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# Organic Cotton Clothing Purchase Behavior: A Comparative Study of Consumers in the United States and Bangladesh

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Abstract: The purpose of this research was to evaluate the differences and similarities of organic cotton clothing (OCC) purchase behaviors of the consumers who lie at the top and the bottom of the apparel supply chain. The influences of consumers' sustainability knowledge and social norms on consumers' attitudes and purchase intentions were examined to understand within the framework of the Theory of Reasoned Action (TRA). Sample data were collected from the United States and Bangladesh and, finally, 136 useable responses were used for the data analysis. Among the useable responses, 85 samples were from the US (containing 91.76% female participants and 4.71% male participants) and 51 responses were from the Bangladesh sample (containing 7.84% female participants and 88.24% male participants). A structural equation model was conducted to test the proposed hypotheses. Findings showed that for US consumers, sustainability knowledge was a powerful predictor of positive attitudes towards OCC, while for Bangladeshi consumers, it was not. In the context of social norms, Bangladeshi consumers demonstrated a strong positive attitudes formation whereas American consumers were found to display less strong relationships. OCC marketers and retailers should concentrate on educating consumers about the real benefits of organic cotton consumption by disseminating proper information about organic cotton fiber and its processing.

Keywords: organic cotton; clothing; consumer behavior; Theory of Reasoned Action



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# 1. Introduction

Textiles and clothing industries are developing rapidly to meet the growing demand for short-lived fast fashion. Agriculture-based natural fiber production or laboratory-based synthetic fiber production and final garment manufacturing are damaging the ecosystem by polluting the environment. Cotton, for instance, needs a large quantity of water and pesticides to grow. In terms of pesticide consumption compared to other crops, cotton ranks third in the USA [1] and fourth throughout the world [2]. Furthermore, an estimated 8000 chemicals including dyes, and auxiliaries are required in the manufacturing processes of cotton clothing [3]. Traditional cotton fiber production processes damage the soil, water, and air, thus polluting the environment [4]. Moreover, exposure to various chemicals, pesticides, and insecticides used in these processes can cause serious health complications for farmers, manufacturers, animals, plants, and even consumers [5]. Organic cotton fiber production, in contrast, is based on the use of organic seeds, and chemical-pesticide free farming methods [6]. According to The Soil Association, the production and processing of organic cotton reduces the carbon footprint and protects the environment by maintaining the quality of soil and water [7]. Increased awareness of an environment-friendly lifestyle through sustainable consumption (organic food, organic cotton, reusing, repurposing) is becoming popular presently. A study of 30,000 consumer found that two-third of the participants indicated their interest in consumer environmentally sustainable products despite higher prices [8]. The global market of sustainable apparel is expected to reach USD 95 billion by 2025 from USD 74.65 billion in 2020 [9].

Recent studies on consumer behavior have suggested that growing awareness of environmental pollution encourages consumers to purchase sustainable clothing. According to fashion revolution research on 5000 European Union consumers almost all of them (90%) believed that brands should consider tackling climate change and environmental protection [10]. Environmental sustainability is largely dependent on the use of sustainable materials such as organic cotton, cutting down the usage of resources i.e., land, water, and oil usage, ensuring reuse, recycling, and upcycling of materials. Besides this, the textile industry should focus on, protection of human health, workplace safety, and protection of the environment [11]. Interestingly, as a result of growing consumer concern, the demand for organic cotton cultivation has been increasing significantly. According to an organic cotton market report from the Textile Exchange, organic cotton production in 2018/19 increased by 31% compared to the previous year [12]. Statistically, 418,935 hectares of land were used to produce 239,787 metric tons of organic cotton in 19 countries worldwide. Moreover, 55,833 hectares of conventional cotton growing lands have been converted to accommodate organic cotton production [13]. According to the industry survey of Organic Trade Associations, in the US, organic fiber sales increased by 15% reaching USD 1.8 billion in 2018 compared to the sales of 2017 [14]. Many renowned and emerging brands and retailers have been offering products made of organic cotton such as Conscious by H&M, Boden, Patagonia, Pact, Eileen Fisher, and Able.

The study of sustainable consumer behavior is a growing domain of research all over the world. There are some important reasons behind the emergence of this research. Considering Bangladesh, the second-largest exporter of worldwide apparel, the country is having environmental and social problems. First, the country has been going through significant socio-economic development from rapid industrialization particularly in the textile and apparel sectors. The textile and apparel industry sector is one of the major environmental polluters [15]. In a collaborative approach, Bangladeshi factories, and brands are working to reduce water consumption and initiate cleaner production with the help of the International Finance Corporation. According to the IFC, more than 700 dyeing, finishing, and washing industries have discharged 200,000 L of wastewater during the processing of only one ton of fabric [16]. Besides environmental pollution, the country has gone through some textile industrial disasters due to unauthorized and unregulated industry standards. In 2013, the collapse of the Rana Plaza, the worst industrial disaster, caused the death of more than 1100 workers and over 2500 workers injured as a result of not following proper building safety recommendations [17]. In the aftermath of Rana Plaza collapse, an agreement called the Accord on Fire and Building Safety in Bangladesh was created to improve the working condition for 2.5 million workers in more than 1600 factories [18]. Moreover, brands are pushing manufacturers to comply with regulations of favorable working conditions, ethical practices, fair trade, and corporate social responsibility to produce sustainable apparel. According to the U.S. Green Building Council (USGBC), Bangladesh has the highest number (67, including 13 factories with the highest LEED Platinum rating) of Leadership in Energy and Environmental Design (LEED) certified textile and apparel factories in the world, followed by Indonesia with 40 factories [19]. Bangladesh has reported a 29% increase in the use of organic raw materials from 2017 to 2018 which is the highest global growth rate [20]. According to the Global Organic Textile Standard (GOTS), Bangladesh is second in the world in providing GOTS-certified facilities [21]. Many of the research studies have been focused on the evaluation of sustainable consumption of organic cotton mostly in Western countries while little attention has been focused on countries such as Bangladesh which is at the bottom of the supply chain. There is a significant gap in the literature studying Bangladeshi consumer's organic cotton clothing (OCC) purchase behavior. To date, no known research has been found studying people's buying behavior in this country. Therefore, the research aims to compare the sustainable organic cotton consumption of US and Bangladeshi consumers.

The research objectives were as follows:

 To understand how consumers' knowledge of environmental sustainability influences attitudes towards OCC purchase behavior and the difference between the US and Bangladeshi consumers.

2. To understand how social norms influence consumers' attitudes towards OCC purchase behavior and the difference between the US and Bangladeshi consumers.

# 2. Organic Cotton Clothing (OCC)

Merriam-Webster defines organic as, "of, relating to, yielding, or involving the use of food produced with the use of feed or fertilizer of plant or animal origin without employment of chemically formulated fertilizers, growth stimulants, antibiotics, or pesticides" [22]. The basic differences between organic and conventional cotton production are based on the way of farming and agricultural management. Organic cotton fibers, on one hand, are grown from unmodified raw plants without harming humans and the environment i.e., preserving soil fertility and protecting biodiversity [23]. Conventional cotton is grown from genetically modified plants with the use of chemical fertilizers, herbicides, pesticides, and defoliants [24]. Due to the use of toxic pesticides and synthetic fertilizers, conventional cotton production is harmful to both humans and the environment [5]. Organic farming involves a rotational system of agriculture that replenishes and maintains soil fertility [25]. The absence of chemicals and pesticides ensures biodiversity [26]. Organic cotton farming provides the following benefits reducing the potential of global warming by 46%, acidification by 70%, soil erosion by 26%, blue water consumption by 91%, and primary energy demand by 62% [27]. Overall, according to The Soil Association, "Switching to organic cotton production could reduce the global warming impact of cotton production overall by 46% compared to non-organic cotton" [7]. OCC production ensures the use of organic cotton, natural dyes-chemicals, and eco-friendly technologies [28]. Throughout its lifecycle, OCC reduces its carbon footprint and hence contributes to environmental sustainability [29].

#### 3. Literature Review

Organic food, organic clothing, recycling, upcycling, and an eco-friendly lifestyle are novel concepts throughout the world particularly in the developed and emerging countries. Developed countries have already been pioneering the fair trade movement, and environmental sustainability [30]. Therefore, consumption of eco-friendly products and their impacts on sustainable business, along with consumer behavior has always been an interesting topic of research while very little focus has been given to studying consumer behavior of the less developed countries [31].

Han [32] explored the US and South Korean consumers' green apparel purchase behavior. The research used the Theory of Planned Behavior to test various constructs influencing consumer purchase behavior. Injunctive norms were found to have a significant influence on attitude formation while perceived behavioral control and descriptive norms were found to be the most important forecasters of purchase intentions for both countries. However, there was a notable difference in attitudes as a strong predictor of purchase intention which was significant in US consumers but not significant for South Korean consumers. Social pressure, on the other hand, had a considerable impact on South Korean consumption behavior but was not dominant for US consumers. The differences and similarities of the consumers purchase behaviors are presumably because of the diverse socio-cultural perspectives of both countries [32].

Su, Watchravesringkan [33] investigated the factors influencing US and Chinese Millennials perception and behavioral intentions towards eco-friendly clothing and apparel. Sustainability knowledge and value were the influencing factor of consumers' attitudes and finally attitudes to the willingness to buy green apparel. The research showed that sustainability knowledge of apparel and personal value had a considerable impact on the formation of attitudes towards sustainable apparel consumption and which lead to a strong willingness to buy. Interestingly, US millennials were found to be more knowledgeable

about environmental sustainability and socially responsible consumer behavior whereas their Chinese counterpart had insufficient knowledge of the issues of sustainability and the apparel industry. The research emphasized the importance of incorporating sustainability knowledge in the educational system so more young consumers aware of environmental sustainability.

Khare and Varshneya [31] studied the OCC consumption by Indian youth considering past eco-friendly behavior, peer influence, and knowledge of organic clothing as the key influencers. Research findings show that past environment-friendly behavior plays a significant role during green apparel purchase whereas consumers' knowledge of green apparel and peer influence were not influential in organic clothing purchase behavior. Past environmental value and buying an organic product that represents consumers self-concept [34] were more likely to influence future purchase of similar organic products [31].

#### 4. Theoretical Framework

Theory of Reasoned Action (TRA) can be used to explain the reason for certain human behaviors. TRA uses two determinants of intention such as attitudes and subjective norms to understand psychological or cognitive processes of consumer behavior [35]. Consumer's belief affects the attitudes which influences the intention to engage in behavior and eventually impacts actual behavior. An individual develops a positive attitude for the behavior if they believe that performing the behavior will result in a desirable outcome, or vice versa. More favorable attitudes will always result in a strong behavioral intention towards performing the behavior [35,36].

Consumer's belief in environmental awareness and the ethical importance of sustainability forms attitudes towards OCC purchase. Previous studies have evaluated the influence of environmental awareness of the purchase of ethically made products [37,38]. Social norms, awareness of environmental sustainability, and environmental degradation are stated to be intensifying moral obligations to protect the environment [39]. Research studies dedicated to finding the predictors of environmental-friendly products have exhibited the influence of pro-environmental norms, social values, and self-monitoring behavior [40,41]. Environmental awareness and the ethical importance of conserving the environment can comprehensively constitute knowledge of sustainability. Limited knowledge of sustainability is found to be the most difficult obstruction in the development of a sustainable society [42]. Consumer's pro-environmental behavior is formed when a consumer has proper knowledge of environmental sustainability. Consumers knowing environmental sustainability can lead to positive attitudes and a behavioral intention to an eco-friendly product purchase [43-45]. Research has demonstrated that environmentally friendly clothing purchases are positively influenced by a consumer's knowledge of environmental sustainability [31,33]. Thus, we formulate the following Hypothesis H1:

**H1.** Environmental sustainability knowledge positively influences consumer's attitudes towards OCC purchase.

Another attribute of the TRA is that subjective norms [36] form attitudes towards and eventually an intention towards a certain behavior. Subjective norms in the form of descriptive and social norms involves real activities and social pressure [46]. Many of the previous studies have found a positive influence of subjective norms during purchasing of green food [46], organic and sustainable food [47], organic skin/hair care products [48], and ethically product fashion products [38,49]. An individual may be influenced by those who are important to the person e.g., family members, friends, colleagues, or influencers [50]. Social norms influence a consumer's engagement with behavior that leads to actual behavior. Social norms are a very important factor that could be affecting a consumer's behavioral intention for organic cotton consumption. Social identification which is exhibited by environment-friendliness, organic, ethical, and socially responsible has been found to influence consumers buying behavior of OCC [51]. Since organic cotton is human and

environment-friendly consumers are expected to form positive attitudes and intentions towards OCC. Thus, we formulate the Hypothesis H2–H4:

- **H2.** Social norms positively influence consumer's attitudes toward OCC.
- **H3.** Social norms positively influence consumer's behavioral intentions toward OCC purchases.
- **H4.** Attitudes positively influences consumer's behavioral intentions toward OCC purchases.

Environmental sustainability is predominantly based on the role of government regulation. Eco-friendly practices are being applied by agencies across a wide spectrum of regulations by implementing processes, procedures, and policies. Common people are divided in their attitudes in terms of environmental issues. Study findings show that sustainable consumption as well as establishment of a sustainable environment are governed by government rules and legislations [52]. To develop sustainable consumption it is important to enhance awareness of the mass populace about ecological biodiversity which can be done by implementing favorable government policy and regulations [52,53].

An individual's training from the surrounding social environment where he/she grew up is defined as culture. Based on the context of culture, consumer behavior changes and it is evident that the consumption patterns also change [54]. The United States has an individualistic culture where people are more interested in individual benefits and preferences, personal success, and independence [32,55] whereas Asian countries such as Bangladesh have a more collective culture, where people focus on in-group/ aggregate benefits, social harmony, and integrity of family [32,56]. The cultural dimension is related to sustainability by the way a culture maintains a link with the past dealing with environmental challenges [57]. Sustainable consumption is connected to the common traditional practice of a society which brings individual consumers feeling about what their actions may contribute to present and future outcomes [58]. In a developing country such as Bangladesh, it is a moral obligation for citizens to not waste food, or clothing. Religion also teaches the importance of morality, be friendly to the environment, and to practice living a frugal life. Citizens of a developed nation such as the USA can live a lavish life with more independence and freedom which may include wasting money, food, clothing, etc. Previous studies have demonstrated that consumer's country of residence and their behavior on sustainability is mediated by sustainability attitudes [58,59]. Hence, presumably, there is an influence of social-cultural perspectives on consumer sustainability knowledge and social norms considering the diverse cross-cultural position of Bangladesh and the USA. Thus, we formulate the following Hypothesis H5:

**H5.** The salience of the relationship between TRA constructs will be different across consumers from the US and Bangladesh.

#### 5. Methodology

All constructs driven from the theoretical framework were administered in a survey to test the formulated hypotheses. Most of the items were adopted from the previous literature on OCC purchase behaviors. The items and the sources of the items are described in Appendix A (Table A1).

#### 6. Questionnaire Design

The research questionnaire was adopted from previous research [32,51]. The questionnaire written in English, contained three sections. The first section provided a general description of the research, the aim of the research, questions on whether the participants have used organic cotton or not, and a short description of organic cotton. In the subsequent section, the participants were requested to indicate their perception, attitudes, and intentions towards the use of OCC. Questions that symbolize the constructs of the conceptual model were measured using a 5-point Likert scale with "1 = strongly disagree, to 5 = strongly agree [60]". The final section consisted of demographic information, gender,

age, level of education, and income level. Participants were advised of their rights to withdraw from the study at any time without any negative consequences.

#### 7. Sample

To conduct the research, sample groups from a metropolitan city area of the USA and Bangladesh were selected. Participants of age 18 or over were recruited for the online survey. Convenience sampling was used for data collection. The questionnaire was uploaded in Qualtrics.com, an online data collection website, and then distributed among participants through email by sending the survey link starting from November 2020. Social media platforms such as Facebook, Twitter, and Instagram were also used to invite participants to participate in the survey. Out of 145 responses, a total of 136 (response rate of 93.80%) useable responses were collected and used in the main analysis. Among the useable responses, 85 were from the US sample (91.76% were female; 4.71% were male) and 51 responses from the Bangladesh sample (7.84% were female; 88.24% were male) were analyzed to evaluate the consumer behavioral intention to use OCC (see Table 1). Demographically, a significant proportion (92.94% US and 49.02% Bangladesh) of the participants were in between age 18 to 25 years. A majority (69.41%) of US participants were college students while 54.90% of Bangladeshi participants were college graduates. In terms of household income, 86.27% of Bangladeshi participants earned less than USD 25,000 while 25.88% of American participants were in this income group.

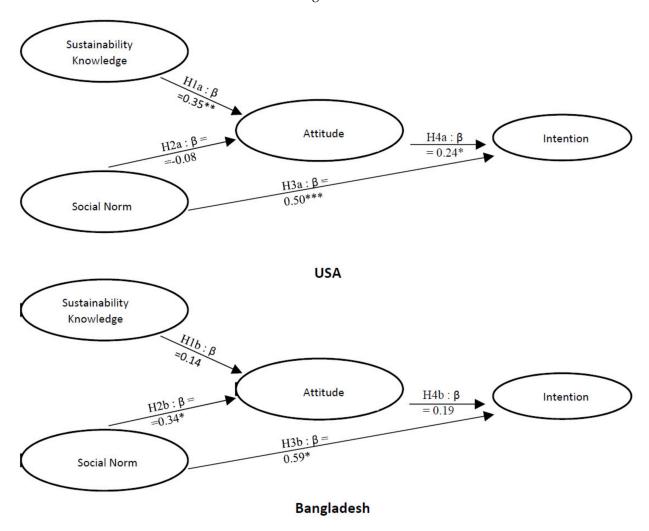
Table 1. Demographic information.

		$USA  (n_1 = 85)$	Bangladesh $(n_2 = 51)$
Variable	Description	Percentage	Percentage
Gender	Female	91.76%	7.84%
	Male	4.71%	88.24%
	Other	3.53%	3.92%
Age	18 to 25 years	92.94%	49.02%
Ü	26 to 35 years	3.53%	47.06%
	36 to 45 years	3.53%	3.92%
Education	Did not graduate high school	-	1.96%
	High school graduate	17.65%	-
	Some college/Associate degree	69.41%	13.73%
	College graduate	9.41%	54.90%
	Masters/MBA	1.18%	21.57%
	PhD or higher	2.35%	7.84%

### 8. Results Analysis

Exploratory factor analysis (EFA) with principal component analysis was first conducted to purify and confirm the scale dimensionality, using a varimax rotation. The factor loading of each item for EFA in both the US and Bangladesh dataset were from 0.501 to 0.836. Then, confirmatory factor analysis (CFA) was conducted to test the measurement model. The result of the measurement model exhibited an acceptable model fit ( $\chi^2$  ( $_{df=129}$ ) = 212.295, p=0.000,  $\chi^2/df=1.646$ ; RMSEA = 0.088; CFI = 0.915; TLI = 0.9177) [61] in terms of US data. The measurement model for the Bangladesh data exhibited an acceptable model fit ( $\chi^2$  ( $_{df=129}$ ) = 297.777, p=0.000,  $\chi^2/df=2.308$ ; root mean square error of approximation (RMSEA) = 0.162; comparative fit index (CFI) = 0.664; Tucker-Lewis index (TLI) = 0.602) [61]. For both the US and Bangladesh data, the convergent validity and discriminant validity were assessed to represent the construct validity. All CFA loadings were higher than 0.5, which provided evidence for convergent validity; and the average variance extracted (AVE) for each construct was greater than 0.5 [62], suggesting that each construct is well represented by its own indicators. Finally, the structural equation model (SEM) was then conducted to evaluate the proposed hypotheses

based on the literature review [61]. The statistical results revealed an acceptable model fit ( $\chi^2$  (df = 131) = 365.908, p < 0.000,  $\chi^2/df = 2.79$ ; RMSEA = 0.189; CFI = 0.532; TLI = 0.454) for the Bangladesh dataset and an acceptable model fit ( $\chi^2$  (df = 131) = 285.75, p < 0.000,  $\chi^2/df = 2.181$ ; RMSEA = 0.119; CFI = 0.842; TLI = 0.815) for the US dataset. The summary of the SEM has shown in Figure 1 and Table 2.



**Figure 1.** Comparison of standardized estimates from SEM analysis. Significance \* p < 0.05, \*\* p < 0.01, \*\*\* p < 0.001. Here a represents the USA dataset and b represents the Bangladeshi dataset.

Table 2. Path analysis result (USA vs Bangladesh).

	USA		Bangladesh	
_	β	<i>p-</i> Value	β	<i>p-</i> Value
H1: Sustainability Knowledge $\rightarrow$ Attitudes	0.35 **	0.004	0.14	0.274
H2: Social Norms $\rightarrow$ Attitudes	-0.08	0.451	0.34 *	0.010
H3: Social Norms → Intention	0.50 ***	.0001	0.59 *	0.003
H4: Attitudes $\rightarrow$ Intention	0.24 *	0.033	0.19	0.349

Note: \* *p*-value < 0.05, \*\* *p*-value < 0.01, \*\*\* *p*-value < 0.001.

#### 9. Discussion

The primary focus of this study was to examine the similarities and differences of people from different socio-cultural backgrounds in terms of OCC purchase intentions. A theoretical model based on the Theory of Reasoned Action was constructed to test the formulated hypotheses. This study is the first-ever to study consumer behavioral intention to purchase OCC from the US and Bangladeshi consumers' perspectives.

There are many similarities and differences between the people of the two target groups. First, sustainability knowledge was a strong predictor of consumers' positive attitudes towards OCC in the US data while sustainability knowledge of the Bangladeshi consumers was not found to be a strong predictor of attitudes. This finding is consistent with a previous comparative study in the US and Chinese consumers' purchase behavior of green apparel [33]. This is believed to be due to the existence of consumers' distinct hedonic and utilitarian shopping behaviors based on socio-cultural differences [63,64]. Similarly, Attitudes were found to be an important predictor of US consumers' purchase intention of OCC whereas in terms of Bangladeshi consumers' this relation was not significant. A notable difference between US and Bangladesh consumers was that social pressure influences consumers' positive attitudes formation. Social norms were not found to be a strong predictor in US consumers' positive attitudes formation towards OCC whereas social norms were a very strong predictor for Bangladeshi consumers' positive attitudes formation. This major difference in the consumers' purchase decision is primarily because of the cultural differences influencing consumer behavior and the finding is consistent with a previous study on the US and South Korean consumers [32]. This is presumed to be because Bangladeshi consumers are from a collective culture where they are mostly influenced by other people who are important to them [65,66]. Interestingly, the social norms were a strong predictor of consumer's behavioral intentions to purchase OCC from consumers of both countries. When consumers perceive it is significant to the people purchasing OCC, they are more likely to form a positive intention to purchase. To form a positive attitudes and purchase intention for American consumers, marketers should focus on educating consumers by providing more information about the positive impact of OCC and resulting environmental sustainability. On the other hand, marketers need to put more emphasis on forming positive social viewpoints by endorsing social influencers to market leaders which are assumed to encourage Bangladeshi consumers to form a positive attitudes and purchase intention.

#### 10. Limitations and Future Research

This research has been conducted in metropolitan areas in the United States and Bangladesh. Hence, participants of this study may not represent the view of the whole population and the results cannot be generalized. Future research may examine the association between attitudes and purchase intention of consumers from both urban and rural contexts with diverse demographic profiles such as age, education level, and income representing the population properly. Additionally, the research was conducted on small sample groups with unequal gender distribution which is a potential limitation. The research was conducted by describing the differences between organic and conventional cotton fibers. However, analysis of experienced consumers' behavioral intention may provide more valuable insights on OCC usage. Therefore, future research can be conducted on consumers who have used OCC in their daily lives.

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# Appendix A

**Table A1.** Research item and sources.

Construct	Items	Source
Sustainability knowledge	Growing organic cotton does not need hazardous chemical and pesticides.  Organic cotton clothing good for human health and environment.  I am concerned about the impact of clothing production on the environment.  The use of larger quantities of natural fibers will significantly decrease energy consumption.  Organic cotton clothing ensure fair trade, and sustainable environmental development.	[51]
Social Norms	People who influence my decisions would approve of me buying organic cotton clothing.  People who are important in my life would approve of me buying organic cotton clothing.  Close friends and family think it is a good idea for me to purchase organic cotton clothing.	[32]
Attitudes	For me buying organic cotton clothing would be: Bad/Good Negative/Positive Not favorable/Favorable Unpleasant/Pleasant Undesirable/Desirable A bad idea/A good idea	[32]
Purchase Intentions	I would like to purchase organic cotton clothing in the future.  If I see organic cotton clothing, I intend to purchase or consider purchasing it.  If I see a retail store selling organic cotton clothing, I intend to visit the store to purchase a product.	[32]

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