

## Article

# Why Is Collaborative Apparel Consumption Gaining Popularity? An Empirical Study of US Gen Z Consumers

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**Abstract:** Apparel rental, also known as collaborative apparel consumption, has created an innovative and popular business model, providing consumers with the ability to focus on using their products instead of ownership. Recent surveys show that sustainability is driving demand and customer loyalty in the US. Among all generations, Gen Z consumers lead the way. To better understand the emerging popularity of apparel rental services among Gen Z consumers who are becoming a major driving force for retail growth and the sustainability movement, this study aimed to identify the factors significantly influencing Gen Z consumers' intention to use apparel rental services; 362 eligible responses were gathered via a questionnaire survey. The psychometric properties of the proposed model were examined, and the multiple regression method was applied to test the hypotheses. Attitude, subject norms, perceived consumer effectiveness, past environmental behavior, and fashion leadership significantly affected Gen Z consumers' intentions to use apparel rental services. Attitude plays a mediating role between Gen Z consumers' environmental knowledge, fashion leadership, need for uniqueness, and their intention to use apparel rental services. The proposed research model exhibited good explanatory power, accounting for 58.6% of the variance in Gen Z consumers' use intention toward apparel rental services.

**Keywords:** apparel rental service; use intention; Gen Z consumers; collaborative consumption; sustainability



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## 1. Introduction

The fashion industry, particularly fast fashion, is known for being a primary contributor of textile waste and pollution globally [1]. Fast fashion is defined as low-priced apparel products that mimic current luxury fashion trends, and are produced and delivered to consumers within a short lead time [2]. The popularity of fast fashion has promoted the throwaway lifestyle and contributed to the environmental crisis [3]. The volume of apparel that Americans throw away each year has doubled in the last 20 years. In 2018, approximately 17 million tons of textile waste ended up in landfills or incinerators in the US [4,5].

Nowadays, many consumers purchase apparel purely for aesthetic or expressive needs, rather than for function, due to such fast-changing trends and advertising, sometimes even beyond their financial capabilities or actual needs. Ownership burdens may lead to discarding the item, donating the item, or selling the item secondhand and prematurely [6]. This problem has been worsened by consumer manipulation of liberal return policies, where consumers buy and return a product shortly after use, and retailers have to bear additional cost [7].

Therefore, renting apparel could be a viable solution to consumers who prefer the latest trends without the ownership burden, because transactions are exchanges of items as a service [6]. Apparel rental, also known as collaborative apparel consumption, has created an innovative business model called business-to-customer access consumption, which essentially provides consumers with the ability to focus on using the product

instead of ownership. It also helps extend the life of a product, offers products at a reduced cost, provides access to luxury and aspirational brands, allows for more social interaction, reduces pollution, and decreases overall production [6–9]. The idea of renting apparel is not a vastly new concept, since men are accustomed to renting suits for formal occasions. Rather, it's the inclusion of other clothing types, such as women's dresses and daily wear, that gives the model a new venture [10]. Hence, the idea of renting goods is becoming an alternative form of consumption, because it helps reduce waste, reduce production, provides consumers with trendy fashion products at reduced prices, and eliminates ownership burdens [11,12].

Among all generations, Generation Z (Gen Z) adult consumers (born between 1997 and 2002) lead the way in the sustainability movement, with 68% reported as eco-friendly shoppers [13]. They are also emerging as the new driving force for retail growth [14]. Therefore, this study aimed to identify the factors significantly influencing the Gen Z adult consumers' intention to use apparel rental services. Specifically, the objectives of this study were fourfold. First, building on the theory of planned behavior (TPB), a research model for understanding consumers' intention to use apparel rental services was proposed. Attitude, subjective norms (SN), perceived behavioral control (PBC), perceived consumer effectiveness (PCE), environmental knowledge (EK), past environmental behavior (PEB), fashion leadership (FL), need for uniqueness (NFU), and materialism (M) were investigated as predictors. Second, the psychometric properties of the proposed model were examined through the primary consumer survey data gathered in the US. Third, the significant factors that motivated the use of apparel rental services among Gen Z adult consumers were statistically determined. Finally, this study provides some implications for apparel retailers and brands for promoting apparel rental services to consumers.

## 2. Literature Review and Hypothesis Development

### 2.1. Collaborative Consumption

Alternative forms of product acquisition and consumption have been gaining popularity in the past decade. Since the publication of the book on the rise of collaborative consumption published by Botsman and Rogers [15], "sharing economy" has become a buzzword in media [16]. Sharing economy has been used interchangeably with collaborative consumption [11,12], liquid consumption [17], and access-based consumption [18,19]. These concepts share many common features, like resource sharing, but are different in terms of approaches, such as peer-to-peer, business-to-consumer, pure sharing, pure exchange, etc.

The term "sharing economy" describes the phenomenon as peer-to-peer sharing of access to underutilized resources, which focuses on utilization and accessibility over ownership [20,21]. The sharing of resources is not a new concept, although, for a long time, it was restricted to small social circles, such as family, relatives, and friends [22]. The advancement of information and communication technologies has enabled many new forms to traditional sharing [23]. The emerging online peer-to-peer marketplaces enable the sharing of underutilized resources, such as accommodation, tools, and rides among strangers [22,24]. Companies like Uber, Lyft, and Airbnb are turning the sharing economy into multi-billion-dollar businesses that have transformed how industries operate and how people travel.

Liquid consumption is defined as "ephemeral, access based, and dematerialized, while solid consumption is defined as enduring, ownership based, and material" [17]. The liquid consumption concept proposes a different logic of consumption, which moves from accumulation, appropriation, and celebration associated with solidity (owning goods) to those practices embodying use, access, immediacy, and dematerialization. The liquid consumption concept helps us understand why and how consumers sometimes do not want to possess products and value ownership less. Consumption value can be accrued in ways unrelated to appropriation, but rather to the quick circulation of consumption resources [17].

Access-based consumption, often considered as a special form of sharing economy, is defined as transactions that can be market-mediated, but where no transfer of ownership takes place, and has become popular in recent years [18]. The trend of rentable fashion is rapidly drawing wide attention in the industry, and is becoming an economically sound and environmentally sustainable way of accessing and using fashion products for consumers [25]. The fashion industry has been plagued by sustainability concerns due to its detrimental impacts on the natural environment and social systems, and sharing apparel instead of buying new items may address these challenges [26]. Apparel rental service is a mixed form of consumption and consumption control that satisfies the individual's desire for consumption while providing the means to use their own resources at a minimum. The common reasons for using apparel rental services are economy and sustainability [27]. The recent CGS Survey [13] shows that apparel is one of the most popular products in rental services, and consumers who used apparel rental services perceived themselves as positive contributors to environmental protection.

## 2.2. The Theory of Planned Behavior (TPB)

TPB was originally proposed by Icek Ajzen in 1985. The theory focuses on an individual's intention to perform a particular behavior, where intention is derived from motivational factors, including attitudes towards behavior, subjective norms, and perceived behavioral controls [28]. TPB is a flexible model with great potential to modify and add additional factors, such as consumer lifestyle, knowledge, past behavior, personality, etc., to enhance its explanatory power for certain behavioral intention [29]. Therefore, it has become one of the most influential and widely used frameworks for predicting consumer behavioral intention in many subjects and disciplines [30–32].

### 2.2.1. Attitude (AT)

Attitude is defined as the way individuals feel towards other people's behavior, a phenomenon, or objects, in which this evaluation can be either favorable or unfavorable [28]. In other words, attitude is the reason for accepting or rejecting someone or something, or the degree in which someone finds something favorable or unfavorable when creating an evaluation or appraisal of a particular behavior [31]. Thus, consumers who have strong, positive, and valued beliefs toward something will foster a positive attitude toward the behavior [19]. Positive attitudes are usually formed when someone believes that their personal outcome will be positively favorable [18]. Zheng and Chi [29] found that there was a positive relationship between attitude and purchase intention of environmentally friendly apparel among US college students. Another study reported that young consumers showed positive attitudes toward collaborative consumption based on perceived utilitarian and hedonic values [33]. Chi et al. [1] discovered that US consumers' attitudes positively affect their intention to purchase slow fashion apparel. Thus, the following hypothesis was proposed.

**Hypothesis 1 (H1).** *Attitude towards apparel rental services positively affects Gen Z consumers' intention to use apparel rental services.*

### 2.2.2. Subjective Norms (SNs)

Subjective norms (SNs) refer to the belief that an important person or group of people will approve and support a particular behavior, which drives an individual's behavioral intention and actual behavior [34,35]. In other words, the SN is determined by the perceived social pressure from significant others for an individual to behave in a certain manner and their motivation to comply with those people's expectations [31,36]. Johnson et al. [37] found that there was a significantly positive relationship between SNs and consumer willingness to try apparel rental services. Tu and Hu [38] indicated that SNs could positively affect consumer intention to use online apparel rental services. Chi et al. [1] demonstrated

that SNs played a significant role in influencing US college students to shop for slow fashion apparel. Therefore, the following hypothesis was proposed.

**Hypothesis 2 (H2).** *Subjective norms (SNs) positively affect Gen Z consumers' intention to use apparel rental services.*

### 2.2.3. Perceived Behavioral Control (PBC)

Perceived behavioral control (PBC) refers to an individual's perceived ease or difficulty of performing a particular behavior [28]. PBC involves some involuntary control over one's behavior, such as a shortage of money and the degree of control over oneself. Therefore, individuals with stronger self-control show stronger intentions to perform a particular behavior [29]. For example, consumers' PBC towards purchasing organic products was found to positively influence their purchase intentions [39]. Harmari et al. [40] found that PBC contributed significantly to the prediction of consumers' intentions of adopting apparel rental and swapping services. In a similar fashion, Tu and Hu [38] revealed that PBC towards online apparel rental services had a positive influence on consumers' intentions to try the services. Becker-Leifhold [41] stated that PBC could effectively predict consumers' intention to use online apparel rental services, but PBC towards apparel rental services could be negatively affected by a lack of awareness, lack of accessibility, and lack of IT structure [41]. Thus, the following hypothesis was proposed.

**Hypothesis 3 (H3).** *Perceived behavioral control (PBC) positively affects Gen Z consumers' intention to use apparel rental services.*

## 2.3. Advancement of the TPB

Even though the TPB is based on the assumption that one's intention to perform a particular behavior is determined by attitude, subjective norms, and perceived behavioral controls, there is increasing evidence to support the inclusion of new constructs to the TPB that are specific to various domains not included in the original model [30,42]. The present study included six additional constructs, which were perceived consumer effectiveness (PCE), environmental knowledge (EK), past environmental behavior (PEB), fashion leadership, need for uniqueness, and materialism, to better explore the determinants for Gen Z's intention to use apparel rental services. These constructs were identified to be significant in affecting consumer environmentally friendly purchase intentions or behaviors.

### 2.3.1. Perceived Consumer Effectiveness (PCE)

Perceived consumer effectiveness (PCE) was first proposed by Kinnear et al. [43] in order to study emerging environmentally conscious consumers [30]. PCE refers to the degree to which consumers believe that their behaviors and consumption habits can help aid, solve, or influence a problem or society [44,45]. PCE measures how individuals can be effective in pollution reduction, and contributes to the prediction of environmentally conscious consumer behavior [29,46,47]. Tan and Lau [48] found that PCE significantly affected consumers' willingness to purchase environmentally friendly products. Zheng and Chi [29] indicated that PCE was one of the most influential factors for college students to consider purchasing environmentally friendly apparel. Similarly, Chi et al. [30] demonstrated that PCE positively affected US consumers' purchase intention towards sustainably made cotton collegiate apparel. Prior studies have shown a significant relationship between a consumer's PCE level and his/her socially responsible behavior. Therefore, we proposed the following hypothesis.

**Hypothesis 4 (H4).** *Perceived consumer effectiveness (PCE) positively affects Gen Z consumers' intention to use apparel rental services.*

### 2.3.2. Environmental Knowledge (EK)

Environmental knowledge (EK) refers to an individual's awareness of environmental issues and general knowledge of facts, concepts, and relationships concerning the natural environment and its major ecosystems [49]. EK is composed of consumer education on a particular topic and the understanding of a product's sustainability and/or impact on the environment [50], otherwise, a person cannot consciously care about environmental issues or consciously act in an environmentally friendly way [51]. People with high-level environmental knowledge are more likely to show positive attitudes toward environmentally friendly policies and products [52]. Pratiwi et al. [53] stated that environmental knowledge and green advertising had a positive and significant effect on the consumer's attitude and purchase intention toward green products. Chi et al. [1] revealed that a consumer's environmental knowledge positively affected his/her attitude towards slow fashion products, which consequently resulted in purchase intention. Thus, we proposed the following hypotheses.

**Hypothesis 5 (H5).** *Environmental knowledge positively affects Gen Z consumers' intention to use apparel rental services.*

**Hypothesis 6 (H6).** *Attitude has a mediating effect between Gen Z consumers' environmental knowledge and their intention to use apparel rental services.*

### 2.3.3. Past Environmental Behavior (PEB)

Environmental behavior is broadly defined as all types of behaviors that change the availability of materials or energy from the natural environment, alter the structure and dynamics of ecosystems, or alter biospheres [52]. Environmentalism refers to an individual's tendency to take protective action for the environment, which is shaped by attitude-related factors, such as personal values, beliefs, and social norms [54]. An individual's behavioral intention often depends on his/her actions performed in the past, some of which transform into habits [55]. Chi and Zheng [56] demonstrated that past relevant behavior could effectively predicate future behavioral intention. Many previous studies have also revealed that previous pro-environmental behaviors could help form more pro-environmental attitudes, while those who seldomly participated in environmental behaviors in the past showed less positive environmental attitudes [57]. Thus, the following hypotheses were proposed.

**Hypothesis 7 (H7).** *Past environmental behavior (PEB) positively affects Gen Z consumers' intention to use apparel rental services.*

**Hypothesis 8 (H8).** *Attitude has a mediating effect between past environmental behavior (PEB) and Gen Z consumers' intention to use apparel rental services.*

### 2.3.4. Fashion Leadership (FL)

Fashion leadership is a personal characteristic that refers to those individuals who tend to purchase new products or services first [58]. They are the pioneer buyers willing to take risks and obtain new things at their earliest release, making them a critical component of new socially accepted styles [59]. They are at the beginning of the fashion life cycle, during the first stage of a complete product's life, when it is neither widely accepted nor popular [60]. These consumers are essential because they influence and spread new fashion trends to other consumers.

When examining fashion leadership behavior in the context of sustainability, these individuals are especially important, because they promote new trends, even if only for a short period of time, in oversaturated markets that encourage ownership additions or replacement acquisitions [61]. Therefore, if a fashion leader is able to purchase and promote a sustainable product, fashion followers are more likely to purchase the same sustainable items, especially if they are conditioned to the short, seasonal, typical fashion cycles and

have high material consumption. Therefore, apparel rental services are beneficial for fashion leaders because it allows them to obtain and wear the latest fashion trends without ownership burdens. They also allow fashion leaders to reduce consumption and costs, and increase their sustainability [58].

Fashion leadership is often paired with the need for uniqueness characteristic, both of which are considered a personality of “openness” [58]. A person with a personality of openness is curious, creative, untraditional, and imaginative, with broad interests. When applied to purchasing apparel, consumers with a personality of openness are interested in trying new experiences and are willing to take risks with new styles, brands, and items [62]. Therefore, the following hypotheses were proposed.

**Hypothesis 9 (H9).** *Fashion leadership (FL) positively affects Gen Z consumers’ intention to use apparel rental services.*

**Hypothesis 10 (H10).** *Attitude has a mediating effect between fashion leadership (FL) and Gen Z consumers’ intention to use apparel rental services.*

#### 2.3.5. Need for Uniqueness (NFU)

The need for uniqueness (NFU) refers to consumers with purchasing behaviors that are relatively different from others in terms of acquisition, utilization, and disposition of consumer goods. According to Snyder and Fromkin [63], every consumer tries to avoid both extreme dissimilarity and extreme similarity by creatively selecting apparel to establish and communicate uniqueness [64,65]. Therefore, different buying behaviors and apparel selections can help a person establish and enhance their personal identity [66]. Another way to communicate uniqueness is through product choices that maximize self-image and personality [67]. While the fast fashion production model produces novel and unique products at a fast pace, this causes consumers to increasingly desire more apparel items and increase their consumption rates for apparel items used for shorter periods of time [68].

Therefore, collaborative consumption is a good solution because it provides consumers with updated fashion trends at a lower cost without ownership. The only possible risk for fashion leaders is accidentally duplicating other consumer styles, such as a designer dress at the same social gathering [58,69]. Based on these previous findings, NFU has proven to be a positive influencing factor for sustainable consumption related to consumer behavior. Thus, the following hypotheses was proposed.

**Hypothesis 11 (H11).** *The need for uniqueness (NFU) positively affects Gen Z consumers’ intention to use apparel rental services.*

**Hypothesis 12 (H12).** *Attitude has a mediating effect between the need for uniqueness and Gen Z consumers’ intention to use apparel rental services.*

#### 2.3.6. Materialism (M)

Materialism is generally considered a negative trait, referring to individuals who are prone to excessive urges or cravings [62]. Consumers who are considered materialistic tend to value the ownership of products more than anything else in their life. As a result, materialism contributes to overconsumption, which has a negative effect on sustainable consumption [58].

The problem with materialistic individuals and collaborative consumption models is that they are at some point required to relinquish the items, which they may be hesitant and unwilling to perform. These individuals may like the item’s style, value, and status so much that they want to permanently own the item [33]. Temporary ownership also poses other problems, such as not having enough time to form even a temporary extension or expression of the self, fear of contamination from other users, and feeling like the object belongs to no one. These problems may deter materialistic individuals from investing

energy into the apparel because they feel meaningless and useless [68]. Therefore, the following hypotheses were proposed.

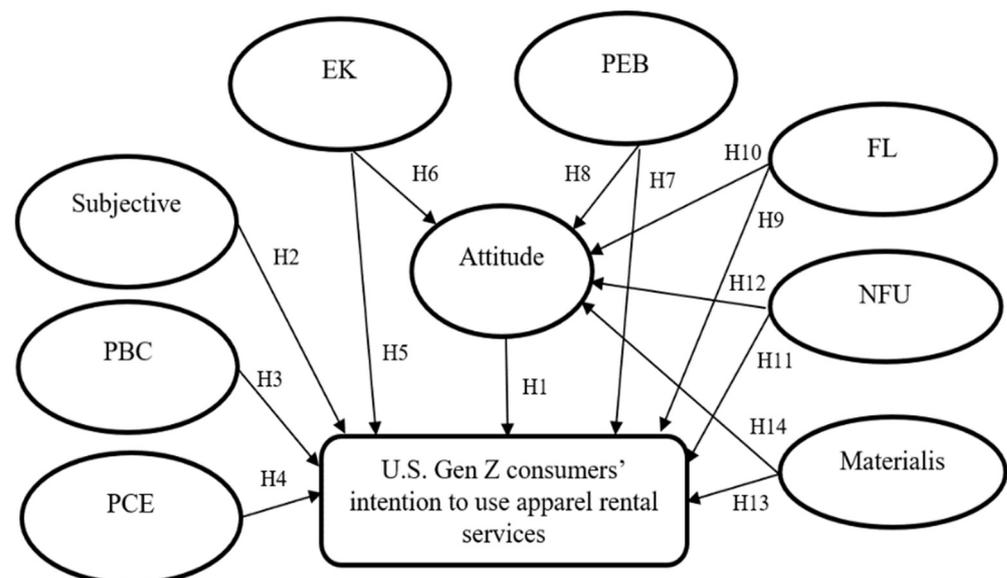
**Hypothesis 13 (H13).** *Materialism negatively influences Gen Z consumers' intention to use apparel rental services.*

**Hypothesis 14 (H14).** *Attitude has a mediating effect between materialism and Gen Z consumers' intention to use apparel rental services.*

### 3. Methodology

#### 3.1. Proposed Research Model

Based on the extensive review of literature, a research model including all the proposed relationships (14 hypotheses) is illustrated in Figure 1. Attitude (AT), subjective norms (SNs), perceived behavioral control (PBC), perceived consumer effectiveness (PCE), environmental knowledge (EK), past environmental behavior (PEB), fashion leadership (FL), need for uniqueness (NFU), and materialism (M) could positively affect Gen Z consumers' intention to use apparel rental services. In addition, attitude could play a role as a mediating factor between environmental knowledge (EK), past environmental behavior (PEB), fashion leadership (FL), need for uniqueness (NFU), and materialism (M), and US Gen Z consumers' intention to use apparel rental services. The demographic variables, including age, income level, gender, and education level, are included as control factors.



**Figure 1.** Proposed Model for Consumer Intention to Use Apparel Rental Services.

#### 3.2. Developed Survey Instrument

The scales for attitude (AT), subjective norms (SNs), perceived behavioral control (PBC), perceived consumer effectiveness (PCE), and use intention (UI) were adapted from Zheng and Chi [29]. The scale for past environmental behavior (PEB) was adapted from Fraj and Martinez [70]. The scale for environmental knowledge (EK) was adapted from Barbarossa and Pelsmacker [71]. The scales for fashion leadership (FL), need for uniqueness (NFU), and materialism (M) were adapted from Lang and Armstrong [58]. A five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree) was applied for all adapted scales. Appendix A lists all of the constructs and their corresponding measurement scales.

### 3.3. Data Collection

The primary data were collected by a Qualtrics survey of US Gen Z adult consumers on 18–24 March 2020. The professional survey website used was Amazon Mechanical Turk (<https://www.mturk.com>) (accessed on 31 March 2020), which enabled us to reach a wide range of eligible consumers. A total of 362 eligible responses were received. The profile of survey respondents is presented in Table 1.

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

	Percent		Percent
Age		Income	
18	5%	Under \$5000	9%
19	5%	\$5000 to \$9999	7%
20	12%	\$10,000 to \$14,999	10%
21	17%	\$15,000 to \$24,999	13%
22	26%	\$25,000 to \$34,999	18%
23	35%	\$35,000 to \$49,999	15%
Gender		\$50,000 to \$74,999	17%
Male	63%	\$75,000 to \$99,999	9%
Female	37%	\$100,000 and more	1%
Ethnicity		Annual Apparel Expenditure	
White/Caucasian	66%	\$0–\$99	6%
Black/African American	14%	\$100–\$299	18%
Asian American/Pacific Islander	6%	\$300–\$499	23%
Latino/Hispanic	9%	\$500–\$699	17%
Native American	4%	\$700–\$899	12%
Others	1%	\$900–\$1099	7%
Education		\$1100–\$1499	8%
High school diploma	15%	\$1500–\$1999	4%
Associate’s degree	23%	\$2000 and more	6%
Bachelor’s degree	46%	Rented Apparel Previously	
Master’s degree	16%	Yes	55%
		No	45%

Note: 362 total eligible responses.

Of the 362 respondents, 37% were female and 63% were male. The ages of the respondents varied from 18 years old to 23 years old, mainly distributed (35%) in the range of 18 to 23 years old. Most of respondents had some college education, such as a bachelor’s degree (46%), followed by an associate’s degree (23%), master’s degree (16%), and high school (15%). In terms of ethnicity, a majority of the respondents were White/Caucasian at 66%, followed by African American/Black at 14%, Latino/Hispanic at 9%, Asian American and Pacific Islander at 6%, Native American at 4%, and others at 1%. The respondents’ reported personal pre-tax annual income indicated 9% at \$5000 or less to more than \$100,000 at 1%. The remaining reported incomes from \$5000 to \$9999 was at 7%, \$10,000 to \$14,999 at 10%, \$15,000 to \$24,999 at 13%, \$25,000 to \$34,999 at 18%, \$35,000 to \$49,999 at 15%, \$50,000 to \$74,999 at 17%, and \$75,000 to \$99,999 at 9%.

With regard to annual total expenditure on apparel (12-month period prior to the survey), 23% of the respondents indicated they spent between \$300–\$499, followed by 18% at \$100–\$299, 17% at \$500–\$699, 12% at \$700–\$899, 8% at \$1100–\$1499, 7% at \$900–\$1099, both \$0–\$99 and \$2000 or more at 6%, and 4% at \$1500–\$1999; 45% of the respondents said that they had not rented apparel before, and 55% said that they had rented apparel previously.

### 3.4. Statistical Analysis

The statistical assumptions, including normality, multicollinearity, and correlations, were first examined. The skewness and kurtosis of a variable needed to fall in the range of +3.0 to −3.0 to meet the normality assumption [72]. The variance/inflation factors (VIFs) were examined to test multicollinearity among the predictor variables. The VIFs should have been less than 5.0 to avoid a multicollinearity problem [73].

Since each construct was measured by multiple items, the average score of the multi-items for a construct was computed and used in further analysis, such as correlation analysis and multiple regression analysis [30,74–76]. Pearson correlation analysis was applied to examine the relationship between the constructs [77].

Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were employed to test the constructs in the proposed model in terms of reliability, unidimensionality, and construct validity, including both convergent validity and discriminant validity. For factor analysis, the extraction criterion was set as an eigenvalue above 1.0. Items with low factor loadings (less than 0.50) were dropped [78]. Unidimensionality, reliability, convergent validity, and discriminant validity were tested for proving model adequacy. First, unidimensionality was met when one underlying construct accounted for the variation in examinee responses [79]. Second, Cronbach's alpha and construct reliability were used to measure scale reliability. Third, convergent validity was valid when average variance extracted (AVE) scores for all constructs were above the desired threshold of 0.50 [80]. Fourth, comparing the AVE score to the squared correlation between the two constructs of interest, the AVE should have been greater than the squared correlation in order to demonstrate satisfactory discriminant validity [80].

Multiple regression was applied to predict the value of a variable based on the value of two or more other variables [81]. Therefore, multiple regression analysis using SPSS 27 was selected as an appropriate method for this study to test the hypotheses.

### 3.5. Psychometric Properties of Investigated Constructs

Table 2 presents the correlations and properties of all constructs. All skewness and kurtosis scores were between +2.0 and −2.0, which suggested that there were no violations of the normality assumption. All VIF values were below 5.0, suggesting that there were no multicollinearity issues among constructs. After exploratory factor analysis, the measurement variables, labeled as PCE3, PEB1, PEB4, PEB7, and UI3, were dropped due to low factor loading (see Appendix A). All the factor loadings of the remaining measurement items to their respective constructs were high (0.7 and higher) and statistically significant, while their loadings to other constructs were very low (0.3 and lower). This also showed unidimensionality for the constructs. In addition, the chi-squared tests of all constructs were insignificant, which established the evidence for unidimensionality. Cronbach's alphas of all constructs were greater than 0.70, indicating that reliability was rigorously met. The AVE scores for all constructs were above the desired threshold of 0.50, suggesting convergent validity. All AVE scores were greater than the squared corresponding correlations, which demonstrated satisfactory discriminant validity.

### 3.6. Hypothesis Testing Results and Discussions

Once the adequacies of all constructs were demonstrated, the proposed hypotheses were tested using the multiple regression technique. A single score was obtained for each construct by averaging across the measurement items. Table 3 presents the results of hypothesis testing. Among 14 hypotheses, eight of them (H1, 2, 4, 6, 7, 9, 10, and 12) were statically significant at a  $p < 0.05$  level, and H3, 5, 8, 11, 13, and 14 were insignificant. The effects of demographic variables (i.e., age, gender, education level, and income level) on Gen Z consumers' intention to use apparel rental services were all insignificant at a  $p < 0.05$  level.

**Table 2.** Correlations and psychometric properties of all constructs.

	AT	SN	PBC	PCE	PEB	EK	FL	NFU	M	UI
AT	1	0.695 **	0.347 **	0.534 **	0.448 **	0.503 **	0.534 **	0.459 **	0.388 **	0.643 **
SN	<i>0.483</i>	1	0.258 **	0.470 **	0.542 **	0.513 **	0.651 **	0.501 **	0.535 **	0.651 **
PBC	<i>0.120</i>	<i>0.067</i>	1	0.424 **	0.142 **	0.322 **	0.283 **	0.313 **	0.248 **	0.288 **
PCE	<i>0.285</i>	<i>0.221</i>	<i>0.180</i>	1	0.338 **	0.520 **	0.522 **	0.511 **	0.375 **	0.542 **
PEB	<i>0.201</i>	<i>0.294</i>	<i>0.020</i>	<i>0.114</i>	1	0.559 **	0.584 **	0.376 **	0.544 **	0.546 **
EK	<i>0.253</i>	<i>0.263</i>	<i>0.104</i>	<i>0.270</i>	<i>0.312</i>	1	0.549 **	0.439 **	0.462 **	0.526 **
FL	<i>0.285</i>	<i>0.404</i>	<i>0.080</i>	<i>0.272</i>	<i>0.341</i>	<i>0.301</i>	1	0.580 **	0.606 **	0.620 **
NFU	<i>0.211</i>	<i>0.251</i>	<i>0.098</i>	<i>0.261</i>	<i>0.141</i>	<i>0.193</i>	<i>0.336</i>	1	0.499 **	0.447 **
M	<i>0.151</i>	<i>0.286</i>	<i>0.062</i>	<i>0.141</i>	<i>0.296</i>	<i>0.194</i>	<i>0.367</i>	<i>0.249</i>	1	0.494 **
UI	<i>0.413</i>	<i>0.424</i>	<i>0.083</i>	<i>0.294</i>	<i>0.298</i>	<i>0.277</i>	<i>0.384</i>	<i>0.200</i>	<i>0.244</i>	1
Mean	3.6	3.4	3.9	3.9	3.3	3.9	3.4	3.7	3.5	3.6
S.D.	1.0	0.9	0.8	1.0	1.1	0.8	1.1	0.9	1.0	1.0
VIF	2.34	2.71	1.30	1.89	2.03	1.93	2.57	1.81	1.94	-
Cronbach's alpha	0.835	0.803	0.796	0.784	0.841	0.862	0.869	0.842	0.911	0.796
Construct reliability	0.901	0.884	0.822	0.859	0.830	0.867	0.911	0.868	0.934	0.821
AVE	0.752	0.717	0.606	0.753	0.621	0.619	0.719	0.615	0.738	0.697
$\chi^2$ test <i>p</i> value	0.166	0.105	0.173	0.144	0.082	0.158	0.188	0.085	0.264	0.103

Note: the italic numbers are the squared corresponding correlations. \*\* Correlation is significant at the 0.01 level (two-tailed). UI = use intention; AT = attitude; SN = subjective norms; PBC = perceived behavioral control; PCE = perceived consumer effectiveness; PEB = past environmental behavior; EK = environmental knowledge; FL = fashion leadership; NFU = need for uniqueness; M = materialism.

**Table 3.** Results of hypothesis testing.

Hyp.	DV	IDV	Std. Coef. ( $\beta$ )	<i>t</i> -Value	Sig. at <i>p</i> < 0.05	Control Variable	Std. Coef. ( $\beta$ )	<i>t</i> -Value	Sig. at <i>p</i> < 0.05	Total R <sup>2</sup>	Sig. at <i>p</i> < 0.05		
H1	Y	UI	Cont.	0.713	0.477	Age	0.012	0.325	0.745	0.586	<0.000 <i>F</i> = 37.84 (13/348)		
H2	Y	AT	0.267	5.033	0.000	Gender	0.039	1.078	0.282				
H3	N	SN	0.170	2.995	0.003	Edu.	0.022	0.522	0.602				
H4	Y	PBC	0.002	0.045	0.964	Income	0.053	1.369	0.172				
H5	N	PCE	0.174	3.644	0.000								
H7	Y	EK	0.037	0.779	0.437								
H9	Y	PEB	0.143	2.898	0.004								
H11	N	FL	0.158	2.853	0.005								
H13	N	NFU	0.029	0.615	0.539								
		M	-0.050	-1.032	0.303								
H6	Y	AT	Cont.	1.591	0.113	Age	0.053	1.186	0.237			0.402	<0.000 <i>F</i> = 26.323 (9/352)
H8	N	EK	0.234	4.364	0.000	Gender	0.111	2.605	0.010				
H10	Y	PEB	0.096	1.671	0.096	Edu.	0.083	1.635	0.103				
H12	Y	FL	0.237	3.810	0.000	Income	0.090	1.948	0.052				
		NFU	0.153	2.867	0.004								
H14	N	M	-0.011	-0.189	0.850								

Note: Hyp. = hypothesis; Y: hypothesis supported; N: hypothesis not supported; Std. Cont. = Constant, Coef. = standardized coefficients, DV: dependent variable. IDV: independent variable; UI = use intention, AT = attitude, SN = subjective norms, PBC = perceived behavioral control; PCE = perceived consumer effectiveness; PEB = past environmental behavior; EK = environmental knowledge; FL = fashion leadership; NFU = need for uniqueness; M = materialism.

Specifically, attitude (AT) positively affected Gen Z consumers' intention to use apparel rental services ( $\beta = 0.267$ ,  $t = 5.033$ ), supporting H1. This indicated that Gen Z consumers who show positive attitudes toward renting apparel are more likely to use the service. Subjective norms (SNs) were found to positively influence Gen Z consumers to use apparel rental services ( $\beta = 0.170$ ,  $t = 2.995$ ), supporting H2. This indicated that important persons, such as close relatives and friends, as well as influencers, play an important role in motivating Gen Z consumers to try apparel rental services. Perceived behavioral control (PBC) did not show a significant impact on Gen Z consumers' intent to use apparel rental services ( $\beta = 0.002$ ,  $t = 0.045$ ), not supporting H3. The perception of their ability to use apparel rental services was not a major concern for US Gen Z consumers. Perceived consumer effectiveness (PCE) significantly affected Gen Z consumers' intent to use apparel rental services ( $\beta = 0.174$ ,  $t = 3.644$ ), supporting H4. This revealed that the higher level of belief that an individual's efforts matter in environmental protection leads to a greater likelihood for Gen Z consumers to use apparel rental services instead of buying

more apparel. This finding corroborates the previous studies that reported PCE as one of the most influential predictors for consumers' eco-friendly purchase intentions [29,30,44].

Environmental knowledge (EK) did not significantly affect Gen Z consumers' intent to use apparel rental services ( $\beta = 0.037, t = 0.779$ ), but positively influenced their attitude toward apparel rental services ( $\beta = 0.234, t = 4.364$ ). Therefore, H5 was not supported, but H6 was supported. This indicated that environmental knowledge (EK) influences Gen Z consumers' intent to use apparel rental services through changing their attitude. The finding of the indirect impact of environmental knowledge on behavioral intention probes prior arguments that attitude plays a mediating role between environmental knowledge (EK) and consumer green consumption behavior [30,56,71,82].

Past environmental behavior (PEB) had a direct and significant impact on Gen Z consumers' intent to use apparel rental services ( $\beta = 0.143, t = 2.898$ ), while its impact on attitude was insignificant ( $\beta = 0.096, t = 1.671$ ). Thus, H7 was supported, but H8 was not supported. This finding of the direct impact of past environmental behavior on consumer green consumption behavior is aligned with previous studies [29,56,82].

Fashion leadership (FL) significantly affected both Gen Z consumers' attitude toward and intention to use apparel rental services ( $\beta = 0.158, t = 2.853$ ;  $\beta = 0.237, t = 3.810$ ), supporting both H9 and H10. A major challenge facing sustainable apparel consumption is the fact that a great amount of apparel is treated as disposable fashion, with a very short life cycle [83]. Through renting, fashion leaders can gain access to new, trendy products earlier than others without the burden of ownership.

The need for uniqueness (NFU) did not significantly affect Gen Z consumers' intention to use apparel rental services ( $\beta = 0.029, t = 0.615$ ), but positively influenced their attitude toward apparel rental services ( $\beta = 0.153, t = 2.867$ ). Therefore, H11 was not supported, but H12 was supported. Attitude played a mediating role between the need for uniqueness (NFU) and Gen Z consumers' intention to use apparel rental services. Gen Z consumers who pursue differentness relative to others realize that renting provides more opportunities for keeping up with fashion trends at an affordable cost. However, prior studies indicated that some consumers are concerned about wearing the same dress to a social gathering [69]. This could decrease some Gen Z consumers' willingness to use apparel rental services.

Materialism (M) did not significantly affect Gen Z consumers' attitude toward or intention to use apparel rental services ( $\beta = 0.050, t = 1.032$ ;  $\beta = 0.011, t = 0.189$ ), although there were negative relationships between them. Thus, H13 and H14 were not supported. Although renting services provide consumers with new, trendy apparel or formal dress that might be attractive to consumers who are fashion leaders or who look for quality but affordable dress for certain occasions, the downside for some is that they would have to relinquish ownership of these products [58].

### 3.7. Identified Relationships

Figure 2 illustrates the identified relationships in the proposed concept model. Attitude (AT), subject norms (SN), perceived consumer effectiveness (PCE), past environmental behavior (PEB), and fashion leadership (FL) significantly affected US Gen Z consumers' intention to use apparel rental services. There were no significant differences between ages, genders, education levels, and income levels in regard to their intention to use apparel rental services. Environmental knowledge (EK), fashion leadership (FL), and need for uniqueness (NFU) positively shaped Gen Z consumers' attitudes toward use of apparel rental services. Compared to male consumers, female consumers showed more positive attitudes toward use of apparel rental services. The proposed research model exhibited good explanatory power, accounting for 58.6% of the variance in Gen Z consumers' intention to use apparel rental services. Gen Z consumers' attitudes toward apparel rental services were also well-predicted by the investigated constructs, collectively accounting for 40.2% of the variance.

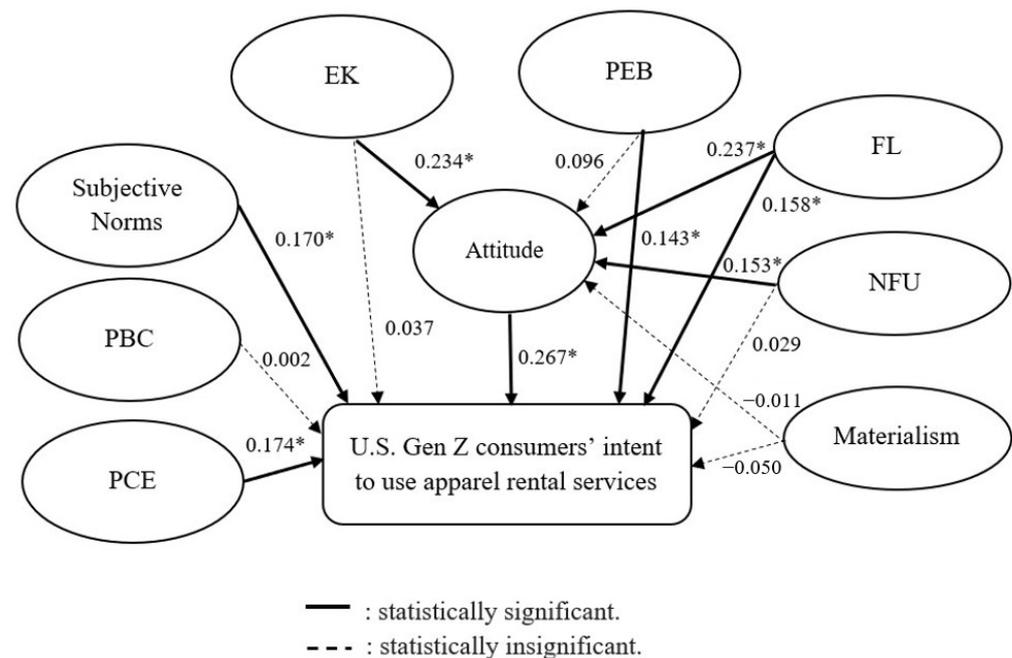


Figure 2. Identified Relationships in the Proposed Model. \* means  $p < 0.05$ .

#### 4. Conclusions

Despite current fashion marketing models wreaking havoc on consumers' wardrobes and the environment, collaborative consumption may be a viable solution to increasing apparel sustainability and slowing down fast fashion by promoting the reduction of apparel consumption and reuse of products. This study has punctuated how the complexities of human social behavior can help determine how well new and sustainable modes of apparel consumption may succeed in the future, especially among the newest generation of shoppers. To the best of our knowledge, this is one of very first studies to explore Gen Z's willingness to adopt apparel rental services using the extended theory of planned behavior.

Overall, this study contributes to the existing literature in four ways. First, the study enhances the theory of planned behavior (TPB) through the inclusion of additional constructs (i.e., perceived consumer effectiveness, past environmental behavior, environmental knowledge, fashion leadership, the need for uniqueness, and materialism). The proposed enhanced TPB model shows good explanatory power for Gen Z consumers' intention to use apparel rental services, collectively making up for 58.6% of the variance. Second, the mediating effect played by attitude is demonstrated. Attitude plays a full mediating role between environmental knowledge, the need for uniqueness, and intention to use apparel rental services, while playing a partial mediating role between fashion leadership and intention to use apparel rental services. Third, the proposed model shows sound and stable psychometric properties, and the statistical criteria are also well met. Therefore, the model may be applied to investigate the issue for other consumer groups or other products. Fourth, although there are no statistically significant differences between ages, genders, education levels, and income levels in regard to consumers' intention to use apparel rental services, and these demographic variables overall show positive effects on US Gen Z consumers' attitude and intention to use apparel rental services (older, female, and higher education and income level Gen Z participants are more likely to use apparel rental services). In addition, female Gen Z participants show significantly more positive attitudes toward apparel rental services. Finally, in addition to the significance of the foundational TPB measures to the findings regarding Gen Z consumers' intention to use apparel rental services, the enhanced model provided new insights to the understanding of the motivations of Gen Z consumers in their intention to use apparel rental services. Particularly, the perception of consumers as being effective for improving the sustainability

cause in the apparel industry directly influenced Gen Z's apparel renting intention. Furthermore, the extent to which Gen Z participants perceive their lifestyles and values for fashion leadership and uniqueness can influence apparel renting intention as to contribute to collaborative consumption of apparel rather than purchasing and owning them.

## 5. Implications

This study imparts some useful implications for the fashion industry that can be utilized by apparel retailers and brands. It was found that the largest percentage of Gen Z participants were spending \$300–\$499 on apparel annually. This makes sense, seeing as most of these participants are either still living at home with their parents or still in college, and thus, their disposable incomes are expected to be relatively small. Some of them are employed, but the unstable economy and the COVID-19 epidemic is likely to create some financial burdens and economic changes that will heavily impact their spending in the future. The price of college degrees, housing, rent, and other necessary commodities were already becoming increasingly expensive, but now Gen Z must prepare for an entirely new economy to emerge after the pandemic. There are many business sectors likely to struggle or fail, especially in the apparel sector, while new ones are being created and grow. The mandated social distancing and reduced room capacity have largely inhibited physical store shopping. However, this may not be too much of an issue for Gen Z consumers, since Gen Z consumers were already primarily online shoppers and had more free time to spend browsing online. The downside is that they will possibly have even less economic opportunities, which may decrease their disposable income. There may also be fewer reasons and opportunities for them to explore fashion, such as fewer social events and more social distancing restrictions. Gen Z is often known for being a very experimental group when it comes to fashion, using music festivals, concerts, parties, and social media as platforms for experimental self-expression [84]. As a result, firms looking to implement collaborative consumption models should incorporate a wide variety of apparel at different price points to cater to different consumer financial brackets, as well as advertise the financial and experimental benefits of renting apparel versus buying the same products at a higher price and then having to deal with ownership.

This study revealed that attitude, subject norms, perceived consumer effectiveness, past environmental behavior, and fashion leadership impose positive and significant impacts on Gen Z consumers' intention to use apparel rental services. These findings suggest that Gen Z consumers are more likely to use apparel rental services when their family and friends have positive perceptions about the services. In addition, they feel positively towards apparel rental services when they are educated on the sustainable benefits of using these services, perceive their contribution to environmental protection, and feel that it can satisfy their desire to try something new, be ahead of trends, and be unique. For apparel firms, this indicates that their advertising and promotions should include environmental benefits and knowledge, samples of their wide style variety, highlights and advantages about how they are different from competitors, and how they can satisfy a wide variety of consumer styles and the need for novelty and uniqueness.

Attitude plays a vital role in Gen Z's willingness to use apparel rental services. Environmental knowledge, fashion leadership, and the need for uniqueness help form positive Gen Z consumer attitudes towards use of apparel rental services. Apparel firms should make sure their marketing strategies help cultivate positive consumer attitudes toward rental services by utilizing social media websites and applications that are popular among Gen Z, using visually appealing graphics and videos. Apparel rental companies could also produce some exclusive unique and fashionable styles that consumers could not rent or purchase from any other retailers.

## 6. Limitations and Future Studies

There are some limitations in this study, which provide opportunities for future research. First, the study was limited to Gen Z consumers in the US. Due to cultural and regional differences, as well as different interpretations of collaborative consumption and sustainability, the conclusion cannot be simply generalized to other countries or regions. Therefore, future studies could examine Gen Z's perceptions towards collaborative consumption in other countries, or conduct cross-cultural studies to examine Gen Z's behaviors globally. Second, this study focused on the thoughts and perceptions of only Gen Z consumers, which excluded millennials and older generations. Future studies could conduct cross-generational research to examine the similarities and differences among all the generations towards collaborative consumption. Third, 63% of the study participants were male, which is an interesting result, considering that females are normally more associated with being interested in fashion. Males in general are becoming more interested in fashion and unisex styles, but have not been given adequate attention in the current literature. Future studies could focus on the role and impact of male consumers on sustainable apparel consumption. Finally, this research was conducted in the middle of the COVID-19 pandemic. Therefore, people's perceptions of collaborative consumption may have been altered. For example, preliminary data has revealed that COVID-19 can live on object surfaces for a few days, including on clothing, and therefore, people may become more reluctant to rent apparel due to the risk of infection. In addition, the outbreak of the virus is likely to create an economic downturn, which has already been negatively impacting consumer sentiment. People are likely to face reduced income, job loss, increasing debt, and a struggle to find careers, which in turn could negatively reduce or eliminate disposable income previously used for purchases like clothing. The future may also be less social, meaning that many companies may switch to operating entirely online through digital means, even after the pandemic. Eliminating social events may result in less demand for special occasion outfits that rental services are special in providing. This requires more following studies.

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## Appendix A

**Table 1.** Constructs and corresponding measurement items.

Construct	Measurement Items	Source
Attitude (AT)	AT1: I like the idea of renting apparel. (0.873)	Zheng and Chi [29]
	AT2: Renting apparel is a good idea. (0.857)	
	AT3: I have a favorable attitude towards apparel rental services. (0.872)	
Subjective Norms (SN)	SN1: Close friends and family think it is a good idea for me to use apparel rental services. (0.847)	Zheng and Chi [29]
	SN2: The people who I listen to could influence me to use apparel rental services. (0.837)	
	SN3: Important people in my life want me to use apparel rental services. (0.857)	

Table 1. Cont.

Perceived Behavioral Control (PBC)	PBC1: Using apparel rental services is entirely within my control. (0.751) PBC2: I had the resources and ability to use apparel rental services. (0.803) PBC3: I have complete control over how often to use apparel rental services. (0.781)	Zheng and Chi [29]
Perceived Consumer Effectiveness (PCE)	PCE1: By renting apparel, every consumer can have a positive effect on the environment. (0.864) PCE2: Every person has the power to influence environmental problems by renting apparel. (0.872) PCE3: It does not matter for protecting environment whether I rent apparel or not since one person's act cannot make a difference. * (Dropped due to low factor loading)	Zheng and Chi [29]
Environmental Knowledge (EK)	EK1: I think of myself as someone who has environmental knowledge. (0.767) EK2: I know renting apparel is good for the environment. (0.844) EK3: I have taken a class or have been informed on apparel sustainability issues. (0.749)	Barbarossa and Pelsmacker [71]
Past Environmental Behavior (PEB)	PEB1: I guess I've never actually bought a product because it had a lower polluting effect. * (Dropped due to low factor loading) PEB2: I keep track of my congressman and senator's voting records on environment issues. (0.781) PEB3: I have contacted a community agency to find out what I can do about pollution. (0.801) PEB4: I make a special effort to buy products in recyclable containers. (Dropped due to low factor loading) PEB5: I have attended a meeting of an organization specifically concerned with bettering the environment. (0.788) PEB6: I have switched products for ecological reasons. (0.772) PEB7: I have never joined a clean-up drive. * (Dropped due to low factor loading) PEB8: I have never attended a meeting related to ecology. * (0.828) PEB9: I subscribe to ecological publications. (0.778)	Fraj and Martinez [70]
Fashion Leadership (FL)	FL1: I am aware of fashion trends and want to be one of the first to try them. (0.821) FL2: I am the first to try new fashion; therefore, many people regard me as being a fashion leader. (0.840) FL3: It is important for me to be a fashion leader. (0.874) FL4: I am usually the first to know the latest fashion trends. (0.855)	Lang and Armstrong [58]
Need for Uniqueness (NFU)	NFU1: I often look for one-of-a-kind products or brands so that I create a style that is all my own. (0.804) NFU2: Often when buying product, an important goal is to find something that communicates my uniqueness. (0.806) NFU3: I often combine possessions in such a way that I create a personal image for myself that cannot be duplicated. (0.772) NFU4: I often try to find a more interesting version of ordinary products because I enjoy being original. (0.728) NFU5: I often look for new products or brands that will add to my personal uniqueness. (0.807)	Lang and Armstrong [58]

Table 1. Cont.

Materialism (M)	M1: I admire people who own expensive homes, cars, and apparel. (0.863)	Lang and Armstrong [58]
	M2: Some of the most important achievements in life include acquiring material possession. (0.824)	
	M3: The things I own say a lot about how well I'm doing in life. (0.907)	
	M4: I like to own things that impress people. (0.872)	
	M5: I like a lot of luxury in my life. (0.826)	
Use Intention (UI)	UI1: I intend to use apparel rental services. (0.845)	Zheng and Chi [29]
	UI2: I will try to rent apparel instead of buying apparel. (0.824)	
	UI3: I will make an effort to reduce apparel consumption in the future. (Dropped due to low factor loading)	

Note: \*: Reversed measures.

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