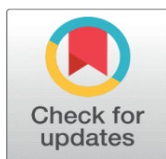


# INVESTIGATION OF THE QUALITY PROBLEMS NOTICED BY UNIVERSITY STUDENTS WHILE USING JEANS

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## ABSTRACT

Denim jeans are one of the most popular products that can be worn in many occasions, from daily life to special events. In order not to lose its popularity, it must be able to meet the preferences of users. For this reason, manufacturers are constantly researching new colors, new models and new fabric constructions and trying to improve their processes. In this study, university students, who are almost one of the most intense users of denim trousers, were asked about their experiences in using denim trousers. They were questioned about their preferences when using denim jeans, the quality problems they encountered about the products. Answers of 400 participants who returned the surveys were analyzed.

**Keywords:** Denim Jeans, Quality, Consumer Experience

## 1. INTRODUCTION

Despite the fact that more than 250 years have passed since its birth, the place of denim fabric in our lives, which still makes a name for itself in the first quarter of the 21st century, is an undeniable fact. Denim fabric, which is both so old and equally innovative, still preserves its mystery both in production and usage, and surprises us with its changing face every day. Denim, which was first used as the sail of Christopher Columbus' ship, is now used in different areas such as bags and shoes. While Levi Strauss' aim was to make more money by sewing durable work clothes for the workers at that time, he did not even predict that he would suddenly become a doyen of denim fashion. In the Introduction section, present clearly and briefly the

problem investigated, with relevant references Ünal & Konal (2022), Özgüney et al. (2009).

In the 1980s, jeans became an important factor in determining fashion. During this period, jeans sales exploded. Denim experienced a short-term decline in the 1990s as it was not preferred by young people who did not want to imitate their parents. Later, young people turned to special designs and stores selling second-hand jeans. In the 2000s, jeans now adorn the creations of all famous fashion designers. It has now become an indispensable product for people at home, at work, at a special invitation, in short, at every moment of the day.

Today, denim fabrics in general; is known as a fabric consisting of warp yarn indigo blue dyed, weft yarn raw and undyed cotton yarn, and woven using 2/1 and 3/1 warp twills, which are generally warp surfaced twill types. There are also denim fabrics with 2/2 twill, 3/1 broken twill or 1/1 plain weave. Today, denim fabrics in general; is known as a fabric consisting of warp yarn indigo blue dyed, weft yarn raw and undyed cotton yarn, and woven using 2/1 and 3/1 warp twills, which are generally warp surfaced twill types. There are also denim fabrics with 2/2 twill, 3/1 broken twill or 1/1 plain weave. Blue or dark blue can be given with indigo dyestuffs, and any color can be given with dyestuffs other than indigo. Warp threads are in any case dyed, weft threads are raw and undyed Özbek (2021), Smith (2023).

Since the finishing processes in the denim jeans sector affect the appearance and comfort of the product, it has many different applications. There are almost countless variations of dry and wet processing techniques used by designers and textile chemists to create distinctive and desirable trendy looks Dalbaşı (2019).

The most important criterion that distinguishes products from each other in the global competitive environment has been determined as "quality" by end consumers. Quality is expressed as the sum of the characteristics of a product or service based on its ability to meet specified or potential needs. The success of a business is to be able to produce a product that will meet expectations and have a reasonable life by doing this analysis correctly. Thus, a perception of a firm preferred by consumers emerges Rahman (2015), Çetindağ (2018).

Countries that have adapted late to the First Industrial Revolution have started to invest in ready-made clothing production since the second half of the 20th century in order to industrialize. As a result of these investments, the ready-made clothing industry has become global. The globalization of the sector has increased international competition, reducing clothing prices and also increasing the variety of clothing. This change in the industry has caused ready-to-wear consumers to be more selective and to demand high-quality at low prices Özbek (2021).

In the study carried out in Sri Lanka, data were collected by survey and interview methods in order to determine the dissatisfaction of plus size women's clothing consumers. As a result of the research, it was concluded that 55.6% of the participating women were either dissatisfied or moderately satisfied with plus size clothing. The most important clothing-related complaints identified are It has been determined that large size clothes are not compatible with the body, and they are not suitable for trend and fashion Seram & Kumarasiri (2020), Kaushik & Dhir (2019).

Opinions of 222 college students were analyzed to identify customer complaints about clothing sold by Kaushik and Dhir's online fashion sites operating in India. As a result of the research, it has been determined that there are inconveniences in areas such as visual, functional, clothing, textural, aesthetic and harmony Kaushik & Dhir (2019).

When the literature is examined, it is seen that customers generally prefer clothes with physical and performance characteristics that they believe will meet certain performance expectations. On the other hand, customers' complaints about clothes are the use of low-quality materials in production, poor quality production, labeling problems, non-standard production, general inadequacy of the product, product color problems (discoloration, fading, fading, etc.), problems after product washing (narrowing, expansion), use of poor-quality auxiliary materials (buttons, zippers, rivets, etc.). As a result, according to the data obtained from the literature, customer complaints can be divided into four classes [Timur \(1998\)](#), [Makopo et al. \(2016\)](#). These classes are:

- **Complaints Caused by Production:** These are the situations that customers notice by examining the product before purchasing and using it and/or in the first trial and are the subject of complaints.
- **Performance-Related Complaints:** These are the complaints arising from the performance of the product after the customers start using the product.
- **Consumer-Based Complaints:** These are the complaints arising from the attitudes of the customers towards the product.
- **Other Complaints:** Other than the first three complaint sources are complaints.

The subject of this study is the second of the customer complaints, complaints about the performance of the product. The product chosen for this topic is denim jeans because of its popularity. A survey was conducted with university youth to evaluate the performance problems of the product. In short, in the survey study, university students were asked to rate the problems that may arise from the performance of the denim trousers they use and their expectations from the products. Obtained results were evaluated statistically.

## 2. MATERIALS AND METHODS

In this study, people who use denim pants were asked about the quality problems they encounter. The questionnaire was applied to Ege University students. The questionnaire was applied face to face to 400 students randomly in Ege University campus. It was also questioned in the survey whether the students participating in the research were from a textile-related department.

The survey, in which the participants were questioned about the problems they experienced in the denim pants they use, consists of 3 parts. In the first part, there are demographic questions asked about the age, gender, level of education of the participants and the department. In the second part, the tendencies of the participants towards the use of denim jeans are questioned. In the third part of the questionnaire is aimed at examining the perceptions of denim jeans users about the deformation problems they experience during long-term use. This part consists of eleven 5-point Likert-type items and participants were asked to indicate their degree of agreement with the given statement. Scoring of the questionnaire (1-5) was coded as "Strongly Disagree", "Disagree", "No Idea", "Agree" and "Strongly Agree" numbers.

## 3. RESULTS AND DISCUSSIONS

In the first part the survey, the questions (Question 1 and 2) were asked to determine the demographic characteristics of participants. Based on the answers given, the following inferences were made about the participants ([Table 1](#)).

**Table 1**

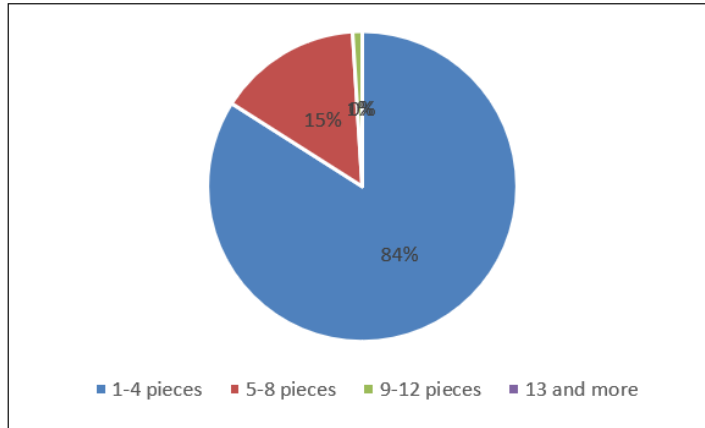
<b>Table 1 Demographic Characteristics of Participants</b>		
<b>Variables</b>	<b>Definition</b>	<b>Frequency</b>
<b>Gender</b>	Men	100
	Women	300
<b>Age</b>	18-24	372
	25-31	16
	32-38	8
	Over 39	4
<b>Education</b>	Associate degree	56
	Bachelor degree	300
	Master and doctorate degree	44
<b>Department</b>	Textile Technology (VTS)	44
	Clothing Production Technology (VTS)	8
	Fashion Design (VTS)	4
	Textile Engineering	24
	Other Programs	320
<b>Shopping Budget</b>	1-500 TL	148
	501-1000 TL	148
	1001-1500 TL	76
	1501-2000 TL	4
	2001-2500 TL	24

75% of the people participating the survey were women and all of them were university students. %93 of participants was between ages of 18-24. 14% of the participants were being educated in associate degree, 75% of them in undergraduate degree, and 11% of them in graduate degree. The studying programs of 20% of them were related with textile, fashion and ready-wear programs, while 80% of them were being studying in another program. While 37% of the participants were allocated a monthly budget of up to 500 Turkish Liras for clothing shopping, 37% of another group of participants were allocated a budget between 501 and 1000 Turkish Liras and the rest of participants were allocated budgets at varying rates from 1500 up to 2500 Turkish Liras per month.

The graphs and explanations prepared for the questions in the second section were given below, question by question.

**Question 3:** When the answers to the question asking the number of denim jeans purchased by users in a year are examined ([Figure 1](#)), the highest preference is to buy 1-4 pieces a year with 84%. The second most preferred option is to buy 5-8 units with a rate of 14%, and the third most preferred option is to buy 9-12 units with a rate of 1%. The option of purchasing 13 or more units was not preferred by anyone.

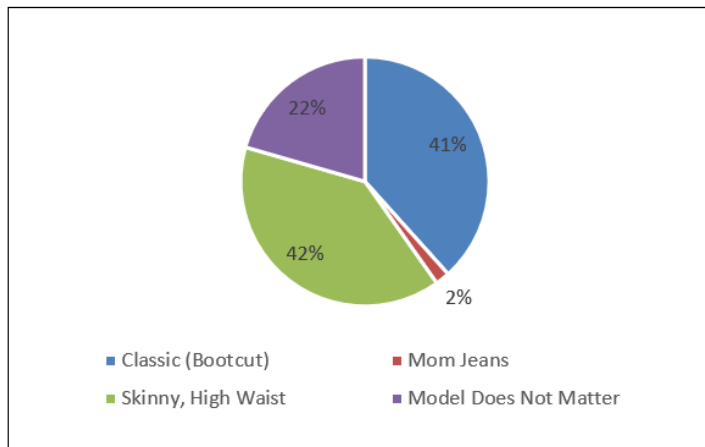
**Figure 1**



**Figure 1** The Number of Denim Jeans Purchased in a Year by Participants

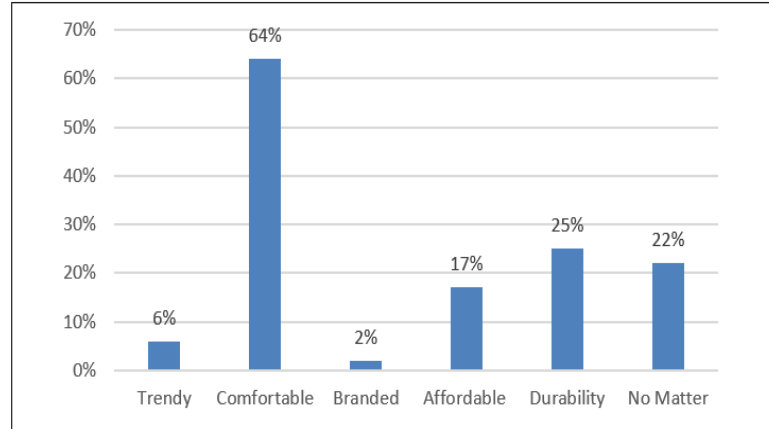
**Question 4:** Participants were asked to choose their most preferred denim jeans model (Figure 2) and were given 3 different models. In this question there is also an option for those who cannot distinguish between models. "Skinny, High Waist" model trousers were most preferred with 42 percent. Immediately after this, the "Classic Denim Jean" model was preferred by a rate of 41%. While 22% of the participants stated that they did not have any model preference, 2% preferred the "Mom Jeans" model.

**Figure 2**

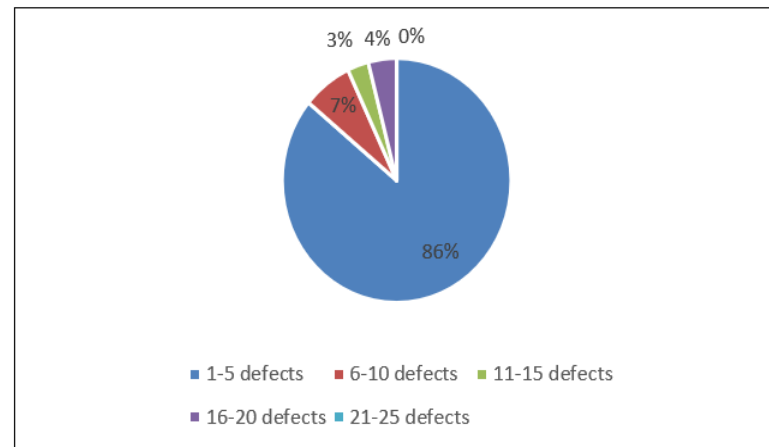


**Figure 2** The Most Preferred Denim Jeans Model by Participants

**Question 5:** Participants were asked to mark the given options that they found the most important one when buying denim jeans (Figure 3). In this question, the participants had been the right to choose more than one option. 78% of all participants selected only one option. While 8% selected two options, 14% selected 3 options. From the answers given, it is observed that 64% of the participants preferred the "Comfort" option the most, and 25% preferred the "Durability" option in second place. 22% of the participants did not prefer any other options and chose the "Not Important" option in the third place. When we look at the preference rates of other options, we see that the "Affordable" option is preferred by a rate of 17%, the "Trendy" option by a rate of 6%, and the "Branded" option by a rate of 2%.

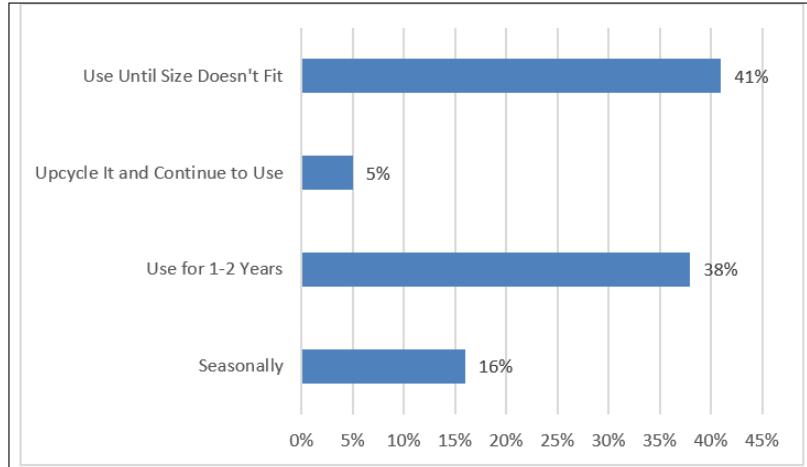
**Figure 3****Figure 3** The Most Important Reason for Buying Denim Jeans by Participants

**Question 6:** In this question, where the number of defects encountered by the participants while using denim jeans was asked (Figure 4). 86% of the participants that they detected 1-5 defects was the most. While the rate of those who detect 6-10 defects was 7%, the frequency of those who detect 16-20 defects was 3%.

**Figure 4****Figure 4** The Number of Defects that Can be Recognized by Participants

**Question 7:** When the participants were asked about the duration of their use of denim jeans and their answers were examined (Figure 5), the "Use Until Size Does Not Fit" option was the most preferred option with 41%. 38% of them were chosen the "Used for 1-2 Years" option, 16% of them were chosen the "Seasonally" option, and 5% of them were chosen the "Upcycle It and Continue to Use" option.

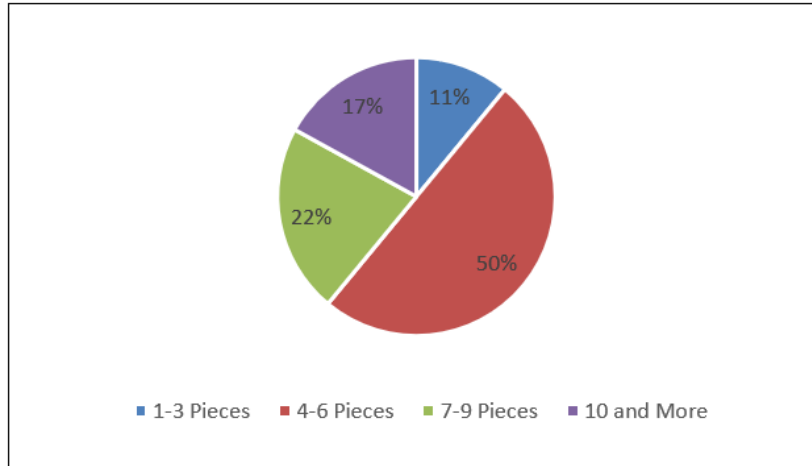
**Figure 5**



**Figure 5** The Duration of Using Denim Jeans by Participants

**Question 8:** When the answers given to the question, in which the number of denim jeans in the wardrobe of participants was asked, were examined (Figure 6). 50% of the participants answered that they had 4-6 pairs of jeans, 22% answered that they had 7-9 pairs, 17% answered that they had 10 or more pairs of jeans, and 11% answered that they had 1-3 pairs of jeans.

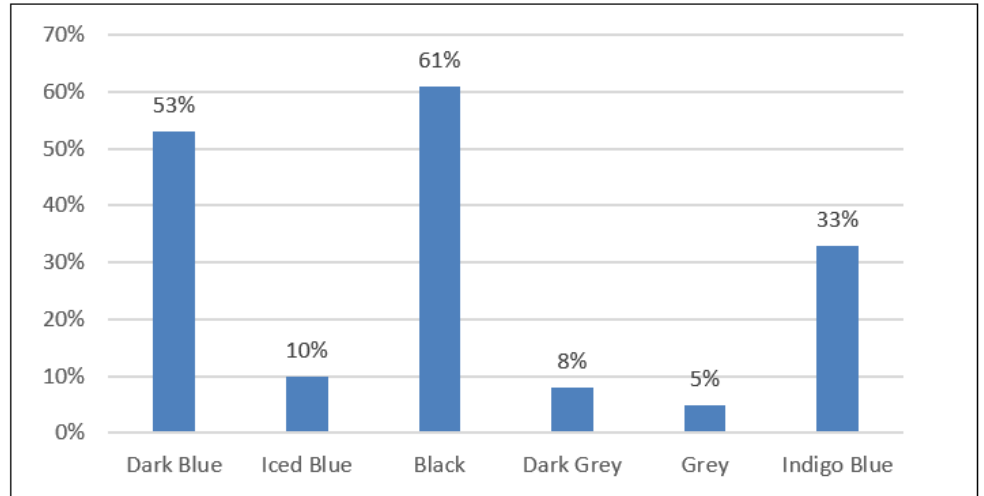
**Figure 6**



**Figure 6** The Number of Denim Jeans in the Wardrobe of Participants

**Question 9:** Participants answered the question asking them about the colors they preferred in denim jeans by selecting more than one option (Figure 7). 59% of all participants selected only one option. While 21% selected two options, 16% selected 3 options, 1% selected 4 and 5 options, and 2% selected 6 options. 61% of the participants preferred black color for denim trousers. When the responses to other options were examined, 53% preferred dark blue, 33% preferred dark blue, 10% preferred ice blue, and 8% preferred dark gray. The least preferred color by the participants was gray.

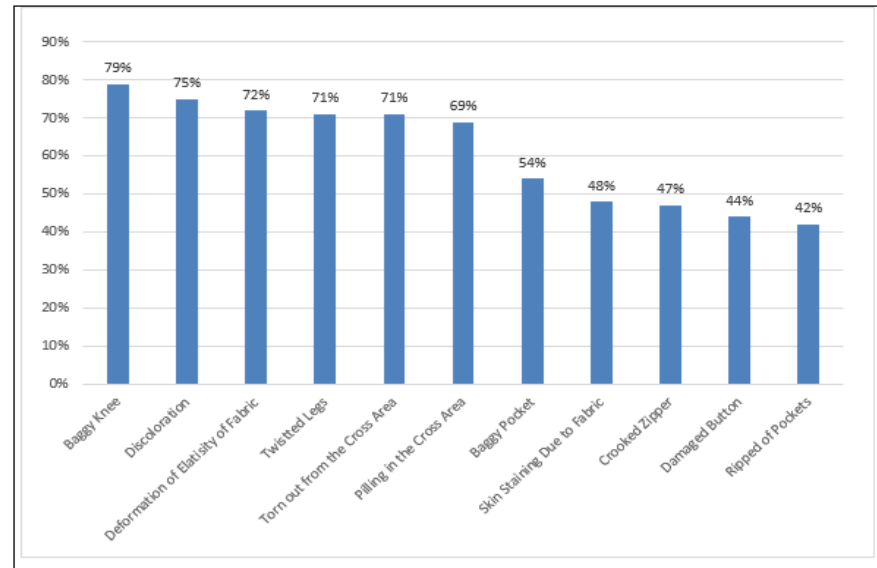
**Figure 7**



**Figure 7** The Most Preferred Colors for Denim Jeans by Participants

**Question 10:** In this question, participant opinions regarding the errors encountered while using jeans were questioned using the 5-point Likert method (Figure 8). In the study, which was limited to the 11 most common error types in long-term denim jeans use, the total scores and percentages of errors were calculated based on the scores given by 400 participants. According to this calculation, it was determined that the most common type of error was "Sagging Knee" with a rate of 79%. The incidence of other defects was 75% for "Discoloration" defect, 72% for "Deformation of Elasticity of Fabric" defect, 71% for "Twisted Legs" defect, 71% for "Torn out from the Cross Area" defect, 69% respectively. for "Pilling in the Cross Area" defect, 54% for "Baggy Pocket" defect, 48% for "Skin Staining Due to Fabric" defect, 47% for "Crooked Zipper" defect, 44% for "Damaged Button" defect, 42% detected for the "Ripped of Pockets" defect.

**Figure 8**



**Figure 8** The Most Detected Defects in Denim Jeans by Participants



#### 4. CONCLUSIONS AND RECOMMENDATIONS

93% of the participants in the survey, which was conducted with the participation of 400 university students, were between the ages of 18-24 and 75% were female participants. While 20% of the participants were studying in a textile-related department, 75% of the participants have been shopping for textiles up to 1000 lira monthly. 84% of the participants have been shopping 1-4 pairs of denim jeans during the year. The most preferred denim jeans models were "Skinny High Waist" and Classic (Bootcut) models, while the most preferred color was black (61%). While participants prioritize comfort when they were buying denim jeans (64%), 86% of participants detect 1-5 defects while they were using the products. It has been stated that the most disturbing of these defects was "Baggy Knee".

#### CONFLICT OF INTERESTS

None.

#### ACKNOWLEDGMENTS

A survey form, which consisted of 10 main and 23 sub-questions, was used as data collection tool. The survey was ethically approved by Ege University's Ethical Board in 04.11.2020 with protocol number 692.

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