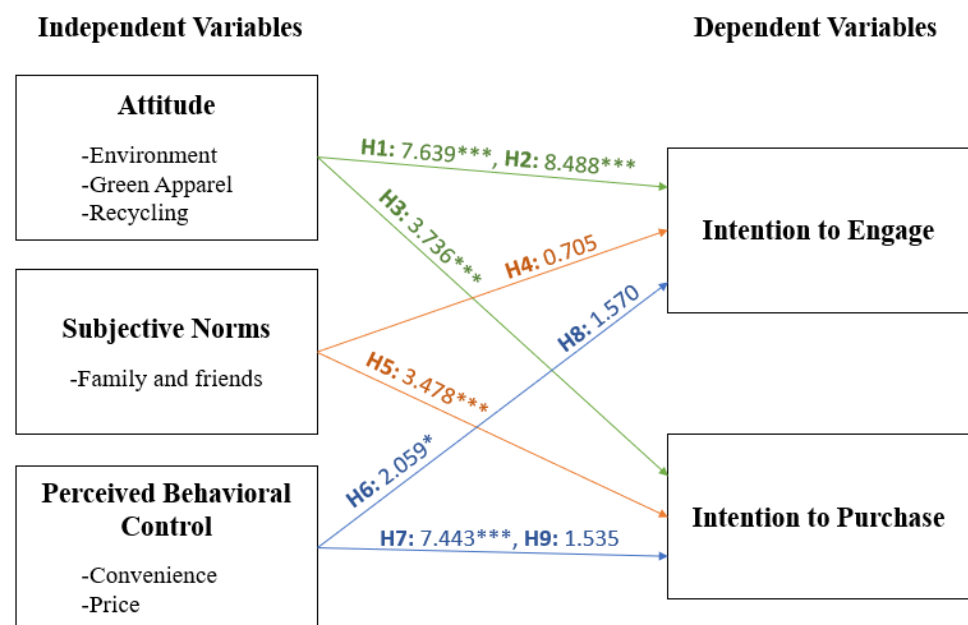
Note: \*\*  $p < 0.01$ .

Despite obtaining a convenience sample, participants in this study represented a diverse subset of the population. About 56% identified themselves as female, and the remaining 44% identified themselves as male. A majority of the sample (49%) was between the ages of 25 and 34, while those aged between 35 and 44 made up the second-largest

segment (23%), and those aged between 19 and 24 made up the third-largest segment (13%). About 50% of participants had completed a bachelor's degree, 20% had obtained a high school diploma or a GED, 13% did not finish high school, and 12% had obtained an associate's degree. Income was also highly diverse, as those with an annual income of less than \$20,000, \$20,001–\$35,000, \$35,001–\$50,000, and \$50,001–\$75,000 all resulted in approximately 20% of the sample.

#### 4. Results

Each independent variable was measured against the variables of 'Intention to Engage' and 'Intention to Purchase'. The testing of the relationships between variables are detailed in Figure 1.



**Figure 1.** Testing of the Relationships Between Variables. Note: \*  $p < 0.05$ , \*\*\*  $p < 0.001$ .

First, testing the independent variables of attitude, subjective norms, and perceived behavioral control on the dependent variable of intention to engage was measured through a regression analysis ( $\text{Intention to Engage} = a + b_1 * \text{attitude} + b_2 * \text{subjective norm} + b_3 * \text{PBC} + e$ ). Coefficients can be found in Table 3. Testing participants' intention to engage in sustainable behaviors generated many positive results and yielded a variance of 64.8% ( $R^2 = 0.648$ ,  $F(5, 374) = 140.437$ ,  $p < 0.001$ ). Participants' positive attitudes towards recycling items led to a higher intention to engage in sustainable behavior ( $t = 7.639$  \*\*\*,  $p < 0.001$ ). Thus, Hypothesis H1, testing that 'positive attitudes towards recycling apparel leads to higher intention to engage in sustainable behavior' was accepted. Similarly, participants' positive attitudes towards the environment led to a higher intention to engage in sustainable behavior ( $t = 8.488$  \*\*\*,  $p < 0.001$ ). Consequently, Hypothesis H2, testing that 'positive attitudes towards the environment leads to a higher intention to engage in sustainable behavior' was also accepted. Participants' convenience of purchasing green products was also found to have a positive influence on the intention to engage in sustainable behavior ( $t = 2.059$  \*,  $p < 0.05$ ). Therefore, Hypothesis H6, testing that 'convenience of purchasing green products will have a positive influence on intention to engage in sustainable behavior' was accepted.

On the other hand, participants' family and friends' influence did not have a positive effect on their intention to engage in sustainable behavior ( $t = 0.705$  \*,  $p > 0.05$ ). Thus, Hypothesis H4, testing that 'family and friends influence the intention to engage in sustainable behavior' was rejected. The price of green products did not have a positive influence on

their intention to engage in sustainable behavior either ( $t = 1.570^*$ ,  $p > 0.05$ ). Hypothesis H8, testing that ‘the price of green products will have a positive influence on the intention to engage in sustainable behavior’ was rejected as well. Of importance, attitude toward the environment has a strong effect on the intention to engage.

**Table 3.** Intention to Engage Coefficients.

Intention to Engage Model					
Model	B	Std. Error	Standardized Coefficients Beta	T	Sig.
(Constant)	0.502	0.148		3.405	0.001
Attitude toward Environment	0.411	0.048	0.427	8.488	0.000
Attitude toward Recycling	0.022	0.032	0.030	0.705	0.481
Social Norms	0.022	0.032	0.030	0.705	0.481
PBC-Convenience	0.121	0.059	0.097	2.059	0.040
PBC-Price	0.047	0.030	0.056	1.570	0.117
Observations	387				
R-squared	0.648				
F (5, 374)	140.437				

Note: Dependent Variable-Intention to Engage.

Second, testing the independent variables of attitude, subjective norms, and perceived behavioral control on the dependent variable of intention to purchase was measured through a regression analysis (Intention to Purchase =  $a + b_1 * \text{attitude} + b_2 * \text{subjective norm} + b_3 * \text{PBC} + e$ ). Coefficients can be found in Table 4. Testing participants’ intention to purchase yielded positive results and a variance of 49.7% was found to predict the participant’s intention to purchase sustainable apparel ( $R^2 = 0.497$ ,  $F(4, 382) = 96.445$ ,  $p < 0.001$ ). Participants’ positive attitudes towards green products led to a higher intention to purchase sustainable apparel ( $t = 3.736^{***}$ ,  $p < 0.001$ ). Therefore, Hypothesis H3, testing that ‘positive attitudes towards green products leads to a higher intention to purchase sustainable apparel’ was accepted. In addition, participants’ family and friends influence also affected their intention to purchase sustainable apparel ( $t = 3.478^*$ ,  $p < 0.05$ ). Thus, Hypothesis H5, testing that family and friends influence the intention to purchase sustainable apparel was accepted as well.

**Table 4.** Intention to Purchase Coefficients.

Intention to Purchase Model					
Model	B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	0.381	0.190		2.008	0.045
Attitude toward Green Apparel	0.177	0.047	0.199	3.736	0.000
Social Norms	0.152	0.044	0.183	3.478	0.001
PBC-Convenience	0.570	0.077	0.413	7.443	0.000
PBC-Price	0.060	0.039	0.065	1.535	0.126
Observations	387				
R-squared	0.497				
F (4, 382)	96.445				

Note: Dependent Variable-Intention to Purchase.

Participants’ convenience of purchasing green products had a positive influence on their intention to purchase sustainable apparel ( $t = 7.443^{***}$ ,  $p < 0.001$ ). Thus, Hypothesis H7, testing that ‘convenience of purchasing green products will have a positive influence on the intention to purchase sustainable apparel’ was accepted. On the other hand, the price of green products did not have a positive influence on the participants’ intention to purchase sustainable apparel ( $t = 1.535^*$ ,  $p > 0.05$ ). Therefore, Hypothesis H9, testing that the ‘price of green products will have a positive influence on intention to purchase sustainable apparel’ was rejected. Of importance, convenience has a strong effect on the intention to purchase. The regression result for each hypothesis is available in Table 5.



A variance of 2.1% was found between the attitude variable and the participant's gender when considering their positive attitudes towards recycling. Female participants were found to be more likely to have positive attitudes towards recycling and thus engage in sustainable behavior when compared to male participants ( $r = 0.149$ ,  $p = 0.002$ ). A variance of 5.9% was also found between the Attitude variable and the participants' age when considering green products. Older participants had a higher intention to purchase sustainable apparel when compared to younger participants ( $r = -0.234$ ,  $p = 0.000$ ). Next, a variance of 51.0% was found between the Subjective Norm variable and the participants' age. Older participants were more likely to be influenced by family and friends ( $r = -0.203$ ,  $p = 0.000$ ). Finally, a variance of 1.5% was also found between the Intention to Purchase and the participants' age. Older participants were more likely to purchase sustainable apparel when compared to younger participants ( $r = -0.128$ ,  $p = 0.006$ ).

**Table 5.** Regression Results.

Results of the Regression Analysis							
Intention to Engage				Intention to Purchase			
Hypothesis	t-Value	Sig.	Result	Hypothesis	t-Value	Sig.	Result
H1	7.639	0.000	Accepted	H3	3.736	0.000	Accepted
H2	8.488	0.000	Accepted	H5	3.478	0.001	Accepted
H4	0.705	0.481	Rejected	H7	7.443	0.000	Accepted
H6	2.059	0.040	Accepted	H9	1.535	0.126	Rejected
H8	1.57	0.117	Rejected				

## 5. Discussion, Limitations, and Implications

### 5.1. Discussion

Textiles can be reused and recycled in several ways to reduce the amount of waste that is burned or added to landfills, which in turn helps to conserve natural resources, limit pollution, and save energy. Improvements to current recycling rates can include: (1) better infrastructure between textile producers and recyclers, (2) adding curbside collection programs for consumers, (3) increasing end-use markets of waste recyclables, and (4) educating consumers on the advancements they can be making to be sustainable [27]. Connecting many of these improvements, the single-stream process of recycling paper, glass, plastic, and cans have been successful in recent years. Single-stream processes are convenient for the consumer, as the materials do not need to be sorted before the recycling process occurs. The convenience of single-stream recycling serves as a huge step forward for recycling engagement across thousands of United States households [28]. A positive next phase will include curbside pickup of textiles across numerous communities. Additional funding for developing recycling techniques in connection to government regulations would be beneficial for increasing sustainability. The growth of buy-back programs across the industry would also serve as a big step to gain additional buy-in from consumers [17].

The current study found that participants had positive attitudes toward recycling, the environment, and green products. Participants also indicated their willingness to engage in sustainable behaviors and their intention to buy sustainable apparel. These relationships highlight that holding a positive attitude toward an action can result in an intention to act. Attitude was also found to be the strongest predictor of the intention to purchase green products. Positive consumer attitudes and a greater concern for the environment lead to stronger efforts to reduce environmental impacts [23] and a stronger purchase intention. If consumers feel as if they can positively impact the environment, they are more likely to engage in more sustainable consumption. These consumers also have a higher likelihood of purchasing green products, as they feel that their individual consumption behaviors have a direct impact [22].

In the current study, the subjective norm yielded results inconsistent with previous literature [26], as family and friends were not found to influence intention to engage in

sustainable practices. In contrast, family and friends were found to influence participants' intention to purchase sustainable apparel. This influence is likely to derive from indirect cues that are taken when family and friends purchase quality, a sustainable brand, or avoid purchasing fast fashion. These observations may educate consumers on the products that they purchase.

When consumption of sustainable apparel is supported, family and friends maybe more impactful if they engage in similar sustainable practices. In this study, family and friends that purchased apparel with organic, low-impact dyed, or recycled materials had a positive influence on participants' purchase intention. Sustainable consumption also increases the tendency for consumers to give and receive secondhand apparel among family and friends. It is also believed that more sustainable consumption will lead to reuse, upcycling, reselling, or donating unwanted apparel items [13]. As consumers spend more time caring for their garments, an emotional attachment and engagement in more sustainable practices may result.

Previous literature has indicated that social norms are not direct influences on behavior but have an indirect impact through personal norms [20]. This study also supports the disconnect between social norms and behavior, as influences from family and friends were not found to have a significant relationship with the intention to engage in sustainable practices. However, family and friends were found to influence the intention to purchase sustainable apparel. This may be due to the visibility that sustainable apparel has when it is being worn by family and friends. People that have a stronger social conscience are reported to be more aware of environmental challenges, more involved with recycling, and more willing to purchase sustainable apparel [20]. While the influence of family and friends may be indirectly important, previous literature has also indicated that approval from significant others may not be as impactful as previously thought [23]. It is also important to note that consumers may be purchasing sustainable apparel based on their own decisions and interests instead of a direct influence from family and friends [22].

In the current study, perceived behavioral control has strongly supported the basis of convenience rather than price. Convenience played a significant role in both the intention to engage in sustainable behavior and the intention to purchase sustainable apparel. Paul et al. [23] also determined that communicating convenience and the availability of sustainable products is an important aspect of PBC and sustainable product purchase intentions. Based on this information, it is also important to note that the perceived availability of sustainable apparel is viewed to be limited as compared to more unsustainable apparel products.

Of significance, price did not have a significant influence on the intention to engage in sustainable behavior or the intention to purchase sustainable products. This result is of great interest, as price is typically a strong factor when people are shopping. However, it does not seem to be an influential factor when people are seeking sustainable options. Kang et al. [22] also found something similar, as consumers indicated that making a meaningful difference has a greater impact on their actions than concerns about price, availability, location, or consumption. Thus, price is irrelevant for consumers that feel they can make a difference through their own sustainable practices. Consumers that are knowledgeable of sustainability issues are not deterred by the price of sustainable apparel and will support sustainable initiatives if they feel they can make a difference for the environment [22].

Relationships between the TPB variables and demographic characteristics also drew significant insights in this study. Female participants were found to have more positive attitudes toward recycling than male participants and were also found to engage in more sustainable behaviors. Cho et al. [13] also had a similar result which stated that females tend to engage in more sustainable apparel consumption, as they are more frugal and fashion-conscious. Females have also been found to be more interested and engaged in general sustainable consumption processes [13].

A significant relationship was also found between subjective norms and participant age, as younger participants were less influenced by family and friends than older par-

ticipants. Even though children learn consumer socialization behaviors through family members, it seems as if younger consumers actively reject product recommendations from family and friends [29]. In the current study, younger participants were also found to have less positive attitudes toward green products and lower intention to purchase sustainable apparel than older participants. It may be hypothesized that factors such as having a stronger ecological conscience may be related to age, as consumers are likely to have engaged in new or refined behaviors throughout their lives. Thus, older consumers may continue to be learning from family, friends, and other outside sources. The positive relationship between older consumers and their likelihood to adopt new behaviors is a positive sign for younger generations as well.

Overall, sustainable consumption must feel relevant to consumers' lives and must enhance consumers' social image. If these conditions are met, consumers are more likely to develop a positive attitude toward sustainable options, feel more pressure from peers to engage in purchasing sustainable apparel, and overcome challenges related to sustainable consumption [22]. However, additional research is needed on the topic of relevancy based on consumers' specific social images. As the current study highlights, consumers have positive attitudes toward recycling, the environment, and green products, while older consumers are more influenced by family and friends. Thus, there are numerous opportunities for retailers, marketers, policymakers, and governments to step in and support sustainable initiatives.

## 5.2. Implications

Of significance in this study, participants indicated that convenience is of greater importance than alternative sustainable processes, even when participants indicated that they were concerned about the social and environmental impact of consumption. Knowledge of consumer behavior toward sustainability helps policymakers, retailers, product developers, and marketing managers make appropriate decisions for their communities, companies, and consumers. The design of new products and packaging should also be reviewed for more sustainable options to increase recycling rates [4] and quality. The insights gained can also help educate and persuade consumers to engage in convenient processes that help achieve more sustainable practices and improve their current habits.

The utility of this study is primarily with retailers. Retailers can determine the various viewpoints that their consumers may have toward sustainability and adjust their assortments and marketing campaigns accordingly. It is important to know where consumer behavior and product demand is headed in order to make a profit.

We continue to be a long way from full consumer awareness of sustainable practices, as some consumers are ignorant of the global impact that consumption has had on the planet [15]. To make a difference in the industry, consumers, retailers, manufacturers, and other partners must join forces and share information on sustainability. The industry must determine sustainability standards that will support retailers and help consumers make informed decisions. Governments across the world must work to set basic laws to protect the environment. These laws need to consider the use of the planet's resources, minimize excessive consumption, and improve current waste disposal methods that are significantly polluting our planet. As outlined by Markkula and Moisander [30] and Harris et al. [15], policymakers must focus more on large-scale actions, including cultural and social contexts, instead of simply informing and educating consumers.

This study also serves as a foundation for researchers, as extant literature primarily focuses on consumer interests toward sustainability and not the perceptions that consumers have toward their own behaviors. Results from this study also further the use of the TPB in sustainability literature and has provided an avenue to solidify the theory. The results of this study also provide new topics for research, including the need to delve deeper into how demographics impact intention to engage.

### 5.3. Limitations

There are a few limitations to this study. First, intention is a widely accepted predictor of behavior but may not fully represent the actual behavior that would unfold. In the context of this study, people may not actually engage in the purchasing of green products, as there may be a lack of confidence in the performance of the product, and the higher price point of the green product may dissuade the consumer when making a purchasing decision [26].

Second, participants were only recruited from Amazon's Mechanical Turk, which may be biased toward specific populations, including people who are comfortable using the internet. Due to the nature of online surveys, participants may have also rushed through the survey without much consideration or may have selected more preferential answers. To help eliminate possible issues, data that had repetitive answers were removed from the data analysis. In addition, the post soliciting participants was only distributed once, leading to a possible bias based on when the participant engages in the survey (e.g., people seeking income during the day versus people who seek entertainment in the evening, etc.). Future research on this topic should seek a random sample to further test the TPB and hypotheses formed in this study. Overall, since the compensation for this study was relatively modest, it also is not believed that participants were biased when responding to the survey questions.

Third, participants may have engaged in virtue signaling when selecting responses within the survey. Virtue signaling is 'to take a conspicuous, but essentially useless action, ostensibly to support a good cause by actually showing off how much more moral you are than everyone else' [31]. In this study, participants may have wanted to demonstrate themselves in a more positive light than what exists in reality. However, these surveys were anonymous, confidential, and completed individually, and were also completed in a short amount of time. Due to the instinctual quick nature of filling out the survey, it is believed that participants will have indicated their true feelings on the topic. The survey items were also stated in a neutral manner with the goal of making the survey unbiased and open to genuine responses.

## 6. Conclusions

This study highlighted how consumers who are invested in sustainability will be driven to purchase sustainable apparel and intend to engage in sustainable behaviors. In contrast, consumers that are indifferent toward sustainability will do less to recycle and will engage in fewer sustainable actions. Influences, including family and friends, play a role in selecting sustainable options and sustainable processes. Adopting more sustainable behaviors must be convenient and adopted by more people for real change. Consumers must also fully understand the long-term benefits, including the long-term negative impacts, which could unfold if sustainable practices are not widely adopted. Therefore, this study serves as a foundation for using the TPB when investigating the intention to engage in sustainable behavior and the intention to purchase sustainable products. Future research must further examine the topic of apparel sustainability by using a random panel of diverse participants to further determine barriers toward sustainable engagement and the purchase of green products.

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**Data Availability Statement:** Data are available upon request. Contact the corresponding author for access.

**Conflicts of Interest:** The authors declare no conflict of interest.

## Appendix A

**Table A1.** Survey Questions and Answer Codes.

Variable	Proposed Questions	Answer Options					Source	Cronbach Alpha						
Screening Question	I usually shop for apparel	Please check all that apply:												
		<input type="checkbox"/>	Online via desktop (1)											
		<input type="checkbox"/>	Online via tablet (2)	<input type="checkbox"/>	Online via smartphone (3)	<input type="checkbox"/>	In-Store (4)	<input type="checkbox"/>	On the phone (5)	<input type="checkbox"/>	Via Catalog (6)	<input type="checkbox"/>	Other (fill in the blank) (7)	
Screening Question	What actions have you taken to disposed of clothing in the past?	Please check all that apply:												
		<input type="checkbox"/>	Upcycle (reused into something else) (1)	<input type="checkbox"/>	Repair (2)	<input type="checkbox"/>	Throw away (3)	<input type="checkbox"/>	Donate (4)	<input type="checkbox"/>	Resell (5)	<input type="checkbox"/>	Hand down to family or friends (6)	<input type="checkbox"/>
Intention to Engage	How much investigation have you done on sustainable apparel disposal?	Pick the statement that best describes you:												
		<input type="checkbox"/>	I haven't investigated sustainable apparel options and I don't think about it (1)	<input type="checkbox"/>	I'd be interested in researching sustainable disposal options (2)	<input type="checkbox"/>	I've read <i>many</i> articles/information on sustainable disposal options (3)	<input type="checkbox"/>	I've read <i>some</i> articles/information on sustainable disposal options (4)	<input type="checkbox"/>	I do extensive research every time an apparel item needs to be disposed of (5)			
	I am very concerned about the environment	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[23]	0.78						
Intention to Engage	I would be willing to reduce my consumption to help protect the environment	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[23]	0.78						
	I believe major political and social changes are necessary to protect the natural environment	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[23]	0.78						
	I am quite familiar with sustainable apparel	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[22]	0.91						
Attitude	I often see sustainable clothing in shopping places (e.g., department stores, specialty stores, online shopping malls, etc.)	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[22]	0.91						
	I have often tried on organic cotton apparel although I did not make purchases	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[22]	0.91						
	I engage in sustainable behavior at home	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[24]	0.84						
Intention to Engage	I engage in sustainable behavior away from home	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[24]	0.84						
	When buying something or choosing between alternatives, I am likely to choose apparel that is more sustainable, even if it costs more	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[24]	0.84						

Table A1. Cont.

Variable	Proposed Questions	Answer Options					Source	Cronbach Alpha
Attitude	When I buy products, I tend to try to consider how my use of them will affect the environment	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[22]	0.85
	By purchasing apparel made in an environmentally friendly way, each consumer's behavior can have a positive effect on the environment and society	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[22]	0.85
	I think it is worth it for the individual consumer to make efforts to preserve and improve the environment	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[22]	0.85
PBC	Sustainable apparel might not readily available where I shop	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[22]	0.86
	Shops that offer environmentally friendly apparel might be located far away from where I live	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[22]	0.86
	Environmentally friendly apparel might have a limited range of design, style, and/or colors	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[22]	0.86
	Sustainable apparel might be expensive	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[22]	0.86
Subjective Norms	Most people who are important to me think I should purchase environmentally friendly apparel	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[23]	0.89
	My friends and family's positive opinion influences me to purchase environmentally friendly apparel	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[23]	0.89
PBC	Keeping separate piles of discarded apparel for repurposing, recycling or donation is too much trouble * (asterisk indicates that a reversed scale was used)	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[24]	0.79
Attitude	Recycling apparel will reduce pollution.	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[24]	0.90
	Recycling apparel is important to save natural resources	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[24]	0.90
	Recycling apparel will save land that would be used for landfill/rubbish.	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[24]	0.90

Table A1. Cont.

Variable	Proposed Questions	Answer Options					Source	Cronbach Alpha
PBC	If I wanted to, I would not have problems in adopting a sustainable lifestyle	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[24]	0.79
	If it were entirely up to me, I am confident that I would purchase environmentally friendly apparel	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[23]	0.81
	Environmentally friendly apparel is generally available in the shops where I usually do my shopping	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[23]	0.81
	There are likely to be plenty of opportunities for me to purchase environmentally friendly apparel	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[23]	0.81
Purchase Intention	I will consider buying environmentally friendly apparel because it is less polluting	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[23]	0.90
	I will consider switching to environmentally friendly apparel brands for ecological reasons	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[23]	0.90
	I expect to purchase environmentally friendly apparel in the future because of its positive environmental contribution	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[23]	0.90
	I definitely want to purchase environmentally friendly apparel in the near future	Definitely Yes (5)	Probably Yes (4)	Unsure (3)	Probably No (2)	Definitely Not (1)	[23]	0.90
Demographic Questions	Please indicate your age							
	Please indicate your gender	Female (2)		Male (1)		Other (3)		
	Please indicate your highest education level	Did not finish High School (1)	High School Diploma or GED (2)	2-year College Degree (3)	4-year College Degree (4)	Master's Degree (5)	PhD or other advanced professional degree (6)	
	Please indicate your yearly income	Less than \$20,000 (1)	\$20,001–\$35,000 (2)	\$35,001–\$50,000 (3)	\$50,001–\$75,000 (4)	\$75,001–\$90,000 (5)	\$90,000+ (6)	

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