

# Article

# Understanding Perceived Value and Purchase Intention toward Eco-Friendly Athleisure Apparel: Insights from U.S. Millennials

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**Abstract:** Given the recent trend of the athleisure lifestyle in the U.S., this study sought to examine female millennial consumers' value perceptions for purchasing recycled polyester-made athleisure apparel. Using an inductive approach with grounded theory, the perceived green value (PGV) framework was applied to guide data collection through the in-depth interviews and data analysis. The findings of the study provide theoretical insights and sustainable solutions for the industry and academia. Five main values identified include functional value, social value, emotional value, conditional value, and epistemic value. Within these perceived values, 13 sub-themes emerged. Female millennials consider price and performance key deciding factors for purchasing recycled polyester-made athleisure apparel. However, this is contingent upon products being fashionable, comfortable, and versatile for numerous occasions. The perceived social value reaffirms that peers and family can strongly influence purchasing decisions. Female millennials are more likely to purchase from well-known sustainable companies whose products are aligned with their beliefs and are exempted from false advertising. Companies need to empower consumers with the necessary product information and environmental knowledge. Epistemic value relies on consumers being educated and aware of sustainable products and their benefits.

**Keywords:** athleisure apparel; recycled; perceived value; purchase intention; millennials; sustainability



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## 1. Introduction

In recent decades, the fashion industry has caused massive environmental pollution due to the rise of fast fashion, defined as less-expensive trendy clothing produced in high volumes [1]. Such destruction equals roughly 17 million tons of textile waste every year, of which only 15% is recycled [2]. Polyester (a.k.a. polyethylene terephthalate (PET)), which is the most commonly used synthetic fiber in textile and apparel products, is a pertinent problem because it is not biodegradable and over five million tons of PET enter the aquatic ecosystems annually, causing tremendous harm to aquatic and human health [3]. Studies show that in 30 years, there will be more PET in the oceans than fish and estimate that 90% of seabirds have already consumed some form of PET waste [4]. Tackling pollution is a complex problem and requires a variety of radical, innovative solutions [5–7]. One popular solution has been to recycle polyester into new products such as sustainable apparel [8].

Many consumers have become aware of this phenomenon [9], thus inspiring academia and retailers to study recycling, which creates new, valuable products from waste [10]. Ross [11] found that there was little difference in the physical properties between recycled and virgin polyester. Virgin polyester is a synthesized petrochemical product made through polymerization using non-renewable resources, whereas recycled polyester is made from PET usually found in plastic water bottles and textile waste [11]. Filho et al. [12] stressed

that recycling fibers could reduce virgin material production, usage of water and energy, and environmental pollution.

Thus, an increasing number of firms, particularly those in the athleisure apparel and sportswear industry, has begun engaging in developing and using recycled materials [13]. Athleisure apparel refers to comfortable, leisurely sportswear worn in non-athletic settings, with projections to increase over USD 250 billion in market value by 2026 [14,15]. Currently, polyester accounts for approximately 75% of total fiber usage in athleisure apparel and sportswear. Nike is one of the pioneers in promoting the usage of recycled polyester in its shoes and clothing. Patagonia is a popular, ethical outdoor retailer that utilizes a high proportion of recycled polyester. They were one of the first to create fleece using polyester recycled from plastic bottles in the 1990s [16]. Adidas has also explored recycling, starting with shoes made from recycled ocean plastic waste, of which over 500 million pairs were sold in 2019. Adidas aims to replace all virgin polyester with recycled polyester in its products by 2024 [4].

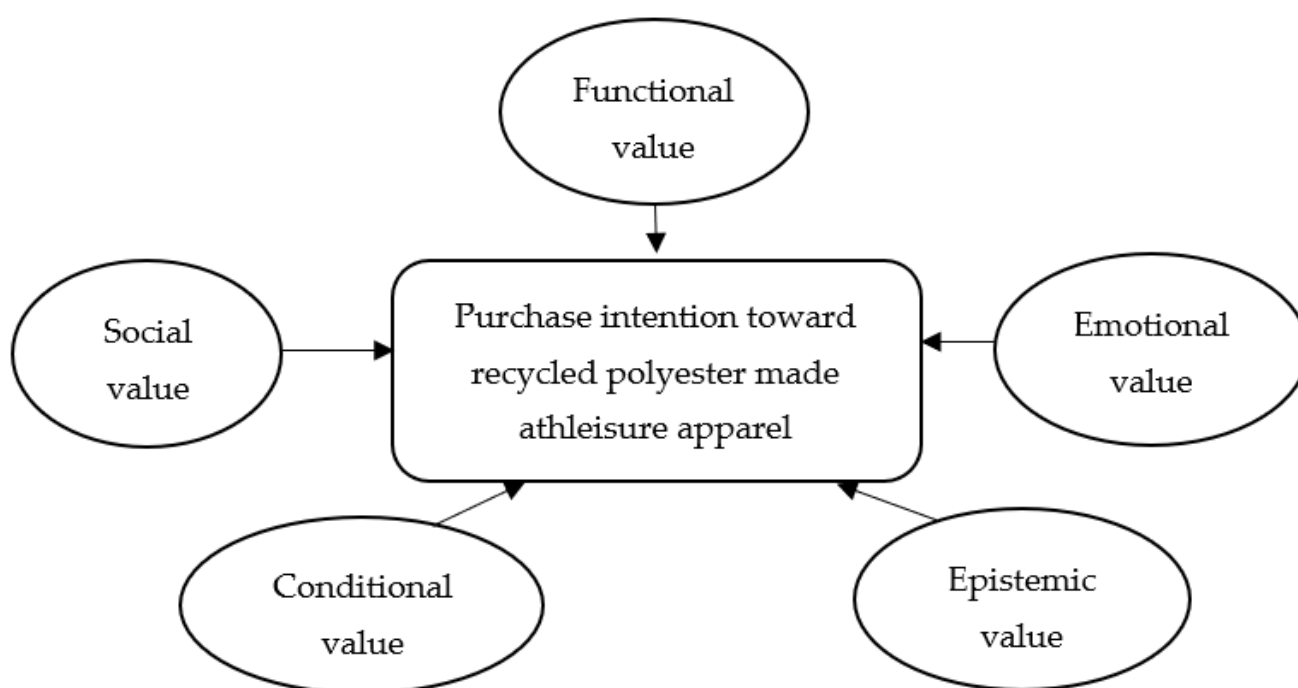
Numerous collaborative projects such as FIBRESORT, Worn Again, and Pure Waste also started to promote recycling and circular economy/closed loop production [17]. The Pure Waste partnership with the Relooping Fashion initiative promoted using 100% recycled fibers from industrial and textile waste, whereas Worn Again Technologies partnered up with apparel companies like H&M, Sulzer, and Chemtech to optimize production processes [18].

Despite increasing enthusiasm and philanthropic reasoning by businesses and media, market acceptance is the ultimate driving force behind this recycling movement [19]. It is hard to attract buyers and sell products without knowing consumer attitudes and needs [9]. Additionally, product development, branding, advertising, and marketing of recycled fibers are all factors that need to be considered when evaluating consumer demand. Therefore, the purpose of this study was to identify the values perceived by the U.S. female millennial consumers who drive their purchase intentions toward recycled polyester-made athleisure apparel. Results from the study provide apparel retailers and brands with useful insights regarding sustainable products made from recycled materials.

To identify influential factors, the perceived green value (PGV) framework was utilized to guide data collection and analysis. Female millennials born between the years 1981 and 1996 were selected as the cohort because they used to be the primary drivers of fast fashion, but now are major consumers for second-hand fashion and eco-friendly fashion [20–22]. A recent national survey showed that 75% of U.S. millennials rated sustainability as one of most important factors to consider while purchasing apparel [23]. Statistics indicated that females made up the majority of athleisure consumers and had been the advocates for the athleisure lifestyle [14,15].

## 2. Literature Review and Research Propositions

This section extensively reviews the literature on the perceived green value (PGV) framework in regards to recycled polyester-made athleisure apparel. Based on the extensive literature review, five research propositions (RPs) were developed to guide data collection and analysis. Figure 1 was developed to visually present the five perceived values.



**Figure 1.** Perceived values and purchase intention model.

### 2.1. Perceived Green Value (PGV)

PGV is defined as consumers' overall evaluation and appraisal of products in regards to their perceived environmental and sustainable advantages [20,24,25]. This concept derives from consumer perceived value (CPV) theory, which mainly considers two dimensions, which are the functional value (quality, services, price, and convenience values) and the symbolic value (aesthetic, emotional, social, and reputational values) [26]. It was previously found that consumers who value sustainability are more willing to purchase environmentally friendly products [27]. PGV is a five-dimensional framework initially proposed by Sheth et al. [28] that includes (1) functional, (2) social, (3) emotional, (4) conditional, and (5) epistemic values used to analyze consumer purchase intention toward environmentally friendly purchases. These five dimensions were found to influence consumers' sustainable shopping behaviors in previous studies [20,29–31], which demonstrates that PGV is an ideal framework for investigating which values are driving U.S. millennial's willingness to shop recycled polyester-made athleisure apparel.

### 2.2. Functional Value

Functional value refers to the overall performance of a product, and its quality, price, and level of functionality. In terms of functionality, recycled polyester-made products should have equal or similar performance compared to products made from virgin polyester. In recent studies, the functional value, including both quality and price, strongly influenced consumers' intentions to purchase a product. Koller et al. [32] found that perceived functional and economic values are directly related to consumer decision-making on purchasing a product or service. Jiang and Kim [30] noted that the functional value is perceived as a tradeoff or a balance between quality and price. Ganak et al. [20] indicated that the functional value significantly affects U.S. millennial consumers' willingness to recycle their denim products. Therefore, the functional value is of great importance to U.S. millennial consumers in their decision-making process toward recycled polyester-made athleisure apparel. Research Proposition 1 (RP1) is proposed as follows.

*RP1: Functional value positively affects U.S. millennial consumers' intentions to purchase recycled polyester-made athleisure apparel.*

### 2.3. Social Value

Social value, when applied to sustainable product purchases, has been found to strongly influence consumers' overall purchase intentions. Moosa and Hassan [31] conducted a study about electric vehicle purchase intentions and found that the perceived social value had a significant, positive effect on customer satisfaction when green innovation was a key attribute. They also discovered that higher popularity or social acceptance of a product generated better product image and acceptance among potential buyers [31]. Customers purposely exhibit their environmentally consciousness beliefs and expect to be publicly praised and perceived with higher status and positivity [33]. On the other hand, if a purchase is not socially approved by other people, this could negatively impact purchase intentions due to cognitive dissonance [25,32]. When this value is applied to recycled polyester-made athleisure apparel, the purchase intention will be higher if the purchases are socially acceptable. Thus, the following RP2 was proposed.

*RP2: Social value positively affects U.S. millennial consumers' intentions to purchase recycled polyester-made athleisure apparel.*

### 2.4. Emotional Value

Emotional value involves consumers' psychological state of mind when they use environmentally friendly products, which includes levels of satisfaction and overall feelings. When consumers are satisfied with a product, they will develop loyalty to those products or brands [25]. The level of satisfaction regarding a product is usually associated with environmental and psychological conditions, such as physical stimuli [34] or mental stimuli [35]. If the value of a product does not resonate with consumers' beliefs, they may generate negative emotions toward the product and refuse to purchase. Additionally, the value-as-truism hypothesis states that positive emotions are generated when product values are consistent with people's beliefs [36]. Therefore, emotional value leads to either positive feelings such as excitement, loyalty, and nostalgia, or negative emotions such as guilt, fear, and anger [28]. Despite its seemingly significant impact, several studies found that the emotional value is the least influential value in the PGV framework for eco-friendly consumer behavior [20,34]. Overall, its impact in past research seems to be positive, and therefore the following RP3 was proposed.

*RP3: Emotional value positively affects U.S. millennial consumers' intentions to purchase recycled polyester-made athleisure apparel.*

### 2.5. Conditional Value

The conditional value is formed when different situations create different considerations. Time and place are the two most influential factors that affect conditional value [34]. The decision-making process is based on the situational context, which cannot be known in advance. Moreover, conditional value is also affected by external factors like environment and events, rather than internal factors such as beliefs or opinions. Ganak et al. [20] found that epistemic and conditional values significantly affect consumer satisfaction and loyalty. On the other hand, Moosa and Hassan [31] found that conditional values are not easily formed by consumers unless the conditions are straightforward, accurate, and clear, which may indicate that the conditional value has a less significant impact. However, prior findings indicated that conditional value has a greater influence on consumer satisfaction than emotional and epistemic values toward green product consumption [20,37]. Overall, conditional value has been found to be highly correlated to consumer satisfaction and brand loyalty in terms of environmentally friendly product purchases. Therefore, we proposed RP4 as follows.

*RP4: Conditional value positively affects U.S. millennial consumers' intentions to purchase recycled polyester-made athleisure apparel.*

## 2.6. Epistemic Value

Epistemic value is a consumption-related value that impacts purchase intention through a product's creative, novelty, or ingenious benefits. Consumers are attracted to products or services that are innovative, excitingly new, and abundant. When innovative purchasing patterns arise, it signifies consumers' exploratory tendencies and desire for variety. However, people who are obsessed with buying new products are less likely to form brand loyalty but are willing to pay more for new products [20,31,34]. According to Burcu and Seda [34], environmentally friendly product purchases depend upon the product's ability to positively contribute to dimensions of self-transcendence, self-development, openness to change, and conservatism. Ganak et al. [20] found that epistemic value plays an important role in forming U.S. millennial consumers' green behaviors. Therefore, we proposed the following RP5.

*RP5: Epistemic value positively affects U.S. millennial consumers' intentions to purchase recycled polyester-made athleisure apparel.*

## 3. Methodology

This was a qualitative study involving participant interviews, which were analyzed through coded responses. The snowball sampling method was used to recruit 16 U.S. female millennials for interviews. These participants were college students or recent college graduates who had certain knowledge on sustainability or environmental pollution issues. The interviews were conducted face to face or through phone calls and were voice recorded for electronic transcription. Each interview typically lasted about a half hour. The interview questionnaire was developed using relevant literature, such as the perceived values from the PGV framework, and included a series of semi-structured questions (see Appendix A). This method is useful typically when participants cannot be directly observed performing a specific action, such as deciding to purchase recycled polyester-made athleisure apparel [38].

An inductive approach based on the grounded theory method was used to perform content analysis of the interview data [39]. Grounded theory is a constant comparative technique that allows researchers to find differences and similarities, as well as coherence and incoherence, in data observation to achieve relative category importance [40]. Content analysis is a flexible method for analyzing data through impressionistic, interpretive, and intuitive analyses [41], which allowed the researchers to develop inferences through the interpretation and coding of transcripts. Based on the PGV model, participant responses were analyzed thematically. This process was repeated until all major and significant themes were filtered from the data [42,43]. The results were organized according to the five values within the PGV framework: (1) functional, (2) social, (3) emotional, (4) conditional, and (5) epistemic. Under each theme, the responses were summarized into common, important points [44].

Demographic data and lifestyle habits are summarized in Table 1. The average age of the participants was 26 years old, with a range of 20 to 34 years old, fitting the millennial age group. Most of the participants were undergraduate or graduate students (14), with two participants who had just started their careers. Therefore, their individual incomes were relatively low. However, they purchased or wore athleisure apparel either for sustainability or comfort reasons. Regarding lifestyle and relationships with athleisure apparel, most participants (5) purchased or wore athleisure apparel for functional reasons such as durability, doing sports, or leading a simple lifestyle. The second most common lifestyle trend focused on comfort (4), as athleisure apparel is simple, minimal, provides style with comfort, and gives participants flexibility throughout their day. The third most common lifestyle trend was related to the environment and recycling (3), where participants wanted to utilize apparel items for their full life cycle, purposely buy high-quality products that would last a long time, or were concerned about the environment and sustainably. The final two lifestyle trends were about following fashion trends (2) and wearing athleisure for self-improvement through fitness or taking care of themselves (2).

**Table 1.** Profile of the participants.

Participants	Age	Annual Income	Education Level	Occupation	Lifestyle
JG1	32	USD 20k	Ph.D.	Student	Recycles as much as possible, wears athletic wear until it falls apart, limited budget as a student.
JG2	29	<USD 20k	Ph.D.	Student	Loves shopping, follows fashion trends.
JG3	24	<USD 20k	Master's	Student	Spends most money on clothes, enjoys trends and keeping up with the apparel industry.
JG4	23	USD 35k	Bachelor's	Media Planner	Shops quite frequently for good-quality products from expensive brands, spends extra income on clothing, concerned with the environment.
LS1	24	<USD 20k	Bachelor's	Student	Shops comfy athleisure apparel.
LS2	34	USD 40k	Master's	Adviser	She is a wife and mom, and works full-time. She tries to balance all her responsibilities while taking good care of herself. Shops athleisure apparel.
LS3	23	<USD 20k	Master's	Student	She is busy with work, school, and exercise. She does not have much time for breaks. Her clothes need to be comfortable and allow her to be herself. Athleisure apparel fits the need.
LS4	23	<USD 20k	Master's	Student	Athleisure apparel meets the need for attending classes, social networking, and workouts.
OA1	29	<USD 20k	Master's	Student	Shops for clothes less often, only when there is a need for them. Sustainable lifestyle.
OA2	32	USD 20k	Ph.D.	Student	Buys more durable clothing that has several purposes instead of having a lot of clothes for different occasions. Athleisure apparel meets this need.
OA3	25	<USD 20k	Master's	Student	Has a simple lifestyle. Some outdoor activities.
OA4	23	<USD 20k	Bachelor's	Student	Shops for comfortable outfits every time and wears them for a long time.
YN1	22	<USD 20k	Bachelor's	Student	Only wears athleisure apparel when working out.
YN2	27	<USD 20k	Master's	Student	Does not dress up daily, athleisure apparel fits many occasions.
YN3	20	<USD 20k	Bachelor's	Student	Buys athleisure apparel for style and comfort. Not a workout person.
YN4	22	<USD 20k	Bachelor's	Student	Tries to be sustainable, such as recycling and buying more sustainable products.

#### 4. Analysis and Discussion

The participants indicated that they were motivated to purchase recycled polyester-made athleisure apparel for the following values: functional value, social value, emotional value, conditional value, and epistemic value. Regarding functional value, athleisure apparel was described as an investment, since this type of apparel can be worn often and for a multitude of reasons. Performance was described as an expected feature of athleisure apparel because it is meant for sports, exercising, and high-impact activities. Overall, functional value was found to be positively and significantly important because it considers the performance and price consumers are willing to pay, which was strong for this product type. The discovered sub-themes were (1) price and performance, and (2) willingness to pay a premium.

The social value was found to have a strong and positive influence on purchase intention toward recycled polyester-made athleisure apparel, due to strong family and friend influences regarding sustainable consumption behaviors. Sub-themes identified included (1) friends' opinions and actions being influential, (2) family members influencing sustainable actions, and (3) brands' sustainable reputation. Basically, the more friends and family were involved in sustainable behaviors, the more likely consumers were willing to purchase recycled synthetic athleisure products.



The emotional value also had a strong influence on consumer purchase intentions due to sustainability beliefs. The sub-themes included (1) environmental consciousness, (2) awareness of eco-friendly products, and (3) consumer purchase decisions. Various sub-themes for conditional value were also revealed, which included (1) consumers' accountability for sustainability and corporate social responsibility (CSR), and (2) consumer engagement and education. Due to numerous environmental problems, all respondents indicated a strong desire to be sustainable and protect the environment through sustainable behaviors. This includes purchasing sustainable athleisure apparel made with recycled materials to reduce waste. They also revealed that consumers are not well educated about topics related to sustainable apparel consumption. Therefore, athleisure apparel brands and retailers would receive more sustainable apparel purchases and inspire more sustainable purchasing habits through social media or direct brand communication and education.

The last value, epistemic value, proved to be less significant in terms of influencing purchase intention compared to the other four values. The sub-themes identified were (1) a good idea disseminated to the public, (2) the need for good-quality products, and (3) innovation for business and sustainability. Some respondents indicated that they did not follow new trends, but still appreciated the idea of sustainable apparel products like recycled polyester-made athleisure apparel because of the environmental benefits. One major critique was the lack of education about sustainable apparel products and their benefits. If the product performs similarly or better than products made from virgin materials, consumers are more likely to purchase the product due to satisfied expectations paired with environmental benefits. Detailed analyses and discussions are provided below.

#### 4.1. Perceived Functional Value

##### 4.1.1. Theme 1: Price and Performance

The first sub-theme under the PGV framework was price and performance. Most participants expressed that price was the main deciding factor for athleisure apparel choices. Secondary key factors included comfort, fit, material, color, and garment features such as sweat-wicking capabilities. These combined factors indicate that the functional value of a product is important to consumers when making purchase decisions. Other important considerations included functional design features such as pockets and fashionable aesthetics that are colorful and unique. The point of athleisure wear is to be comfortable and flexible for multiple occasions, making performance an important requirement.

JG2: "... if they have pockets on two sides. I like to take my phone when I run and do exercises ... if the pattern is fashionable like in season, ... if they had come up with new colors and stuff. Black is always like the simple choice. If there are other colors that are really in right now, I will try too".

LS1: "Price, type of material (stretchy material), comfort, color... not into colors, [I] like black and white".

OA2: "The key factors I consider are of course price and the fit and also the comfort".

##### 4.1.2. Theme 2: Willingness to Pay a Premium

The other sub-theme of functional value was willingness to pay a premium. Most of the participants were willing to pay 5–10% more for athleisure apparel made from recycled polyester because they understood that the recycling process adds additional costs, as long as the quality was not negatively affected. Due to the environmental benefits of recycling, one participant was even willing to pay 25–30% more. Athleisure apparel, as stated previously, provides the endurance and flexibility to be worn often for multiple occasions for many years, which the participants really appreciated. This lends insight into why consumers are willing to pay a higher premium for these products.

LS4: "15% more is what I will be willing to pay for recycled polyester-made clothing. because it is helping the environment".

YN1: “I probably will spend like 25% to 30% if it was made of recycled materials. Because I can understand it will cost a little bit more . . . ”

Sub-themes one and two therefore complement each other, as long as athleisure apparel made of recycled polyester maintains the same quality as that made of virgin materials. Thus, the findings from these themes support RP1: Functional value positively affects U.S. millennial consumers’ intentions to purchase recycled polyester-made athleisure apparel.

#### 4.2. *Perceived Social Value*

##### 4.2.1. Theme 3: Friends’ Opinions and Actions Are Influential

The first theme for perceived social value was about the influence that friends have over each other. According to nine participants, social value derived from friends’ opinions and actions deeply impacted their purchase intentions and behaviors toward sustainable apparel. For example, one respondent said she noticed her friend’s mesh leggings and asked if she was cold. Her friend replied that she felt fine. Therefore, the participant considered purchasing those leggings based on her friend’s opinion. The data also indicated that social media acts as a catalyst for information flow among peers. This is particularly true, as sustainability information could be vague or untrustworthy in many ways. Friends’ opinions and comments from close peers can help disseminate accurate sustainability messages. People tend to be influenced by their friends’ posts on social media, especially for sustainable apparel products.

YN2: “I would say yes. I am a fashion-oriented person who has a lot of fashion-oriented friends. We tend to give recommendations on Facebook”.

YN4: “If I was shopping in-store with friends and they bought sustainable athleisure wear, I would think maybe I should get one as well”.

##### 4.2.2. Theme 4: Family as an Influencer for Sustainable Actions

Another sub-theme for the social value was influence from family. Participants claimed that their families significantly influenced their sustainable behaviors. Two-thirds of participants reported practicing sustainable behaviors such as recycling plastics and reducing plastic usage. One participant said that her mother recycles everything, which inspired her to donate used clothing. Another participant practiced second-hand shopping and clothing donations because it was considered a family tradition. Findings show that parents could potentially affect the consumer behavior of their children, indicating that children from sustainability-focused families tend to lead more environmentally friendly lives. In turn, they are more likely to purchase apparel made from recycled materials.

OA1: “[My family] practices sustainable behavior! But as far as clothing . . . I am not really aware of my family’s attitudes. But they are educated on environmental protection. So, I guess it’s not going to be something hard for them to understand when it comes to recycled clothing”.

YN1: “For my family, we do a lot of second-hand shopping and we also donate the clothes that we wear”.

YN2: “We banned plastic at home so we only used glass and we would only buy organic food and so I’d say it definitely has influenced me..”.

##### 4.2.3. Theme 5: Brands’ Sustainable Reputation

Apart from friends and family, people are also likely to perform sustainable behaviors if they feel that others will benefit. More than half the respondents were willing to buy athleisure apparel if the brands were sustainable, indicating that sustainable brands could attract more consumers and purchases, as sustainability seems to be part of the genes of athleisure. However, the participants warned that this trust was not built solely upon the brand’s own claims, due to fear of greenwashing strategies used to lure customers. There were also some participants who indicated unfamiliarity with sustainable apparel



brands and products. Sustainability efforts made by athleisure apparel brands need to be conveyed accurately and in a timely manner to the public. This information can influence consumer shopping decision-making.

JG3: “I’m definitely attracted. It definitely catches my attention more and makes me want to look into it more”.

YN2: “Definitely. One thing I liked about Girlfriend Collective is they have a whole webpage to explain every aspect of the sustainable supply chain. They talk about where they get their recycled materials”.

In summary, sub-themes three, four, and five are about the influence from friends’ opinions and actions, sustainable behaviors influenced by family, and increased buying intention for sustainable apparel brands, respectively. Therefore, the findings support RP2: Social value positively affects U.S. millennial consumers’ intentions to purchase recycled polyester-made athleisure apparel.

#### 4.3. Perceived Emotional Value

##### 4.3.1. Theme 6: Environmental Consciousness

The first sub-theme for perceived emotional value was environmental knowledge and consciousness. A majority of the participants with environmental knowledge considered this aspect when purchasing athleisure apparel. Some participants were unaware or uncertain as to whether they considered environmental issues because they were not educated on the topic, whereas a few others were aware of environmentally conscious consumption behaviors gaining popularity in the U.S. More consumers are changing their lifestyles to embrace sustainable consumption and recycling habits.

LS1: “Yes, I think about it. I bought bottled water that was more eco-friendly at a store because they talked about saving the environment . . . ”

OA1: “Yeah. I’m a big proponent of the fact that we need to change certain ways we live especially food waste and fossil fuel use. And yes, every time I purchase something I try as much as I can to know how it’s made, where the product originated from . . . ”

OA2: “ . . . during purchasing athleisure wear? No! Because I’m not aware that there is some recycled synthetic material I could purchase. But from now, yeah., I would consider environmental protection”.

##### 4.3.2. Theme 7: Awareness of Eco-Friendly Products

The second sub-theme was awareness of eco-friendly products. Results indicated that some participants were not apparel brand-specific or aware of any specific sustainable textile and apparel products. These participants were also unaware of the negative environmental implications of many apparel brands. Those participants who understood the benefits of eco-friendly products expressed their interest in sustainable athleisure apparel brands. Therefore, sustainable apparel brands should use advertising and marketing strategies to enlighten and educate consumers about the benefits imposed by recycled polyester-made athleisure apparel.

LS1: “No, it doesn’t make them more attractive to me. So far environmentally friendly is not a deciding factor when I buy athleisure apparel because I don’t have a lot of knowledge on this subject, if it was advertised more, I would look more into it”.

YN2: “I am more attracted to brands that talk about sustainability and explain it with real facts and statistics. I hate when they’re vague. Brands need to explain what they are doing. How much they have done in detail? I need more information on actual behaviors and products”.

#### 4.3.3. Theme 8: Consumer Purchase Decision

The third sub-theme for perceived emotional value was consumers' purchase decisions. All participants indicated willingness to purchase from brands aligned with their beliefs. One participant expressed that she would feel guilty purchasing from a brand that went against her values and preferred buying from second-hand stores to reduce consumption. The participants who purchased from brands aligned with their beliefs said this was the result of online research for verification. This is becoming more important as an increasing number of consumers are used to online shopping. Athleisure apparel brands are therefore advised to be transparent and clearly report all sustainable practices for consumer benefit.

OA1: "Totally as long as what a brand said can be proven. What the brand is doing is aligned with my beliefs, then yeah I will purchase products from the brand".

YN2: "Yeah I really feel so guilty when I buy from fast fashion brands because I just know I'm contributing to part of the problem. So, I really don't like it, I guess that's why I try to do second-hand mostly because then I feel less guilty".

In summary, the three sub-themes for perceived emotional value are environmental consciousness, awareness of eco-friendly products, and consumers' purchase decisions. These factors significantly influence U.S. millennials' purchase decisions for recycled polyester-made athleisure apparel, and therefore RP3 is supported.

#### 4.4. Perceived Conditional Value

##### 4.4.1. Theme 9: Consumers' Accountability for Sustainability and CSR

The first sub-theme for perceived conditional value was consumers' sustainability behaviors versus brands' CSR accountability. Nine participants expressed that they had been responsible with sustainable practices such as recycling used products, including apparel, or reducing consumption. All respondents indicated that it is also the responsibility of apparel companies to reduce/recycle apparel waste because they ultimately decide which production processes to use, which materials to use, and which recycling services to offer. In other words, sustainable practices are a "two-way street". However, consumers should research brands before purchasing products. One could argue that the conditional value is therefore contingent upon the consumer's personal values regarding sustainability. In addition, the participants recognized their own consumption behaviors, such as excessive buying and apparel disposal. Words such as "upcycling" and "resell" were mentioned as solutions.

YN1: "I feel like it's a two-way street. I think companies should take responsibility on how to produce clothing. However, the consumers should also do research on where to buy sustainable clothing and how to recycle their clothes properly".

YN2: "Yeah. I mean companies are the ones that are contributing probably more to waste than all of us. So, I mean they should take more responsibility to reduce the negative impact".

OA1: "I think as human beings we should stop buying things just because you have the impulsion of buying or because you have money. I'm not a big spender. It is the consumer's responsibility to put the clothing waste together and have them recycled in a proper way. I think you should definitely recycle if you cannot turn off your impulsion of buying things just whenever you feel like".

##### 4.4.2. Theme 10: Consumer Engagement and Education

The second sub-theme was lack of sustainability education. When consumers are aware of a phenomenon, such as sustainability within the apparel industry, they are more likely to purchase sustainable products. In other words, if the conditions are right, consumers are more willing to perform a sustainable behavior. In this case, accessing the essential information about recycled polyester and knowing the benefits of athleisure apparel made of recycled polyester can reduce the barrier for millennial consumers to

purchase the products. Brands making athleisure apparel made of recycled polyester available to consumers is also critical for consumption. All of the participants felt obligated to purchase sustainable apparel products given the urgent need for pollution reduction and environmental protection.

LS4: “Educate themselves about sustainable athleisure apparel and need of plastic recycling. I don’t know if companies are doing this now”.

YN2: “I think that consumers should try to purchase more sustainable clothing. I think we need to abandon fast fashion because the more we consume, the faster fashion brands will produce. And so even though the corporations and the government need to be the ones to change, we also need to make our efforts”.

With the notion that companies and consumers should work together, it is clear that the purchase of athleisure apparel made of recycled polyester is contingent upon consumers’ beliefs formed through education. Companies need to take responsibility to improve their sustainable efforts to meet the demand of consumers. Offering recycled polyester-made athleisure apparel is one of these efforts. Millennial consumers are willing to learn more about the environmental benefits of sustainable apparel and know where to purchase sustainable products from trusted brands. Therefore, RP4 is supported in that conditional value positively affects U.S. millennial consumers’ intentions to purchase recycled polyester-made athleisure apparel.

#### 4.5. Perceived Epistemic Value

##### 4.5.1. Theme 11: Good Idea Disseminated to the Public

The first sub-theme uncovered for perceived epistemic value was the notion that good ideas need to be publicly advertised more. Three of the participants revealed no prior awareness or knowledge of recycled polyester products before the interviews but were excited once they became aware of the benefits and functions. All of the participants used social media and were aware of industry trends and news. Therefore, if athleisure apparel made from recycled polyester were advertised and marketed better, its popularity would increase because it is beneficial to the environment. As previously mentioned, less education about sustainability prevents consumers from purchasing such products, indicating that retailers with sustainable products are missing this effective advertising opportunity. Most retailers have evolved their presence on social media apps like Instagram and Snapchat, so creating these campaigns would be easy and popular.

OA2: “I think it’s innovative as long as they’re not using really harmful chemicals to recycle it because that’s would be another question to it being innovative”.

OA3: “It’s a great concept though I’m coming across it for the first time today”.

JG3: “I think it’s cool. I think it should be made, not only in athleisure apparel, but it could be incorporated in to like everything that’s just another market that is highly synthetic, like you said, that can take on that responsibility”.

##### 4.5.2. Theme 12: Good Quality Needed

The second sub-theme was good quality. Similar to functional value, epistemic value includes the idea that great product concepts must be paired with high quality. Consumers expect higher priced, recycled polyester-made athleisure apparel to be of equal or greater quality compared to standard athleisure wear in terms of comfort, functionality, and durability. In other words, the product must present itself as the better option. Consumers are enticed by the environmental benefits and are willing to pay a bit of a premium for sustainability reasons.

LS4: “Can be a good idea if we can get it up to the quality people are wanting. How much goes into virgin-made polyester v. recycled?”

OA6: “Well, I’m, in for it, as long as it, it’s as comfortable per the quality as the virgin synthetic ones, I would be happy to have it”.

#### 4.5.3. Theme 13: Innovation for Business and Sustainability

The last sub-theme was about the innovativeness of a product's sustainability. Due to climate change, 13 of the participants indicated that recycled polyester-made athleisure apparel is an ingenious solution because it reduces plastic pollution and virgin polyester production while creating a trendy product. Consumers are increasingly adopting sustainable behaviors, which provides a new business opportunity to brands and companies. Scaling up the sustainable product market can greatly contribute to environmental sustainability. In summary, material and technology innovations are changing the methods of product development and production.

YN3: "I feel like it's going to be the way of the future. I feel like we like everyone's going to start doing that because if they don't then we will have problems. "

YN2: "I mean I'm trying to find ways to ... [be] sustainable. It seems like a win win. You know, you're helping the environment and making [use of] something useful".

JG1: "I think it's innovative to try and solve the problem. It saves polluting, you know, and all the dump, landfills and things like that. So, absolutely. I think it's innovative".

Similar to other values, epistemic value relies on consumers being aware of and educated about sustainable products and their benefits. Great product ideas must also be innovative, consist of high-quality craftsmanship, and have high-quality performance. Consumers expect recycled polyester-made athleisure apparel to perform similarly to virgin polyester-made products. Thus, the three sub-themes support RP5: Epistemic values positively affect U.S. millennial consumers' intentions to purchase recycled polyester-made athleisure apparel.

## 5. Conclusions and Implications

Due to the significant and massive environmental pollution caused by apparel production, consumption, and disposal, and given the recent trend of athleisure lifestyle in the U.S., this study sought to examine millennial consumers' value perceptions for purchasing recycled polyester-made athleisure apparel. The findings of the study provide theoretical insights and sustainable solutions for the industry and academia. Five main values identified include functional value, social value, emotional value, conditional value, and epistemic value. Within these perceived values, 13 sub-themes emerged and are illustrated in Figure 2.

Regarding functional value, consumers indicated that price and performance were key deciding factors for purchasing recycled polyester-made athleisure apparel. However, this was contingent upon products being fashionable, comfortable, and versatile for numerous occasions. High price could deter consumers unless the products have some innovative advantage. In this case, the advantage is recycled materials and plastic waste reduction, which benefits the environment. When consumers are educated about this benefit, they are willing to pay a premium. Thus, retailers who make sustainable products should use this benefit for marketing opportunities to educate consumers, either through clothing tags with QR codes that link to product information pages or informative signage in retail spaces.

The perceived social value reaffirmed previous studies, which indicated that peers and family could strongly influence purchasing decisions [20,42]. Thus, when someone has found a product they like or enjoy, they are more likely to recommend it to friends and family members who in turn trust their opinions. Family in particular was found to significantly impact individual sustainable behaviors like recycling. To establish brand loyalty through consumers' social networks, brands could utilize existing methods such as brand referral rewards (discounts, credit, prizes, or coupons) or establish ambassador programs.

Some participants also indicated that their sustainable behaviors were not just influenced by family or friends, but also by a strong desire to benefit society in general. These participants were more likely to purchase from well-known sustainable companies whose products aligned with their beliefs and were exempt from false advertising. This finding corroborates the perceived emotional value, which determined that eco-friendly products

must be clearly advertised to consumers. Retailers should not assume that all consumers are aware of or educated on sustainability issues and should use their products as an enlightening opportunity. Methods include being more transparent about their supply chain and products, launching informational marketing/advertising campaigns, or incorporating a new corporate website section, QR codes on apparel tags, or store signage.

Even though many consumers are practicing more sustainable behaviors, companies are still simultaneously responsible for their practices. Sustainability is a two-way street that relies on consumers and companies working together. In other words, conditional value is contingent upon consumers' personal beliefs regarding sustainability and their responsibility toward the phenomenon. Companies should not shift blame or create solutions only about consumers, but rather should focus on collaboration to improve their performance while empowering consumers with the necessary information. When consumers are educated about the pressing environmental problems and the positive impact imposed by sustainable products, they are more likely to purchase those products. In addition, companies that genuinely practice corporate social responsibility (CSR) will stand out as industry leaders and perhaps inspire other companies.

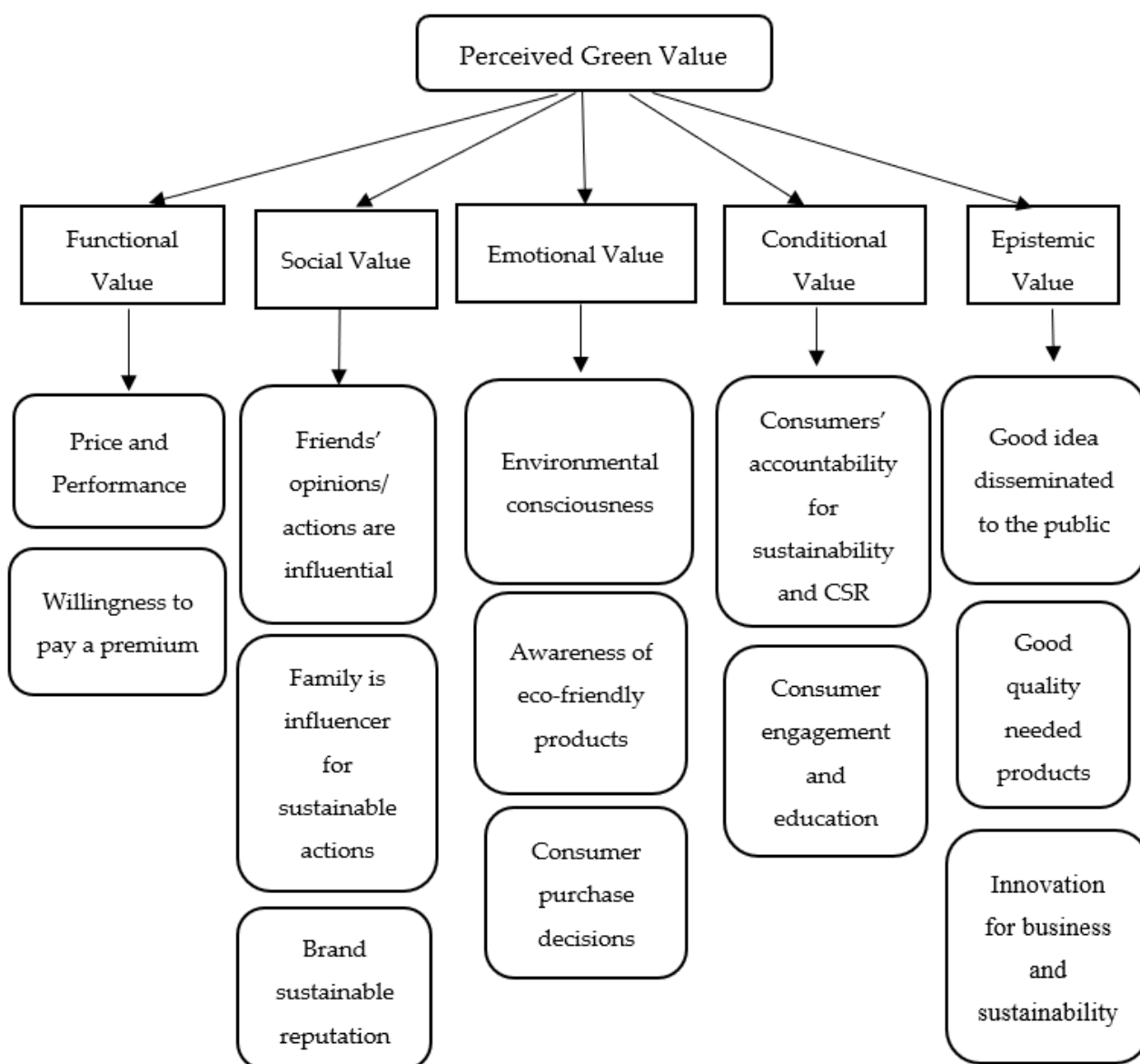


Figure 2. Perceived green values for recycled polyester-made athleisure apparel.

Similar to other values, epistemic value relies on consumers being educated and aware of sustainable products and their benefits. Most apparel retailers have a strong social media presence on apps such as Facebook, Snapchat, Instagram, and TikTok. Therefore, it would be efficient to promote their sustainable practices through educational, inspiring, and innovative advertisements. However, products made with recycled materials must deliver similar or better performance than products made with virgin materials to attract and retain consumers. This is particularly true when consumers need to pay a premium for these products. The athleisure apparel market is saturated, so sustainable products must stand out with better advertising and satisfactory performance to gain popularity.

In conclusion, this study provides valuable insights on the perceived values that drive U.S. millennials to purchase recycled polyester-made athleisure apparel. The findings enhance our knowledge on the emerging trend on sustainable apparel consumption. It was found that many millennial consumers still lack essential understanding of the environmental issues and sustainable materials and products. Those with sound awareness were often educated by their friends and families. All participants, even those less aware of the topic, were very interested in learning about and purchasing recycled polyester-made athleisure apparel. Thus, the apparel industry needs to reassess its product development and marketing strategies to take advantage of this consumer willingness to buy into the sustainable apparel movement.

## 6. Limitations and Future Studies

Even though the findings of this study provide insight into perceived values and purchase intention towards recycled polyester-made athleisure apparel among U.S. millennials, there are some limitations to mention, which include the opportunities for future research. First, the participants in this study were limited to college students and recent graduates. Future research can include a broader range of millennial consumers, particularly those who frequently purchase athleisure products, to provide a more in-depth perspective. Second, the study only focused on millennial-aged participants, who are known to be sustainable and have growing buying power. Future research could include other generations such as Gen X or Gen Z to reveal the generational similarities and differences in perceived values and purchase intention toward sustainable apparel. Finally, this qualitative study is exploratory in nature. The insights shed light on the research propositions proposed. However, the generalization of the findings requires further proof. In the future, an additional quality study with a larger sample (more diverse participants) could be conducted to identify the underlying reasoning for consumers' willingness to shop products made with recycled materials. In addition, quantitative data could be collected through surveys to test the possible statistical relationships.

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## Appendix A

### Interview Questions

1. How do you typically purchase athleisure apparel (online, mall, thrift shopping, etc.)?
2. What are the key factors that you consider when purchasing athleisure apparel?
3. Do you believe that the quality of athleisure apparel made from recycled polyester is the same as athleisure made of virgin materials? Why?
4. What price premium (e.g., 5%, 10%, 15% more) are you willing to pay for athleisure apparel made from recycled materials?
5. What brands/stores do you typically shop from for athleisure apparel?
6. Do you consider purchasing athleisure apparel due to the brand name? Why?
7. Do your friends or peers have any influence over the athleisure apparel you choose to purchase? Why?
8. Do your friends and family adhere to sustainable behaviors, such as recycling, reducing waste, purchasing sustainable clothing, etc.? if so, do their sustainable behaviors affect your behavior? Why?
9. Do you consider environmental protection when purchasing athleisure apparel based on what you have heard about environmental problems in the news, media, or elsewhere online? Why?
10. Do you find yourself attracted to athleisure brands that label themselves as sustainable?
11. Are you more willing to purchase from an athleisure brand that aligns itself with your beliefs (social, environmental, etc.)?
12. Would you stop purchasing from a sportswear brand that goes against your values? Why?
13. Do you feel as though it is a consumer's responsibility to recycle or reduce clothing waste? Why?
14. Do you feel as though it is a company's responsibility to recycle or reduce clothing waste? Why?
15. Do you feel that current environmental issues call for consumers to purchase more sustainable clothing? Why?
16. How do you feel consumers can individually contribute toward sustainability initiatives within the apparel industry considering the current issues that revolve around consumption?
17. Do you like to stay on top of the latest trends for athleisure apparel? How?
18. How do you feel about the concept of athleisure apparel made of recycled polyester?
19. Do you think sustainable athleisure apparel is innovative?
20. Can you describe your lifestyle?
21. Can you briefly tell us your demographic information?

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