**FIT AND DESIGN IMPROVEMENT FOR PLUS-SIZE CLOTHING:**

**OVERVIEW IN TURKEY**

**BAŞAK SÜLLER**

**JANUARY 2014**

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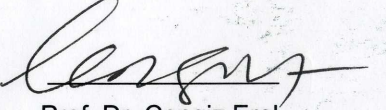
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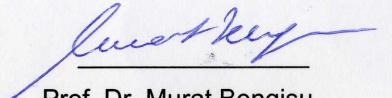
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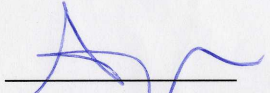
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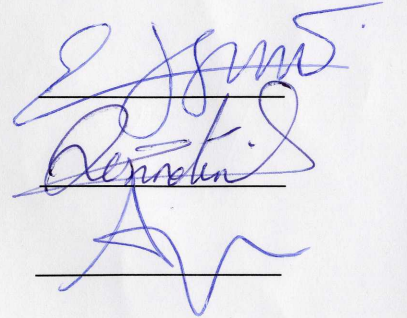
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# ABSTRACT

## FIT AND DESIGN IMPROVEMENT FOR PLUS-SIZE CLOTHING:

## OVERVIEW IN TURKEY

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MDes, Design Studies Master's Program

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Obesity is one of the important issues in the World's agenda. Similarly, in Turkey, number of obese or overweight people is gradually increasing. This issue is affecting people in many ways, particularly in health. On the other hand, due to the elevation of weight level, demand for plus-size clothing is parallelly increasing. However, in spite of the high potential of plus-size apparel market, corporate brands and stores selling plus-size garments are not sufficient in Turkey. Particularly, the Turkish brands for plus-size clothing are minute amount. Also, the variety of garments in existing brands/ stores is not satisfying. In addition, plus-size garments in market dissatisfy the customers in terms of design, style and pattern or fit. Therefore, the study aimed to determine the opinions of overweight or obese women about the plus-size clothing, and their problems at shopping process or with purchased garments. Thus, first of all, obesity was taken in hand and information was given about the main reasons of obesity, its types and definition methods. Secondly, literature review about plus-size clothing was made to indicate the plus-size market in Turkey and abroad, and to understand women's problems encountered in this area. Additionally, related innovations and their applicability on plus-size ready-to-wear were examined. Later on, a survey including questions about the respondents' demographic information, the general problems in the plus-size clothing, the most problematic garment categories, the problems in these categories and problems through usage was realized. The survey form was implemented to 100 women who were aged 25-65 and with garment size 44 and up. Finally, findings were analyzed, and correspondingly with the survey results, design and style suggestions were offered in each garment category (i.e. tops, bottoms and dresses/ suits) for apple and pear typed plus-size women.

**Key Words:** Plus-size clothing, Overweight and obesity, Ready-to-wear, Fashion design, Clothing fit

# ÖZET

## VÜCUDA UYGUNLUK VE TASARIM AÇISINDAN
## BÜYÜK BEDEN GİYSİLERDE İYİLEŞTİRME:
## TÜRKİYE'DEKİ DURUMA GENEL BİR BAKIŞ

**Süller, Başak**

MDes, Tasarım Çalışmaları Yüksek Lisans Programı

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Obezite özellikle Amerika başta olmak üzere dünyanın gündemindeki önemli konulardan biridir. Türkiye'de de obez ya da fazla kilolu insanların sayısı gün geçtikçe artmaktadır. Bu konu başta sağlık olmak üzere kişiyi birçok yönden etkilemektedir. Kilo seviyesindeki artışa bağlı olarak, büyük beden giyime olan talep de artmaktadır. Ancak, büyük beden giyimin yüksek pazar potansiyeline karşı, Türkiye'deki kurumsallaşmış marka veya büyük beden satan mağaza sayısı yetersiz kalmaktadır ve özellikle pazardaki Türk markaları yok denecek kadar azdır. Ayrıca, var olan marka ve mağazalardaki ürün çeşitliliği de tatmin edici değildir. Ek olarak, piyasadaki büyük beden ürünler, tasarım, stil ve kalıp açısından müşterileri memnun etmemektedir. Buna bağlı olarak, çalışma fazla kilolu ya da obez kadınların, büyük beden hazır giyime dair görüşlerini ve alışveriş sırasında karşılaştıkları ya da aldıkları ürünlerle ilgili sorunları belirlemeye yönelik yapılmıştır. Bunun için ilk olarak obezite konusuna değinilmiş; temel nedenleri, çeşitleri ve tespit yöntemleri hakkında bilgi verilmiştir. İkinci olarak, büyük beden giyim ile ilgili, Türkiye ve yurtdışındaki büyük beden pazarını ve kadınların bu alandaki problemlerini belirlemeye yönelik literatür taraması yapılmıştır. Ek olarak, yenilikler ve bu yeniliklerin büyük beden giyime uygulanabilirliği incelenmiştir. Daha sonra, katılımcıların demografik bilgileri, büyük beden giyimdeki genel sorunlar, en çok problem yaşanılan ürün grubu ve bu ürün grubuna ait problemler ile ilgili soruları içeren bir anket uygulaması yapılmıştır. Anket çalışması, 25-65 yaş arası 44 beden ve üzeri 100 kadına uygulanmıştır. Sonunda bulgular analiz edilmiş, anket sonuçlarıyla bağlantılı olarak elma ve armut tipi büyük beden kadınlar için her bir ürün kategorisinde (üstler, altlar ve elbiseler/ takımlar) tasarım ve stil önerileri sunulmuştur.

**Anahtar Kelimeler:** Büyük beden giyim, Şişmanlık ve obezite, Hazır Giyim, Moda tasarımı, Giysilerin bedene uygunluğu

This work is dedicated to;


My precious family, **Dilek SÜLLER** and **Süha SÜLLER**

For the, 25 years of caring, precious love, support

and

**Oğul Zor**

For the meaning he brought into my life

## ACKNOWLEDGEMENT

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# ABBREVIATIONS AND DEFINITIONS

**WHO:** World Health Organization……………………………………………………….4

**BMI:** Body Mass Index…………………………………………………………………5

**ITKIB:** İstanbul Tekstil ve Konfeksiyon İhracatçı Birlikleri

(The General Secretariat of Istanbul Textile & Apparel Exporters' Associations)…12

**MC:** Mass-customization…………………………………………………………..46

**NUTS1 Regions:** The NUTS (nomenclature of territorial units for statistics) was established to reduce development differences among territorial regions and serves as a reference for the collection, development and harmonization of European Union (EU) regional statistics and for socio-economic analyses of the regions. Since NUTS classification is used only by EU member states, version used in Turkey, as a candidate country, is named statistical regions (SR-İBBS). İBBS classification consists of three levels. At the first level, 81 cities have been defined at $3^{rd}$ level in accordance with administrative structure. At İBBS 2 level, 26 territorial units have been determined according to the sizes of population by regarding economic, social, cultural, geographical and other factors. At the same time, by using the same criteria, these territorial units have been aggregated into 12 İBBS1 territorial units. ………………………………………………………………...................................10

**LATENT DEMAND:** A desire that is not currently being satisfied because no satisfactory good or service can be located………………………………………………………………15

# CHAPTER 1

# INTRODUCTION

Changing lifestyle, eating habits and the fact of having less physical activities cause people to get overweight or obese. Even though the number of overweight or obese people is increasing, the apparel market for those people is still underserved and far from meeting people's needs in terms of fashion and design elements. Hence, plus-size customers have difficulties and dissatisfactions in terms of size availability, style selection, fit, pricing and also overall shopping environment.

In one hand, plus-size women demand for stylish, fashionable and chic garments similar in regular sizes, but except some of brands garments are generally dull, dark colored and imprecisely designed. On the other hand, because of the regional or abnormal adiposity, body shape features of plus-size women differentiate more than regular sizes, therefore garments should be specially designed considering their body features and different body shapes. Besides, the existing sizing and pattern making system should be reviewed and made more appropriate to Turkish plus-size women. At this point, both designers or producers and companies remain incapable in Turkey. Few specialty brands or producers existing in the market are not enough to improve the alternatives for plus-size women. Although the plus-size clothing has begun to develop in countries like US, UK, Germany this subject has not become important yet in Turkey.

Except a few players in market, plus-size garments are being sold in local boutiques, so there is a lack of product variety in this market. However, this is an opportunity for entrepreneurs. Considering all these facts, this study aims to determine the style, fit dissatisfactions, other general problems encountered in shopping and after using process of plus-size clothing for womenswear. Thus, the study intends to fill the gap in the market in Turkey by enhancing alternative solutions and innovations regarding plus-size women's demands. In a sense, the study intends to look at the subject in both consumer side and designer/ producer or retailer side. For this reason, research questions are defined as follows:

- What are the problems encountered in plus-size women clothing (ready-to-wear)?

- How can be the problems encountered in the plus-size women's clothing (ready-to-wear) solved by considering the weaknesses?

- What is the added value of design to solutions for mentioned problems?

Although overweight/ obesity and relatively the plus-size clothing are contemporary and important issues, and there are lots of sources on internet, blogs, personal web sites or brands' web sites of plus-size products, national or international academic resources about these issues are limited. Academic research about adaptation of technology and innovations into (e.g. 3D body scanning technology and online applications) the plus-size apparel market in order to be helpful for design, fit and style improvement is also very little. Therefore, this thesis is expected to contribute to the literature in this field.

After the introduction part, in the 2<sup>nd</sup> chapter, firstly, obesity issues, and information about the main reasons for obesity, its types were reviewed. Secondly, literature review about plus-size clothing was realized covering the plus-size market in Turkey and abroad and the women's problems encountered in this area. The problems were examined under four sub-headings, such as ''fit problems'', ''style problems'', ''deficiency in brands/ stores'' and ''shopping environment''. Additionally, innovations and their applicability to plus-size ready-to-wear were investigated.

In the 3<sup>rd</sup> chapter, a survey analysis was realized. The survey form was implemented to 100 women who were aged 25-65 and with garment size 44 and up. In scope of the survey, firstly demographic information of the respondents was collected. Thus, general problems about plus-size clothing, most problematic garment categories, problems in these categories and problems through usage were investigated. Following this, respondents' comments were added on the plus-size clothing in order to make the survey detailed. Also overview of the survey was given. Thereafter, in consideration of the results of survey, design and style recommendations for each garment category (i.e. tops, bottoms and dresses/ suits) and for apple and pear typed plus-size women were given. In this part, some design details and hints were also given by regarding the garment characteristics, such as style and fabric.

In the last chapter, an overall evaluation was completed with the current status of plus-size clothing, and some technology based ideas.

# CHAPTER 2

## THE CURRENT STATUS OF PLUS-SIZE CLOTHING

### 2.1) Overweight and Obesity Issues

Being overweight (or pre-obesity) and obesity are current important issues on the World agenda. These issues are important for Turkey as in the World. In this part, firstly, a general overview is given. Secondly, the types of obesity are examined and lastly, the data about the prevalence of overweight and obesity in worldwide and Turkey is provided.

### 2.1.1) Overweight and Obesity Definition

First of all, obesity is a disease which occurs as a result of increase in mass of fat, impairs the quality of life and causes to lots of other diseases so it has social and hereditable importance (Yılmaz, Elbi, Özgürbüz, 2003). As defined by the World Health Organization's (WHO), obesity is abnormal or excessive fat accumulation in fat tissues, which constitute 15 – 20% of body weight of adult men and 25 – 30% of adult women. When these ratios exceed 25% in men or 30% in women, the term obesity is used (Ministry of Health of Turkey, WHO). Obesity is basically caused by gaining more calories than is burned off, with the surplus calories stored as fat.

Also, there are several causes of obesity; the most important are excessive and wrong nutrition and insufficient physical activity. Other factors include;

- age,

- gender,

- education level,

- socio-cultural circumstances,

- income level,

- hormonal and metabolic factors,

- genetic factors,

- psychological problems,

- application of too low caloric diets at frequent intervals or

- the number of births and time between births (Ministry of Health of Turkey, 2010-2014).

In the study of Alexander, Pisut and Ivanescu, it was mentioned that in the USA, the women's body shape has changed and continues changing in consequence of obesity (Alexander, Pisut, Ivanescu, 2012; Bond 2004). Also they added that in the USA, between early 1960s and 2002, adult women gained average more than 11 kg (24 pounds) and especially in the 1980s and 1990s, obesity in women increased distinctly, so as a result of these changes, overall mean weight was calculated as nearly 74 kg (163 pounds) by 1999–2002 (Alexander, Pisut, Ivanescu, 2012; Ogden et al. 2004).

Several methods are used to determine obesity, such as Body Mass Index (BMI), measuring the waist line and finding waist-hip ratio (Yıldıran, 2006).

- **Body Mass Index (BMI) Calculation**

The first one is the BMI, which is calculated by dividing the one's weight in kilograms by squared height in meters (Formula 1). BMI is also significantly correlated with total body fat content and the BMI should be used to assess the conditions of being overweight and obesity, and to monitor changes in body weight.

Accordingly, as shown in Table 2.1, people who have BMI between 25.0 and 29.9 are identified as overweight (or pre-obese), and after 30.0 BMI people are identified as obese (BMI 30.0-34.9 is 1st type; BMI35.0-39.9 is 2nd type; BMI≥ 40 is extreme obese) (WHO, 2004). To achieve a right solution in this method, it must keep out the over-muscle people, pregnant women and children.

$$\textbf{BMI} = (\text{Weight in Kilograms}) / (\text{Height in Meters})^2$$

**Formula 1:** Body Mass Index formula

**Table 2.1** International classification of adult underweight, overweight and obesity according to BMI

| Classification | BMI Values |
|---|---|
| | Principal Cut-off Points |
| **Underweight** | <18.50 |
| Severe Thinness | <16 |
| Moderate Thinness | 16 – 16.99 |
| Mild Thinness | 17 – 18.49 |
| **Normal Range** | 18.50 – 24.99 |
| **Overweight** | >25 |
| Pre-obese | 25 – 29.99 |
| **Obese** | >30 |
| Obese Class I | 30 – 34.99 |
| Obese Class II | 35 – 39.99 |
| Obese Class III | >40 |

(www.apps.who.int/bmi/index.jsp?introPage=intro_3.html)

- **Waist-hip Ratio Calculation**

The second method is waist-hip ratio. This measures the proportion of the upper body obesity to the lower body obesity. In other words, the method reflects the abdominal fat content that is the ratio of waist circumference to hip circumference. Also, the waist circumference value found in this ratio mainly reflects the visceral organs and abdominal fat tissue, and the hip circumference measurement in the denominator which is composed of the muscle mass and skeletal tissue so according to WHO, if the waist/hip circumference ratio is greater than 0.85 in women and 1.0 in men, it is accepted as obesity (Ministry of Health of Turkey). Also the method gives the best calculation for increasing accumulated fat in android type obesity (Yıldıran 2006; Arıkan, 2005).

- **Waist Line Measuring**

The third and the last method is measuring the waist line. This is used for determination of obesity. In this method, waist, the thinnest area between bust and hip is measured by tapeline parallel to the ground. These measurements should be under 80cm for women, if it exceeds this level it may indicate android (apple type) obesity (Yıldıran, 2006; Özbey, 2001). The method is a practical and important way to determine fat distribution in the abdominal region and the impairment of health.

## 2.1.2) Types of Overweight and Obesity

Although bodies of people have similar features in terms of organs, each person has a different body type in terms of physical composition. Especially in obesity case, local and abnormal accumulation of fat is remarkable, and therefore is more visible and problematic.

Obesity types can be divided in two, depending on in which area fat is accumulated. As seen in the Fig.1, the first type is ginoid (pear type) obesity and the second one is android (apple type) obesity. Ginoid (pear type) obesity is accumulation of fat mostly in lower part of body e.g. around the hip circumference, legs and upper thighs, with little stored in the torso, neck, arm or shoulder areas.

Secondly, in android (apple type) obesity fat is accumulated mostly in the upper part of body, like around the waist line, arms, neck and shoulders (Yıldıran, 2006). In regard to the Turkish Women, as Ergün mentioned, accumulation of fat occurs at both the waist line and at hip circumference for them (Ergün, 2005).
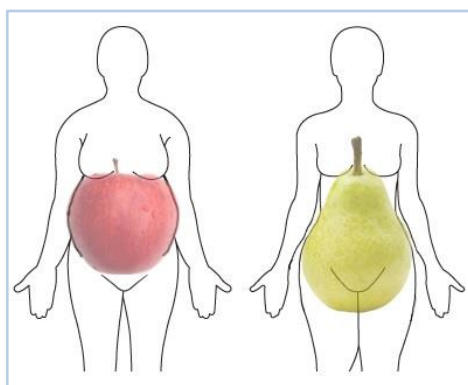


**Figure 2.1.** Overweight and obesity types (www.mayoclinic.com)

### 2.1.3) Overweight and Obesity Range in Abroad and Turkey

Overweight and obesity, which are major risk factors for chronic diseases such as diabetes, cardiovascular diseases and cancer, was previously seen as a problem only in high income countries, but overweight and obesity are now dramatically increasing in low- and middle-income countries, particularly in urban settings (http://www.who.int/topics/obesity/en/).

According to the MONICA (Multinational Monitoring of trends and determinants in Cardiovascular Disease) Project organized by WHO in six different regions of Asia, Africa and Europe, between the early 1980s and the late 1990s, the prevalence of obesity increased by 10 – 30%. Also, between 1980 and 2008, the worldwide obesity prevalence nearly doubled, it was determined that 400 million people were obese and 1.4 billion people were overweight in 2008. In addition, according to country estimates for 2008, over 50% of both men and women in the WHO European Region were overweight and approximately 23% of women and 20% of men were obese. The increase in the prevalence of overweight and obese people in European countries and The United States is shown in Table 2.2.

The WHO database contains global comparisons of overweight and obesity prevalence (BMI ≥ 25 kg/m²) prevalence broken down over time by gender and country.

**Table 2.2.** Overweight and obesity prevalence depending on gender and country

| COUNTRIES | 2010 Overweight & Obese % | | 2005 Overweight & Obese % | | 2002 Overweight & Obese % | |
|---|---|---|---|---|---|---|
| | Females | Males | Females | Males | Females | Males |
| France | 36.9 | 48.0 | 34.7 | 45.6 | 33.4 | 44.1 |
| Italy | 40.0 | 55.0 | 38.3 | 52.7 | 37.8 | 51.9 |
| Spain | 49.8 | 57.9 | 47.7 | 55.8 | 45.7 | 55.7 |
| Germany | 57.1 | 67.2 | 55.1 | 65.1 | 53.6 | 63.7 |
| Greece | 63.2 | 77.5 | 61.3 | 75.7 | 60.1 | 74.6 |
| UK | 63.8 | 67.8 | 61.9 | 65.7 | 58.8 | 62.5 |
| US | 76.7 | 80.5 | 72.6 | 75.6 | 69.8 | 72.2 |

(www.theguardian.com/news/datablog/interactive/2013/feb/19/obesity-map-of-world-weight, WHO)

According to the Tab.2.2, it is clearly seen that the United States has the maximum overweight and obesity rates for women in comparison with the other countries.

As in other countries, Turkey's obesity prevalence is continually increasing. Accordingly, in the report ''Turkey Nutrition and Health Survey – 2010'' by the Ministry of Health of Turkey, it was found that 64.9% of people were overweight or obese in total, and 2.9% were extremely obese. The obesity prevalence through the gender was 41% for women and 20.5% for men. Also the prevalence of obesity in the regions of Turkey is given in the Tab.2.3.

**Table 2.3.** Turkey's obesity prevalence in 2010 among the NUTS1 regions

| NUTS1 Regions | Prevalence by % | NUTS1 Regions | Prevalence by % |
|---|---|---|---|
| İstanbul TR1 | 33,0 | Central Anatolia TR7 | 32,9 |
| West Marmara TR2 | 30,7 | West Black Sea TR8 | 31,3 |
| East Marmara TR4 | 30,6 | East Black Sea TR9 | 33,1 |
| Aegean TR3 | 28,0 | Northeast Anatolia TRA | 23,5 |
| Mediterranean TR6 | 30,1 | Middle east Anatolia TRB | 20,5 |
| West Anatolia TR5 | 33,0 | Southeast Anatolia TRC | 22,9 |

(www.beslenme.gov.tr/index.php?lang=tr&page=40)

As shown in Table 2.3, it can be said that the obesity was seen at least in 'Middle-eastern Anatolia' by 20.5% and mostly seen in Eastern Black Sea Region, Western Anatolia and Istanbul.

**2.2) Plus-Size Clothing**

For the overweight and obese, one of the most challenging area is fashion and apparel area. Overweight and obese women have difficulty in finding suitable clothes because of differentiation in body types and fatty areas or variation of deformed body parts.

The most general complaint of overweight and obese women is not being able to find clothes which are fit their bodies, show them slimmer than actual size and also which are fashionable. Therefore the pattern/ fitting and design/ style notions are the primary problematic elements. Then another important complaint is the lack of stores and service options in terms of both brands and models. As determined by Alexander, Pisut and Ivanescu (2012), for many years, the plus-size market has been underserved, and consumers have been dissatisfied with garment fit and lack of selection of contemporary garment styles.

Then, this part includes the information about the plus-size clothing. Firstly, it is made a definition of 'plus-size'. Secondly, the plus-size industry and its market potential are examined and lastly, it's given the literature review about the plus-size clothing problems.

**2.2.1) Plus-Size Definition**

The ever-changing lifestyle led to a change in eating habits, decrease in physical activities or frequent reduced caloric diets with frequent intervals that damage the one's metabolism. This caused an increase in garment sizes. According to the NPD Group Inc. survey with nearly 7500 women participants, just over two-thirds whom (64.8%) indicating they qualify as ''special size'' customers.

Nearly a third of the special-size group, 32%, and more than one in five of the total sample, 20.7%, described themselves as plus-size customers (http://sgn-group.com/fashion-news/study-shows-plus-size-dissatisfaction).

According to Acosta and Jhoana (2012), the market which sell garments for women with body and clothing measurements of 14 and larger, based on US sizing system, is known as ''plus-size clothing/ apparel'' (Acosta, Jhoana P., 2012). Another source mentioned that retailers often merchandise the larger misses' size designations -16 and over- as plus sizes, large sizes or women's sizes (Ashdown, 2007).

As for the definition of American Standard Test Method (ASTM), in women's apparel, sizes 14–24 usually refer to full-figured women with larger torso proportions than misses' sizes of 2–12, and plus-size refers to a larger figure correlating most commonly with misses' sizes 14W–32W (W means women)  (Ashdown, 1998; ASTM 2004). Also, in regard to Turkish plus-size women, as Kaynak mentioned that garment size 42 and above is called plus-size in ready-to-wear, similarly Safa stated that size 44 and above is called as plus-size (Safa 2007, Kaynak 2005). However, the sizing systems vary from one country/region to another so to clarify, the sizing systems of selected countries are given in the Tab.2.4.

**Table 2.4.** International size definition for plus-size women

| COUNTRIES | | SINGLE SIZES for Plus-size Women (164 cm and above) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Germany | D | 42 | 44 | 46 | 48 | 50 | 52 | 54 | 56 | 58 | 60 |
| France | F | 44 | 46 | 48 | 50 | 52 | 54 | 56 | 58 | 60 | 62 |
| Italy | I | 48 | 50 | 52 | 54 | 56 | 58 | 60 | 62 | 64 | 66 |
| UK | GB | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 | 34 |
| US | USA | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 |

(ITKIB, Teknik El Kitapları Serisi, Erbil 2002/ 1)

Accordingly to Table.2.4, garment size of 14 in US refers to 16 in UK, 44 in France, 42 in Germany and 48 in Italy. This data is given for women with an average height of 164cm in average so to obtain the sizes for women with height of under 164 cm, the number should be divide by two (except for UK; S-16, S-18 etc.). Also, it should not be forgotten that these sizes also may change from one company to another (ITKIB, 2002/ 1).

## 2.2.2) Plus-size Apparel Market

Accordingly with the rise in obesity across the globe, the plus-size clothing should represent a very attractive market to marketers and retailers. Related to this, IBIS World analyst, Nikoleta Panteva stated that the fashion industry is increasingly servicing the plus-sized population by using larger models on the runway, in magazines and in stores in order to that the plus-size market will also find a place in the domestic industry (PRWEB, 2011).

In the view of Meng, the women's plus size apparel market has become the fastest growing segment of the women's apparel industry in the past several years (Meng, 2007; Aaron and Stoner, 2001); it was determined that plus-size clothing sales grew an average of 9.7 percent per year from 1996 to 2000 (Meng, 2007; Slater, 2006).
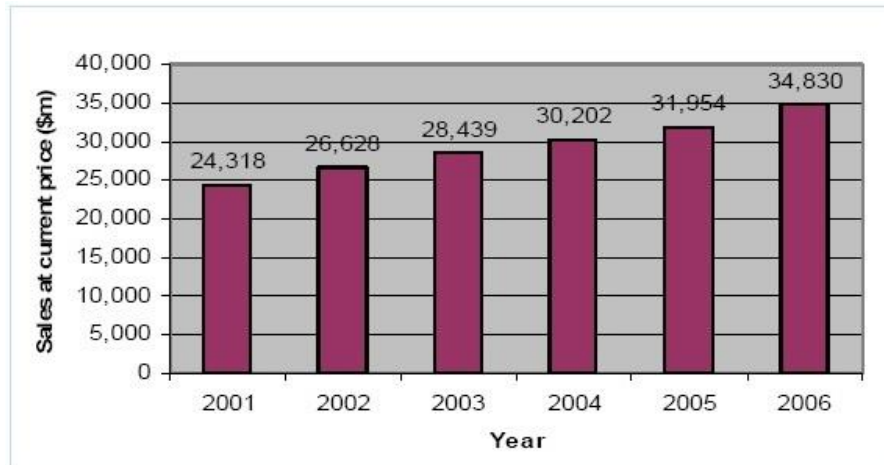
**Figure 2.2.** Sales of plus-size clothing at current prices, 2001-2006 (WANG, MENG, M.S. The U.S. Plus-size Female Consumer: Self-Perception, Clothing Involvement, and the Importance of Store Attributes, 2007)

Other points raised in the same study, as shown in Fig.2.2, are as follows:

- In 2000, the plus-size market was worth more than $29 billion according to Market data Enterprises Inc. estimates (Meng, 2007; Slater 2006).

- In 2001, a 22.2% increase from 2000, compared to 2.1% growth in the overall women's apparel market between 1999 and 2000 (Meng, 2007; Fetto 2001).

- In 2005, plus-size sales were nearly $32 billion, compared to $77,100 million for all women's clothing or 41.4% of the total market sales (Meng, 2007; Mintel, 2007; Todd, 2006). Besides, between 2000 and 2005, the plus-size segment experienced an increase of 47% as compared to 2% growth for the overall women's clothing market, (Mintel, 2007).

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- In 2006, the plus size apparel market was worth almost $35 billion (Meng, 2007; Mintel, 2007; Todd, 2006).

As stated by Alexander, Pisut and Ivanescu's (2012), the US originated specialty retailer Talbots asserted that plus-size women spend more than average on in store shopping, and they buy more items and more expensive items overall. As Kurt Salmon Associates reported, women in this apparel category spent $18.6 billion on apparel in 2008 (Alexander, Pisut, Ivanescu 2012; Kurt Salmon Associates 2010).

Another study made by Philip M. Parker in 2011 includes estimation reports about women's plus-size clothing across more than 200 countries. Within the study, which is an aggregate and long-run view, for each year reported between 2006 and 2016, estimates are given for the latent demand or potential industry earning (P.I.E.). Thus, latent demand refers to the industry earning of a market when that market becomes accessible or attractive to competing firms, in other words, it is a measure of potential industry earnings (P.I.E.) or total revenues, but not profit. Therefore, the Tab.2.5 shows the worldwide market potential for women's plus-size clothing in 2011 in terms of US $ million.

**Table 2.5.** Worldwide market potential for women's plus-size clothing for 2011

| WORLDWIDE Region | Latent Demand US $ Million for 2011 | % of Globe |
|---|---|---|
| Asia | 36,256 | 30.9 |
| Europe | 31,273 | 26.6 |
| North America & the Caribbean | 27,829 | 23.7 |
| Africa & the Middle East | 10,785 | 9.2 |
| Latin America | 9,620 | 8.2 |
| Oceana | 1,636 | 1.4 |
| **Total** | **117,399** | **100.0** |

(Philip M. Parker, INSEAD, copyright 2010, www.icongrouponline.com)

Accordingly to the Tab.2.5, the region which had the most latent demand is America (North America, the Caribbean and Latin America in total) with nearly 38 billion $.

**Table 2.6.** Worldwide market potential for women's plus-size clothing among the years

| Year | World Market US$ Million |
|------|--------------------------|
| 2006 | 98,722.92 |
| 2007 | 102,192.04 |
| 2008 | 105,806.79 |
| 2009 | 109,554.24 |
| 2010 | 113,443.94 |
| 2011 | 117,399.24 |
| 2012 | 121,504.51 |
| 2013 | 125,783.60 |
| 2014 | 130,245.19 |
| 2015 | 134,898.46 |
| 2016 | 139,753.09 |

(Philip M. Parker, INSEAD, copyright 2010, www.icongrouponline.com)

Also Tab.2.6, worldwide market potential for women's plus-size clothing is given by regarding the years between 2006 and 2016, so the Tab.2.6 helps to observe the increase in market potential more clearly. Therefore, from 2006 until 2016, it can be said that the estimated market potential has gone up for nearly 4 billion $ each year and it is expected that the potential industry earning of the plus-size women's clothing market will reach at nearly 140 billion $ (139,753.09 million US $) in 2016.

**Table 2.7.** Market potential of selected European countries in 2011

| EUROPE Countries | Latent Demand US$ Million for 2011 | % of Europe |
|------------------|-------------------------------------|-------------|
| Germany | 5,112.95 | 16.35% |
| The United Kingdom | 3,880.58 | 12.41% |
| France | 3,715.84 | 11.88% |
| Italy | 3,237.44 | 10.35% |
| Spain | 2,472.61 | 7.91% |

(Philip M. Parker, INSEAD, copyright 2010, www.icongrouponline.com)

The Tab.2.7 shows the market potential for 2011, for selected European countries so Germany was in the leading position with 5,112.95 million US $ latent demand and it constituted 16.35% of European Plus-size women's clothing market. Then, The United Kingdom followed Germany with 3,880.58 million US $.

**Table 2.8.** European market potential for women's plus-size clothing among the years

| Year | US $ Million | % of Europe in Globe |
|------|-------------|---------------------|
| 2006 | 27,040.83 | 27.39 |
| 2007 | 27,841.16 | 27.24 |
| 2008 | 28,667.15 | 27.09 |
| 2009 | 29,515.24 | 26.94 |
| 2010 | 30,387.91 | 26.79 |
| 2011 | 31,273.06 | 26.64 |
| 2012 | 32,184.25 | 26.49 |
| 2013 | 33,125.06 | 26.33 |
| 2014 | 34,096.58 | 26.18 |
| 2015 | 35,099.94 | 26.02 |
| 2016 | 36,136.31 | 25.86 |

(Philip M. Parker, INSEAD, copyright 2010, www.icongrouponline.com)

As Tab.2.8, European market for women's plus-size clothing is given for the ten years, so according to the Table, it can be said that the market has gone up for nearly 1billion US $ each year from 2006 until 2016 and it is expected that the potential industry earning for Europe will reach at nearly 37 billion US $ in 2016.

However, here it is remarkable that the European market percentage within the globe shows downward trend. It can be said that this statement is caused by the increase in other countries' market shares.

**Table 2.9.** US market potential for women's plus-size clothing among the years

| Year | United States US$ Million | % of Region | % of US in Globe |
|------|--------------------------|-------------|------------------|
| 2006 | 22,369.72 | 89.88% | 22.66% |
| 2007 | 22,872.92 | 89.85% | 22.38% |
| 2008 | 23,386.00 | 89.82% | 22.10% |
| 2009 | 23,901.91 | 89.78% | 21.82% |
| 2010 | 24,427.75 | 89.74% | 21.53% |
| 2011 | 24,965.16 | 89.71% | 21.27% |
| 2012 | 25,514.39 | 89.68% | 21.00% |
| 2013 | 26,075.71 | 89.64% | 20.73% |
| 2014 | 26,649.38 | 89.61% | 20.46% |
| 2015 | 27,235.66 | 89.57% | 20.19% |
| 2016 | 27,834.85 | 89.53% | 19.92% |

(Philip M. Parker, INSEAD, copyright 2010, www.icongrouponline.com)

Another data as shown in Table 2.9, gives information about the United States market for women's plus-size clothing for the ten years so the United States market has gone up for nearly 500 million US $ each year from 2006 until 2016 and it constitutes one fifth of the global market. However, here also it is remarkable that the United States market percentage within the globe shows downward trend as within the European Market. It can be said again that this statement is caused by the increase in other countries' market shares.

The study also gives the data of countries regarding their cities which are important for the market. Therefore, Tab.2.10 and Tab.2.11 are about the market position of Turkey by years and in terms of cities of Turkey.

**Table 2.10.** Turkey's market potential for women's plus-size clothing among the years

| Year | Turkey US$ Million | % of Region | % of Globe |
|------|------|------|------|
| 2006 | 1,014.78 | 11.51% | 1.03% |
| 2007 | 1,053.22 | 11.47% | 1.03% |
| 2008 | 1,093.09 | 11.43% | 1.03% |
| 2009 | 1,134.25 | 11.39% | 1.04% |
| 2010 | 1,176.76 | 11.35% | 1.04% |
| 2011 | 1,219.87 | 11.31% | 1.04% |
| 2012 | 1,264.40 | 11.27% | 1.04% |
| 2013 | 1,310.55 | 11.23% | 1.04% |
| 2014 | 1,358.39 | 11.18% | 1.04% |
| 2015 | 1,407.97 | 11.14% | 1.04% |
| 2016 | 1,459.36 | 11.09% | 1.04% |

(Philip M. Parker, INSEAD, copyright 2010, www.icongrouponline.com)

Examining the Tab.2.10, Turkey's market potential constitutes 1.03 or 1.04% of globe and through the market shows upward trend by nearly 40 million US $ for each year. Also according to Parker, it is expected that the market potential will reach at 1,459.36 million US $.

**Table 2.11.** Market potential of Turkey's cities for women's plus-size clothing in 2011

| City | World Rank | US $ million | %Country | %Region | %World |
|------|------|------|------|------|------|
| Istanbul | 45 | 468.72 | 38.42 | 4.35 | 0.40 |
| Izmir | 171 | 146.46 | 12.01 | 1.36 | 0.12 |
| Ankara | 176 | 140.39 | 11.51 | 1.30 | 0.12 |
| Bursa | 277 | 72.50 | 5.94 | 0.67 | 0.06 |
| Adana | 304 | 64.71 | 5.30 | 0.60 | 0.06 |
| Mersin | 347 | 56.77 | 4.65 | 0.53 | 0.05 |
| Antalya | 357 | 55.32 | 4.54 | 0.51 | 0.05 |
| Konya | 388 | 49.59 | 4.07 | 0.46 | 0.04 |
| Samsun | 574 | 29.57 | 2.42 | 0.27 | 0.03 |
| Gaziantep | 610 | 27.82 | 2.28 | 0.26 | 0.02 |
| Kayseri | 665 | 24.30 | 1.99 | 0.23 | 0.02 |
| Diyarbakir | 672 | 23.98 | 1.97 | 0.22 | 0.02 |
| Eskisehir | 674 | 23.80 | 1.95 | 0.22 | 0.02 |
| Şanlıurfa | 766 | 19.21 | 1.57 | 0.18 | 0.02 |
| Malatya | 819 | 16.75 | 1.37 | 0.16 | 0.01 |
| **Total** | | **1219.87** | **100.00** | **11.31** | **1.04** |

(Philip M. Parker, INSEAD, copyright 2010, www.icongrouponline.com)

On the other hand, the Tab.2.11 shows the Turkey's potential industry earning in sense of cities in 2011, so it is seen that Turkey's the first three metropolis, Istanbul, Izmir and Ankara were in the leading position. Then, they constitute the 61.94% of the country with totally 755.57 million US $ latent demand in 2011. As seen in the studies of Meng and Parker, the market for the plus-size women has begun to develop in the USA or UK. However, it is still underserved area in Turkey in comparison to these countries.

After examining the charts and given information, it is seen that the increasing market potential of plus-size apparel for women provides great opportunities for companies willing to invest in satisfying the needs of this market. Companies in US have already noticed the market potential and the gap in plus-size apparel as is understood from the actual sales in the 2001-2006 (as graphed by Meng, 2007).

### 2.2.3) Problems in Plus-size Clothing

The act of clothing one's body not only creates an individual's appearance, but also provides aesthetic pleasure to the individual through the experience. Then aesthetic clothing attributes are significantly related to women's body images and body satisfaction levels. Therefore, women need clothes that encourage a positive view of their body images and provide satisfaction (Veena Chattaraman, Nancy Ann Rudd, 2006). For plus size women, this need is more significant. However, at this point, there many problems encountered in plus size ready to wear products so customer satisfaction which is the main target, can be provided by a clear analysis leading to satisfactory solutions.

As stated by Otieno, Harrow, Lea-Greenwood (2005), customer satisfaction has three stages: **the pre-sales stage,** when expectations are about the product, service, benefits, price and availability; **the sales period** when the customer experiences the environment, the product, type of service, delivery and quality from buying; **the after-sales stage** when the customer expects support or advice, replacement or refund, repair, or makes use of the complaints procedures. Plus-size women customers may encounter important problems in these stages which results in dissatisfaction with the shopping experience. Besides, as claimed by Otieno, Harrow and Lea-Greenwood, over half of the size 16 plus women surveyed did not give a reason for enjoying shopping, so the researchers inferred that they did not actually enjoy the shopping experience. In addition, the researchers gave five main reasons for this inference:

- merchandise choice,

- time,

- attitudes,

- price

- and environment.

Moreover according to their study's qualitative data, merchandise choice is the main area of dissatisfaction, and respondents gave specific reasons why they did not enjoy shopping, such as:

- resources (cost, difficulties with children, time),

- emotive (dislike crowds, dislike shopping, feeling fat, poor body shape),

- environment (communal or no changing rooms, salespeople's attitude)

- product (poor fit, lack of choice, size) (Otieno, Harrow, Lea-Greenwood, 2005).

As Otieno, Harrow and Lea-Green mentioned, because of specific reasons such as emotive factors linked to the product itself, women may not enjoy shopping, clothing or even fashion itself. Emotive reasons such as feeling fat or having a poor body shape are directly related with body images and body satisfaction of women. Another reason is about product itself. Product characteristics (fashionableness, styling choice, color options, fabric selections) are key retail selectors, but causes like poor fit, limited or no product choices and unavailable sizes prevent plus sized women from enjoying shopping and clothing.

Another source, Kind and Hathcote (2000), concluded that the dissatisfaction was greatest among the plus-size group due to size availability, pricing, colors, style selection and fit. The problem also lies with their role in providing overall fashion content, fit and the shopping environment as highlighted in the Women Special Sizes Report of The NPD Group, Inc., 63% of nearly 7500 plus size women participants reported that shopping for plus-size clothing is more stressful compared to regular clothing.

In part 2.2.3, these problems are discussed under the following four headings:

2.2.3.1.    Fit and Sizing Problems

2.2.3.2.    Design Problems

2.2.3.3.    Deficiency of Brands or Stores

2.2.3.4.    Store Image and Shopping Environment

## 2.2.3.1) Fit and Sizing Problems

Kurt Salmon Associates (2000) and Alexander (2005) reported that more than half of women have difficulty finding well-fitting clothes. Also, it is more apparent for plus-size women. Chowdary and Bale (1988) observed that plus-size women identified size and fit as the most common problems when questioned concerning garment satisfaction, and larger women had greater difficulty in finding well-fitting fashionable clothes in general, with certain categories being particularly problematic. The study of Otieno, Harrow and Lea-Greenwood also supports this statement, 65.9% of the size 16 plus sample had difficulty in finding well-fitting clothes (Otieno, Harrow, Lea-Greenwood, 2005).

Before discussing the problems in fitting, it should be pointed out that fit is relationship of body to garment and it is very subjective that each individual differs on what they describe as good fit and how they like clothing to fit their bodies (Pisut, Connell, 2007). Many factors influence the consumers' clothing and fit preferences, including:

- comfort,

- aesthetics,

- personal choice in assessing fit,

- current fashion trends,

- cultural influences,

- age,

- sex,

- body shape and

- lifestyle.

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Changes in these elements may result in changes in personal fit preferences (Pisut, Connell, 2007; Brown and Gallagher, 1992). In other words, fit refers to how well the garment accords to the three dimensional human body, and good fit is important to consumer satisfaction. Individuals who are dissatisfied with their bodies have been found to be more likely to have negative attitudes toward apparel, to be less confident about their apparel choices and feel a higher degree of concern with fit and size of garments (Kim, Damhorst, 2010; Shim, Kotsiopulos, Knoll, 1991). Related to this, Frost (1988) suggested that consumer's perception of a good-fitting garment implies physical comfort, psychological comfort and appearance, which all work together (Kim, Damhorst, 2010; Frost, 1988). Therefore, a well-fitting garment is not only more attractive than ill-fitting one, but also it is more comfortable. Hence, if a consumer experiences fit problems, it results in sizing confusion, dissatisfaction with clothing, lost time and accordingly, high product returns and exchanges (Faust and Carrier 2010). Thus, these problems affect not only consumers, but also retailers and manufacturers' in terms of lost time and money. Therefore, one of the important causes of fit problems is sizing systems.

According to Glock and Kunz's definition, the sizing system is "a range of sizes based on gradation of dimensions for a body type" (Glock and Kunz, 1990), and the standard practice of mass-production is to create a range of sizes by increasing and decreasing from sample size garment that fits the sample size model (Price and Zamkoff, 1996). However, unrealistic standards or sample size models are often used as criteria in the assesment of body size (Jung, Lennon, Rudd 2001), for example, in the US, the standard mannequin is size 4 (D'Angelo, 2004) and most apparel retailers use size 2 or 4 models.

Also, the US fashion industry is displays products on ideal figures, such as mannequins with perfect body proportions or tall and slim fashion models, to maximize a desirable presentation. However, they do not reflect the actual statement (Kim, Damhorst, 2010).

Alexander, Pisut and Ivanescu (2012) mentioned the statement that apparel patterns are generally made for women with hourglass-shaped body proportions and are graded from an average size, assuming that women's measurements increase proportionally as size increases, but as showed in their study, as the size increases from 14W to 32W, fewer women satisfied with all three, or at least two of the bust, waist and hip measurements according to the ASTM standards. (Alexander, Pisut, Ivanescu, 2012). For example, misses sizes 4-20 based on the US standards are graded up or down from a sample size 8 (US standards, Schofield 2000, Tamburrino 1992), so even though manufacturers use size designations on garments to give a general idea about the potential fit of the garment for customers, customers still experience problems with the fit of ready-to-wear apparel (Brown, 1992; Glock and Kunz, 1990). In another study, it was found that from size 16 up, the neck grade in the traditional patterns resulted in a circumference that was too large, while size 6, 10 and 12 patterns required few changes as they were closer to the size 8.

The greatest variation arose between traditionally graded and fit-to-shape patterns in sizes between 14 and 16. Thus, they suggested that the neck grade length and width should be reduced. Also, in the same study stated that armscye shape and length in the fit-to-shape patterns changed dramatically from size 16 up, so an increased bust dart intake and stronger armscye were required to fit a fuller, more rounded bust.

Therefore, the study's results suggested that more than one fit model was needed in a range of sizes to obtain optimum grading results. The sample size should be the base size for no more than two sizes up or down, and therefore they determined that the size 18 fit model would be the optimum for sizes 16-20 (Bye, LaBat, McKinney, Kim, 2008).

Likewise, according to Pisut and Connell, within the current sizing and grading systems in women's apparel, as measurements increase or decrease, garments are graded up or down proportionally in all body dimensions (Pisut and Connell 2007). However, the human body does not grow proportionally (O'Brien and Shelton, 1941) as suggested in the size charts that guide grading practices. Accordingly, as the cited part of Bond's study (2004) within the study of Alexander, Pisut and Ivanescu (2012), it was indicated that for women, the abdomen and hip areas in particular have a tendency to enlarge, and changes such as weight gain in these areas reflect proportionally different changes in the shape of body in contrast to women's sizing standards, which are still characterized by proportionally equal size increases for the bust, waist and hips. Therefore, it is difficult find garments that fit appropriately (Alexander, Pisut, Ivanescu, 2012; Bond 2004). Also, it is possible that there is structural imperfection in body types of obese or overweight women because of regional adiposity. Therefore, current size charts do not accurately reflect body measurements across sizes or changes in body shape. In relation to this issue, Connell et al. (2006) from Auburn University developed the Body Shape Assessment Scale (BSAS1) using 3D scans to better understand the overall and component body shape of today's female consumers.

Hereby, the study aimed to develop more accurate patterns, and achieve a better fit in women's ready-to-wear. Categories were therefore determined according to the areas with the greatest fullness. For instance:

- ''High Hip'' meant that greatest fullness was just below the waist,
- ''Mid Hip'' meant that greatest fullness was about half way between the waist and crotch line,
- ''Low Hip'' meant that greatest fullness was at or near the crotch line,
- ''Straight Hip'' meant that the figure was almost straight from the waist to the crotch line the hip shape (Connell et al., 2006).

Therefore, the results of study indicated that different hip shapes exist within each size from 14W to 32W for Size USA sample, and most of the participants had greater fullness at the low or mid hip in the smaller sizes. On the other hand, while size increased, fullness was likely to be lost at low or mid hip and entire gained at the high hip, or show a straight hip (Alexander, Pisut, Ivanescu, 2012). Also some companies such as Levi's have already integrated a different hip shape option into their sizing or pattern structure. Levi's offers jeans with Slight Curve, Demi Curve and Bold Curve options to fit women with different hip shapes.
(http://www.levi.com/TR/tr_TR/category/women/clothing/collections/levi-collections-revel).

In addition, the measurements that are used to form each apparel size can vary among designers, manufacturers and retailers, so this inconsistency in apparel sizing may lead to much confusion for the customers (Alexander, Pisut, Ivanescu, 2012; Apeagyei, 2008; Faust, Carrier, Baptiste 2006; Alexander et al. 2005; Brown and Rice 2001).

This confusion can be caused by numerous factors, such as:

- the apparel industry's use of an outdated system to clothe today's women
- no standardization of apparel sizes in the industry,
- the changing shape and size of the American consumers, and the practice of vanity sizing.

Because of these factors, women's apparel today is fitting fewer people than ever before (Alexander, Pisut, Ivanescu, 2012). Hence, customers have difficulty in finding suitable or fitted garments and if customers are not familiar with the sizing of each manufacturer, then they have to spend a lot of time trying to find clothes that fit them correctly so it increases the possibility of reduced consumer satisfaction (Brown and Rice 2001, Apeagyei 2008). As a result, sizing and grading practices play a role in fit problems (LaBat, McKinney, Kim, 2007).

Especially for the plus-size women, the current fitting or pattern drafting system can be very problematic. For example, as stated in the study of Bye, LaBat, McKinney and Kim (2008), increase in body measurement at the side neck point was smaller than was suggested by grade rules, resulting in an excessively wide neckline (Bye, LaBat, McKinney, Kim, 2008).

Today, the most widely used systems: German Müller & Sohn System, the British Metric System and American Block Systems all include measurements which are obtained by calculations using some formulas or include fixed values directly based on experience. However, it cannot allways be known what these fixed values refer to or they cannot be applied to all body shapes, so because the patterns are relatively crude.

On the other hand, if the model used for patternmaking deviates from standard body forms, which are the basis of a system used, the obtained patterns cannot be appropriate for the body (Mete, 2001). Turkey's pattern system is also adapted from Müller & Sohn System. There are academic researches aiming to improve Turkey's pattern system and sizing standardization but the research has not been put into the practice, so unfortunately Turkey has neither its own pattern drafting system nor size standards. Ready-to-wear companies in Turkey base their sizing chart according to international sizing standards, and they mostly prefer the German Sizing System. However, the Turkish women's body sizes differ from the German so manufactured garments do not fit Turkish people well, and also garment sizes vary from one company to another (Çileroğlu, 2009; Bulgun, 1994). To ensure standardization, these need knowledge about which anthropometric data or measurements, and how these are obtained is required (Kaynak 2005). Thus, Turkish women, especially the plus-size women, often experience fit problems with garments. According to the results of Yıldıran's study (2006), it was found that 85 of 316 obese patients participating in the survey had fit mismatch problem with pants, 84 with blouses or shirts and 79 with dresses. Additionally, 25 who chose ''the other types of clothes'' option, stated that they had mismatch problem with coats, swimwear or lingerie (Yıldıran, 2006).

Examining some problems encountered by plus-size women, one of these problems is that the plus-size clothes are designed considering tall or bulky people. Therefore, in Turkey where generally people, especially women, are not very tall or very bulky, height does not increase directly proportional with increasing in sizes, so there is not height-body/size ratio.

Hence, customers have to make changes and alterations in purchased clothes which can cause deterioration in clothes' form. Also, the additional payment for these changes and alterations increases the cost of the product for customer.

Safa (2007) also touched this point that one problem for plus-size women is the lack of body-length proportion. Thus, she suggested that producers/ companies develop the size offers with drops (Safa, 2007). Besides, Kuru and Özdemir (2010) found in their study of plus-size women aged between 18 and 35 that young plus-size women have difficulties in finding shirts or blouses which are suited to their bodies' characteristics, and so they required modifications. The modifications arising from fit problems of respondents are determined as:

- narrowing or expansion of body width,
- lengthening or shortening of sleeves,
- narrowing sleeve width,
- lengthening or shortening of body length,
- narrowing or expansion of collar width

    (Songül, Kuru, Gamze, Özdemir, 2010).

Another important problem encountered by plus-size women customers is the difference between their upper and lower body. Especially, for clothes that are purchased as suit, this situation can be seen clearly. Plus size women customers mentioned that they couldn't find suitable suits because of the difference and inconsistency between their upper and lower body. When the components plus size suits are examined separately, the problems that are faced in skirt models are loose fitting waist area and too tightness in hip circumferences, and being too long and/or lifting of skirts' tail end because of tightness.

These problems are mostly seen in pear (genoid) type overweight/ obese women. For trouser models, the most common problems are loose fit of waist line, tightness in hip circumferences or upper parts of legs, loose fitting the crotch part. As for jacket/ blazer models, the main problems are hemline's being too long, sleeves' being too large, neckline's tightness, pleat's and cup's lack of fit to body and/ or armhole's being large (Yıldıran, 2006).

**2.2.3.2) Design Related Problems**

In addition to fit, product style or the aesthetic quality of garments are the other important factors influencing the consumers' satisfaction and the purchase decisions (Jones, Giddings, 2010; Frings, 1999; Abraham-Murali, Littrell, 1995; Eckman et al., 1990; Shim and Kotsiopulos, 1990). Frings (1999) states that even though consumers may be able to fit a garment, if it is out of style or fashionable, it would not be worn (Jones, Giddings, 2010; Frings, 1999). Thus, it is important to deal with the plus-size notion by identifying not only with a garment's size, but also with the customers' feelings about their own body images and their aesthetic insights. Therefore, according to Cash (1990), body image leads individuals to actively manage (including controlling and altering) the aesthetics of their physical appearance and self-presentation through tools such as cosmetics and clothing. Furthermore, the plus-size consumers who give importance to specific values are likely to  refer the brand which creates the most functional and psychosocial benefits (Acosta, Jhoana, 2012).

In the US for example, Kind and Hathcote (2000) concluded that dissatisfaction was greatest among the large-size group in regard to size availability, pricing, colors, style selection and fit.

Furthermore, as for the NPD Group Inc.'s Women Special Sizes Report found that 62%of plus size women reported having difficulties of finding suitable clothing styles 56% of the participants determined that it is hard to find suitable clothing with the same level of quality as regular sized clothing. Besides, the available clothes were sometimes considered "matronly", implying that the clothes were perceived to be for older women.

As mentioned in the study of Otieno, Harrow, Lea-Greenwood (2005), typical comments of plus-size women about the problems of clothing were related to size, style, fashion, fit and environment.

*''Because of my shape, my age and size, modern styles are rare''.*
*''Department stores all seem to think that all large ladies have no shape''*
*''I'm not able to choose from what looks nice in terms of color and design but instead*
*I have to choose what is available in size 16''.*

These comments summarize the general complaints of plus-sized women customer: boring, dull colors and styles, limited fashion, clothes make customers feel larger, poor choice, selection designed for old and unattractive. Also according to results of the Otieno, Harrow and Lea-Greenwood' study (2005), 77.8% of the size 16 plus subset remarked that their size in fashionable styles was not available in designer outlets (Otieno, Harrow, Lea-Greenwood, 2005).

Moreover, Kaynak (2005) stated that, although in the past, plus-sized consumers wanted only to find garments well-fitting, today they also desire to follow fashion, demanding comfortable, stylish and chic garments (Kaynak, 2005; ITKIB, 2005).

However, Safa (2007) found in her research conducted in Adana, Antalya and Hatay, that 14.17% of participants cannot dress fashionably because of a lack of fashionable clothes in their sizes, while 41.25% determined their statement as ''sometimes''. Moreover, 24% said that they could not find clothes matching with their tastes or styles so they bought whatever fit them and 16.88% stated that they could not find what they looking for (Safa, 2007).

Additionally, plus-size women who play an active role in working life prefer to look stylish and modern, but comfortable at the same time, similar to the smaller sized counterparts (Kaynak 2005, ITKIB 2005). Cem Dilşen, the founder of the Turkish plus-size brand XLife, determined that the plus-size clothing is challenging area and most of ready-to-wear brands in this area produce the plus-size versions of the trendy smaller size garments, but the products do not suit the plus-size women, so the companies lose money. He also added that there is a need for collections specially created for plus-size women, and which should be designed to make their bodies look slimmer.

Furthermore, According to the NPD Group Inc.'s report, 86% of plus-size women participants reported that plus-size clothes should be offered in the same colors as smaller sized clothes and 79% remarked that they wanted clothes offered in the same styles as smaller sized clothes (The NPD Group Inc.). Dilşen indicated in the interview that as a plus-size company, his company sells trendy, colored garments and the top selling colors are fuchsia, turquois and yellow tones. (http://arama.hurriyet.com.tr/arsivnews.aspx?id=9424179).

In other respects, Yıldıran researched which kind of clothes mostly the participants find most difficult to obtain. 107 of 316 participants reported difficulties in finding pants/ trousers, and 100, shirts or blouses. Moreover, it was determined that women customers like to wear denim shirts, jackets and/or jeans because of difficulty finding them at women departments, they shop for these items from men departments (Yıldıran, 2006).

Furthermore, in the Kaynak's study, it was seen that the study's participants had model problems with the garments, so they determined that the  style line and darts used in tops, jackets or dresses were not suited to their age and collar styles were not fashionable (Kaynak 2005). In relation to the design issue, Chattaraman and Rudd (2006) suggested that plus-sized retailers may benefit by offering alternative waistlines in their key styles for bottoms and in order to identify the general style preferences of their target customers,   they should post surveys in their apparel websites (Chattaraman, Rudd, 2006). Another point is that as seen in the Fig.2.3, the plus-size women are not only old women but also there are lots of young women who suffer from unavailable of fashionable plus-size garments.
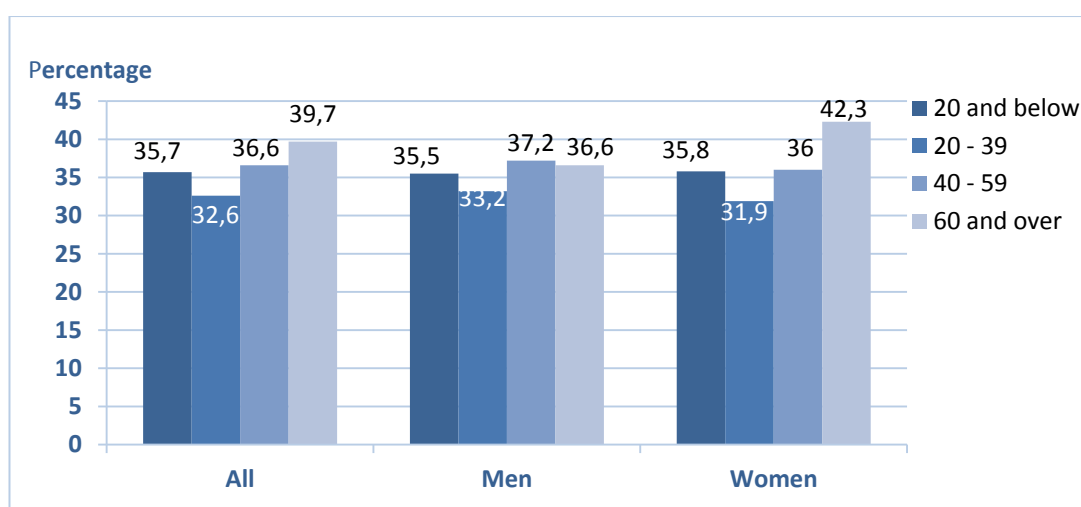


**Figure 2.3.** Obesity rates according to the age groups (Aldridge, Jan 25, 2012)

Young women have difficulty finding the plus size of garments which they prefer and many produced garments are in classical and old school style for plus size, such as muumuus. Furthermore, the young obese patients in the Yıldıran's study (2006) stated that they were unable to find suitable night-gowns or lingerie and these type of products are mostly aimed at middle-aged women, with their classical lines. In addition, even they can find suitable garments they cannot buy them because of high prices (Yıldıran, 2006). Also, generally colors are preferred for plus size garments to look slimmer, so finding colorful garments is very difficult. In the study of Özdemir and Kuru, it was noted that young plus-size women had difficulties in finding shirts or blouses which were suitable to their ages and with suitable and fashionable ornaments (Kuru and Özdemir, 2010). They also mentioned that using dark colors is considered as a requirement for covering the size range, but young plus-size women desire more colorful designs. Thus, they suggested using colors which suit to all tastes and all segments, regardless of age (Kuru and Özdemir, 2010). Therefore, as seen, women want more choice in style, fashion, color, fabric and size options and better quality for plus-size garments.

Another problem type related with the garments' design includes the problems encountered in the process of use. Some of these problems such as broken zips, bursting of its stitches or unstitching are the most frequent. The second type is fraying and deformation in some part of garments related with friction. Then the third one is the pilling of garments' fabric. Also, 199 of 316 participants determined the fastest wearing area of garment as armpit and insides of upper legs or crotch line for 149 of the participants. Additionally, 13 obese participants chose ''the other'' option and added the cleavage area here. Therefore, customers expect strengthening these areas in design process (Yıldıran, 2006).

## 2.2.3.3) Deficiency of Brands or Stores

Rising obesity and weight problems all over the World and particularly in the U.S.A. are observed as an up and coming market for the textile and ready-to-wear industry. Regarding the issue, Marshal Cohen, chief industry analyst, The NPD Group Inc., mentioned that the problems plus-size women face in store translate into the biggest opportunity for brands and retailers to grow their businesses today, and there are many consumers who wear at least one item that is plus size, but the market is currently dramatically underserved (The NPD Group, 2012).

According to another study by Meng, although despite the growing awareness of the attractiveness of the plus-size consumer and there is demand surplus in this area, a large proportion of the plus-size market and producing companies for plus size apparel remains underserved in a variety of ways, so the prices of these kinds of garments are increasing (Wang Meng 2007; Mintel 2006; Aaron 2001; Chowdary and Beale 1988). Also, Cohen stated that even though there has been an increase in plus-size offerings through some traditionally regular sized brands, designer brands and styles in larger sizes in the market are still falling short of consumers' demand, and also in The NPD Group Inc.'s report, it was determined that 39% of the plus-size women participants prefer to buy a brand specializing in plus-size clothing.

Examining the relevant studies in Turkey, Yıldıran stated that there is a lack of producer and stores/ brands for plus-size garments so it can be seen as an opportunity. As Yıldıran found in her research, for 54% of 316 obese patients, the amount of stores or shopping malls selling plus-size garments was only partially sufficient, for 19.6% it was not sufficient and for 10.4% was not sufficient at all.

From the point of view of the cities, 37% of participants in İzmir found the amount as not sufficient, and 34% found it as partially sufficient. The rates of participants who found it partially sufficient are 42% for Ankara, 43% for Antalya, 54% for Adana, 65% for Konya and 87% for Denizli. Also, this deficiency causes an increment in prices, despite the demand surplus (Yıldıran, 2006).

Another study realized by Safa includes statistics about the issue for Mediterranean Region (for Adana, Antalya and Hatay). According to the results, it is seen that the 31.65% of the participants stated that there are some specialty stores for plus-size women but not enough while 27.42% stated that there are no specialty stores. Additionally, during the visits to firms and pre-interview, it only a few firms were found which make production systematically and regard the target consumer (plus-size women consumer). Safa gave the high costs factor as one of the reasons why ready-to-wear companies prefer to produce a limited number of plus-size garments and only for specific models, not in all product ranges. Thus, plus-size women cannot find the exact quality that they looking for, and because of the limited options, prices are high so it is a burden for both their budget and moral.

To sum up, the lack of fit and style satisfaction by these specialty markets suggested that an opportunity exists for apparel manufacturers to fill a need that is currently not being met by the apparel industry. To accurately identify the needs of these markets, the apparel industry needs to recognize these consumers as part of differentiated markets, ones that have style preferences similar to that of the mass market, but anthropometric differences, which require adjustments in patterns and detailing (Jones, Giddings, 2010).

**2.2.3.3.1) Turkish Plus-size Brands or Stores**

In this part, some information is given about Turkish brands which sell only plus-size garments, or their products' size includes size 40 or 42 at least. They also have succeeded in branding, so they are familiar for plus-size women and the market. However, these example represent only a few and there is still a gap in terms of number of plus-size apparel brands and branding in this market itself. In addition, the number of both lines and brands is expected to expand.

- **Faik Sönmez**

Faik Sönmez established in 1972, is one of the most famous and consistent Turkish brand addressing women of size 40 and over. The brand stated that it designs and produces fashionable and stylish plus-size garments considering the measurements of Turkish women. The brand also regards the fabric and sewing quality and comfort in its products. Additionally, it offers modification/ repair service within the stores.
It operates in 16 cities of Turkey; 23 stores in Istanbul, 6 in Izmir and 6 in Ankara (www.faiksonmez.com).

- **FOLİ**

The plus-size apparel brand FOLİ was established in 1986 with the motto ''fashion cannot be get into the narrow mold''. FOLİ that makes ready-to-wear collections for size 40-58 women, incorporating all design and production functions. The brand owns stores in İstanbul, Ankara and İzmir, and also operates on online shopping option (www.foli.com.tr).

- **XLife**

Cem Dilşen, who is active in ready-to-wear industry, established the women's wear brand ''Vedi'' in 2001. In 2007, he saw the deficiency in the plus-size apparel market and he also created the ''XLife'' for the plus-size women. In an interview in 2008, he stated that while there were 4 thousands brands in the ready-to-wear market, there were only 10 critical brands for plus-size apparel; moreover, these brands are in classical line, so to fill the gap he created XLife identified as a brand for young women. After a while, XLife began to compete with Vedi in terms of endorsement, and now covering of half of the endorsement. The products of the brand are sold in 80 cities of Turkey in with 440 corners and stores (www.xlife.com.tr), (http://arama.hurriyet.com.tr/arsivnews.aspx?id=9424179).

- **Think+**

Think+ is the first online plus-size apparel brand in Turkey. The brand was established by Selim Onan with the support of Podyum Tekstil (exporting plus-size company) and considering their fabric, pattern making and sewing quality. Then, the brand offers service for size 42 up women. The product range includes not only the dark colored garments but also colorful options. Also Onan stated that the brand are using special production techniques and are making products more stylish with little details (www.thinkplus.com.tr).

- **NOGG**

Esvap an exporting company established in 1986, noticed the deficiency in the plus-size market like the other brands, so it created the NOGG. NOGG identified itself as an Istanbul brand which addresses modern, chic and curved women of all ages. The brand has sub-collections which appeal to the both office and private life. It offers both online and in-store shopping options. Also, within the brand's web page, there are ''trend reports'' and ''style advice'' links that allow the customer to enjoy shopping. As an in-store option, the brand's products are also sold in 13 YKM stores across Turkey and 8 Boyner stores in İstanbul, İzmir and Ankara. (www.nogg.com.tr/hakkimizda.asp?inf=27)

### 2.2.3.4) Store Image and Shopping Environment

Store image includes both physical (factual, functional and tangible) and psychological dimensions, and the term was first conceptualized by Martineau (1958) as the personality of the store and its presentation in people's mind (Meng, 2007; Martineau, 1958). Different store attributes or characteristics are part of the overall this store image (Meng, 2007; Bloemer et al., 1998).

Accordingly, as Bloemer and Meng stated, in order to gain the customers' store loyalty, retailers first should make sure that they offer the products which their customers desire or expect from them (Bloemer et al., 1998) and they should also make the customers feel good and special. Hereby, they take the first step towards an intensive store image which gives value to its customers. Other store's attributes creating the store image are atmosphere, salespersons, physical facilities and fashion merchandising display (Meng, 2007).

Hence, atmosphere design and shopping environment are important factors for the retailer especially when the numerous competitive outlets exist in the market; or when the product and price differences are small; or when products are aimed at distinct segment such as plus-size clothing (Otieno, Harrow, Lea-Greenwood, 2005). Today, to succeed in just one of the different elements of the marketing mix (product, price, place and promotion) alone is not enough to gain a competitive edge, a successful store environment needs to be created for market differentiation (Baker et al., 1994). For the size 16 plus clothing market, therefore, the problem is not be only the variety of sizes and styling on offer, but also, and more importantly, the stores' role in providing overall fashion content, fit and the appropriate shopping environment (Otieno, Harrow, Lea-Greenwood, 2005).

Unfortunately, as stated by Otieno, Harrow and Lea-Greenwood, seemingly retailers are not creating an attractive environment for this particular shopper. Besides, this statement is a reciprocal relationship between retailers and customers. Hence, Meng (2007) explored in the study how plus-size consumers perceive their bodies and themselves, and how their body-esteem or self-concept may influence involvement with clothing, and how these factors may impact their perceptions of the importance of plus size store attributes, such as merchandise price, merchandise assortment, responsiveness of sales persons, and store display. The study concluded that consumers' body esteem and self-concept significantly affect their perceptions of merchandise quality, responsiveness of sales personnel and store display, and reciprocally, according to the respondents, salespeople can impact on the retail experience. (Acosta, Jhoana, 2012).

- **Salespersons**

As Acosta and Jhoana determined, salespersons' attitude is very influential on customer's shopping experience, especially for plus-size women. Cain (2011) also stated that sales staff may directly or indirectly reinforce the exclusion of plus-size women from fashion and apparel area, or their marginalization (Cain, 2011). Additionally, Otieno, Harrow and Lea-Greenwood determined that very slim salespeople affect consumers' feelings about their size (i.e. make them feel too big), so they suggested that shop assistants need to be chosen carefully as slimmer sales people are found off-putting by the size 16-plus shopper.

On the other hand, as Yıldıran mentioned, stores often serve the plus-size customers correspondingly and prioritize slimmer (Yıldıran, 2006). Therefore as stated by researchers*, helpful, friendly and knowledgeable shop assistants allows plus-size women shoppers to enjoy the shopping experience and feel more positive (*Otieno, Harrow, Lea-Greenwood, 2005; Longoria, 2003). Other factors related to shopping environment are physical and visual features of stores, such as store interior, dressing rooms' conditions, and product positioning inside of stores or merchandise display.

- **Store Decoration and Dressing/Fitting Rooms**

An attractive décor and attractive physical facilities such as well-positioned check-out counters and shelves, etc. are important elements in creating a successful interior store design. It's also important to ensure that it is easy to move around and find the clothes you want in a store (Meng, 2007). Meng therefore stated that for the respondents, convenient shopping refers to in-store layout, such as locations of dressing/ fitting rooms and the space between displays.

Hence, it is important that there are sufficient changing rooms which are easy to find and well-equipped, because the process of shopping for clothing at brick and mortar stores clearly affects a consumer's self-image in several ways. While shopping, women often try on clothing look themselves in a mirror. Viewing oneself leads to an individual' being more self-aware and it may increase self-consciousness (Jones, Giddings, 2010; Duval & Wicklund, 1972). Therefore, especially for plus-size women, it may be more apparent that they experience negative feelings because of the influence of self-awareness (i.e. more aware of self-image) during shopping so these negative feelings also affect evaluations of their shopping experience. Thus, small dressing rooms which do not allow movement and are equipped with a full length mirror and bright lighting may reinforce the plus-size shoppers' negative feeling about themselves and their shopping experience (Meng, 2007). One of the respondents who works in a retail store stated that they are putting too many products into the store so the customer has a difficulty viewingthe range of products, and they try to compensate by giving her a slightly larger fitting room and having some seating to make comfortable shopping environment for the customer and companions (Meng, 2007).

Another problem in store decoration is the posters used for advertisement. As mentioned by Longoria (2003), if an apparel store aims to attract different types of women, they must make them "feel good and special" about themselves within the shopping experience, so in addition to displaying pictures of regular, everyday women, also displaying chic and self-confident plus-size women in store advertisements such as Dove Beautiful Bodies Campaign may help to provide a friendly and intimate store image.

- **Product/Merchandise Display**

Another attribute of store environment supporting the strong store image is product/ merchandise display. As Meng stated, an attractive and well-spaced product and promotional displays in a store are important. As Cain determined, clothing ranges which are for plus-size women are spatially marginalized (Cain, 2011) and retailers place them at back of stores that sell both regular and plus-size garments. On the other hand, in Otieno, Harrow and Lea-Greenwood's study, respondents particularly in the 16 plus were asked about merchandised display, and it was found that 39.8% of the plus-size sample said their sizes were displayed at the back of the store (visual merchandising, promotional activities). 31.2% of them also said they would like their sizes blended with others, and not singled out (Otieno, Harrow, Lea-Greenwood, 2005). Therefore, it is important the plus-size clothes' are displayed for sale in an easy to find manner, and are as visible as smaller sized garment. In other words, plus-size garments shouldn't be excluded or spatially marginalized.

In addition to product positioning or merchandise display, it is also important how the plus-size garments are displayed. Thus, as determined by Cain (2011), given the store's emphasis on plus-size fashion, mannequins would be larger than those in other stores as a matter of course, but the plus-size mannequins currently used in store or window displays have a distinctly masculine quality with the broad muscular shoulders, and lack a feminine quality (Cain, 2011). Hence, these plus-size mannequins do not reflect the reality. Besides, there are even some of specialty retailers which sell plus-size garments but do not use plus-size mannequins so those retailers actually exclude or marginalized their target customers by using regular sized mannequins.

To conclude this part about the reasons for the problems in plus-size women's clothing, it can be said that there is a reciprocal relationship between the companies/ brands or retailers and the customers. Thus, if a company/ brand or retailer offers a good quality products and service, it will provide the customer satisfaction, so it will positively return to them in terms of sales and the store or brand image. For instance, Meng mentioned that for respondents the stores which stock garments in larger sizes are viewed positively, and are variously described as non-judgmental, generous and considerate, so it encourage the participants to construct a positive relationship with clothing market. Thus, it allows the respondents to extend and make pleasurable the shopping experience (Meng, 2007).

### 2.2.4) Innovations and Current Concepts for Plus-size Clothing

In order to be successful in today's competitive market, companies/ brands or retailers must be consumer oriented and innovative to meet needs and desires. On the other hand, as mentioned in the part 2.2.3.1, plus-size women have problems with garments' fit because of imprecisely made patterns which ignore the differences in body shapes or proportions of plus-size women. They also suffer from the lack of style and design options. Thus, the companies/ brands or retailers serving in plus-size apparel market should solve these problems to meet the needs. In this way, they can survive in this competitive market and benefit from the advantage of plus-size's market potential. Therefore, innovative design, production and selling processes are the key for the success. In this part, mass-customization, 3D body scanning technology and online shopping are discussed as being some new and innovative approaches for plus-size clothing:

- **Mass-customization (MC)**

Mass Customization is a hybrid concept that was born in the late 1980s. It was constituted from the concepts of mass production and customization (Lee, Chen, 2000). The pioneer of the theory and the practice of Mass Customization, Joseph Pine, denoted that MC called for flexibility and quick responsiveness and in an ever-changing environment, people, process, units, and technology reconfigured to give customers exactly what they want. He added that managers coordinated independent capable individuals, and efficient linkage system was crucial so the result was low cost, high quality, customized goods and services (Pollard, Chuo, Lee, 2008). Also, in contrast to mass production, he determined MC was organized around short run development and manufacturing cycles with products built to the specifications of individuals. Additionally, it was assumed as a heterogeneous market that consumers were integrated within the product development, and they were placed at the beginning of the value chain (Connell & Ulrich & Brannon, 2002: Pine, 1991, 1993a).

Today, customers search for variety in goods and services and they want to participate to the creation and production process of a good. Thus, mass customization has become important particularly for the fashion and apparel market, where there is an increasing demand for personalized clothes, handbags, shoes etc. Therefore, customizing in apparel has become a niche market, and it is expected to be worth EUR 27.2 billion by 2020, corresponding to 5% of the global clothing industry (Probst et al., 2013). Furthermore, for staying alive in the wild competitive market, apparel brands are giving priority to customers' satisfaction and preferences.

Hence, making a difference and providing customer satisfaction in the market without compromising from mass production is made possible by MC approach. While the customers are experiencing a product or garment which fitting to their body, and reflecting their own taste; the producers provide the customers' needs and they are able to cut their lost time, accumulated stock and waste material costs at the same time. Additionally, MC also provides a flexible manufacturing that allows the company to be adapted into different demands rapidly (Vignali, Vrontis, Vronti, 2004).

Mass production pushes people to search for the possible best fit among the options, but people vary in terms of body shape and size much than the standardized ones offered by the apparel industry. As stated in the part 2.2.3.1, this variety of body shapesis more significant in plus-size category. Therefore people desire to have more control over the productions and design even though this results with paying premium prices at bespoke ateliers. However, majority may not be able to pay such high prices. Thus, MC promises to combine bespoke, personal, unique garments with affordable prices found in mass production (Vignali, Vrontis, Vronti, 2004). Loker stated that in apparel MC can be applied at several or multiple levels in production process, as given in the Tab.2.12, and different customer involvement and technology options are used depending on the levels.

**Tab.2.12** Mass customization model for clothing

| Point of Customer Involvement | Apparel Mass-customization Option | Enabling Technologies |
|---|---|---|
| Pattern development | Custom fit or design | Body scanner, CAD pattern making |
| Design | Component choice: size, style, fabric | Product configurators, CAD, grading |
| Production planning | Data forecast | Integrated computer systems |
| Manufacturing | Small-lot repeats | Single-ply cutters, unit production systems, flexible manufacturing |
| Delivery | Point-of-sale data | Bar code, radio-frequency identification tags, logistics computer systems |
| Post-purchase | Customer adjustments | Electronic settings for smart clothing, gel gloves that mold to hands |

(S.Loker, Sizing in Clothing, 2007, pp 246-262)

Through the Tab.2.12, because of their importance for improvement of plus-size clothing, 3D body scanning technology and CAD/ CAM systems were given as follows:

- **3D Body Scan Technology**

As today's consumers' demands for variety in products, shopping options and for personalized unique garments are on rise, the industry's interest and investments on three-dimensional (3D) measuring techniques and marketing methods are also gradually increasing to meet these increasing demands.

In plus-size clothing, both engineering applications and manufacturing processes and design and product development activities need for user based, fast and sensitive measuring and marketing systems (Dayık, 2008). Also, 3D body scanning technologies serve to shift the concept of production process in clothing from mass-production to mass-customization.

It provides individualized and specified garments for customers by enabling retailers or producers quickly collect 3D data of the customers. Furthermore, 3D body scanning technologies increase the level of personalization within the shopping process, while reducing the return rate and waste in manufacturing process by adapting the mass-customization and personalization in the fashion and clothing industry (Peng, Sweeney, Delamore, 2012).

3D Body Scanning provides rapidly and clearly creating of 3D images of people standing stable. Using ways of body models/ imagines created by 3D body scanning seem unlimited. Clothing designs are typically presented through two-dimension (2D) sketches or photos, however, body scan technology captures a 3D image of body's surface minimally clothed or clothed by using multiple cameras and light sources, such as eye-safe lasers or white lights. The computer and the Internet provide an environment to view these 3D scan in a variety of visualizations as either clouds of data points, triangulations, or smoothed surfaces edited to soften the impact of the 3D image (Loker, Ashdown, Cornrite, 2008). Data from body scanning can be used to address the needs in clothing industry including as follows:

- made-to-measure or  customization,

- virtual fit trials,

- body dimension analysis,

- developing standardized size for specific targets,

- creating niches (e.g. plus-size women clothing in Turkey),

- efficient and rapid prototyping,

- 3D shape data for avatar creation on online shopping for target market (Apeagyei, 2010)

Combining both anthropometric data and body scans shows body proportions as well as weight distribution. Thus, body scan data of target customers can help companies to visualize their customers' body proportions or body shapes more clearly, in order to identify and develop classification of different body shapes. It also helps business to develop their sizing systems which are based on a specific segment or, an idealized target market such as plus-size women.

Obtained data from national studies can be used not only for understanding the changing size and shape of today's consumer (especially plus-size consumers), but also for improving fit, availability of sizes, and overall customer satisfaction and loyalty (Alexander, Pisut, Ivanescu, 2011; Ross, 2003). Thus, in order to better understanding the plus-size women's situation in Turkey, such national surveys can be organized by using 3D body scanning technology.

In other respects, 3D body scanning technology also can be used to guide customers during style selection (e.g. color, fabric, details etc.) by entering the body scan data into co-design and virtual try-on systems (Kim, 2009; Loker, Ashdown, Cornrite, 2008; Loker, Ashdown, Cowie & Schoenfelder, 2004a). Therefore, as shown in the Fig.2.4, collaboration of AR Door (i.e. augmented reality developer based in Moscow, Russia) and Topshop (i.e. apparel brand/ retailer based on UK) is given as an example of virtual-try-on.

**Figure 2.4.** AR Door's special kiosk for the fitting room

(http://ar-door.com/2011/05/virtualnaya-primerochnaya-dlya-topshop/?lang=en)

AR Door set up a special kiosk for the virtual fitting room which was installed at the flagman Topshop store in Moscow. Customers saw themselves on screen with a 3D copy of a dress (www.ar-door.com/2011/05/virtualnaya-primerochnaya-dlya-topshop/?lang=en). In addition, plus-size women may get tired quickly in try-on process, so this technology can be developed to be more realistic and adapted into plus-size clothing in order to reduce those women's effort for try-on clothes. Also this may provide those women to have enjoyable shopping experience.

Such mentioned solutions are expected to affect the development of plus-size market in terms of solving the problem in fit, obtaining anthropometric data to improve Turkish pattern system, and virtual try-on reducing the tiring try-on process.

- **Online Shopping**

In today's competitive environment, customers are not only interested in traditional in-store shopping but also have directed to the online shopping. As stated by Özgüven (2011), customers preferred online shopping mostly for time saving, and online shopping was preferred mostly by the young. Companies prefer online shopping to gain customers and to create loyalty, since it is rather important to establish good relations with the customers in stores as well as in virtual environment (Özgüven, 2011).

Furthermore, as stated in European Committee's Business Innovation Observatory in 2013, online-sales of footwear and clothing increased by 86% between 2006 and 2009 in Germany, and it reaches EUR 5.2 billion in 2009. This market was EUR 24 billion in size in the United-States in 2009. Yet, only 7% of clothes were sold online in 2011, compared to 50% for computers and 61% for books. Therefore, the clothing market has a clear potential when considering on-line sales so MC by using new technologies can be one of the key element for catching-up for clothing online-sales as compared to these more mature sectors (Probst et.al. 2013).

Accordingly, for online clothing, mass customization options often include design choices such as collar and neckline shapes, sleeve styles, silhouette options and color alternatives. However, in order to succeed companies should offer sufficient styles to engage the customers without offering them too many choices and an overextended design process (Loker, 2007; Piller et al., 2005; Kamali and Loker, 2002). In relation with the style problems of plus-size women given in the part 2.2.3.2, online shopping may offer individualized style options for them so it may also provide enjoyable shopping experience. Some related examples are given below:

- **Max Mara**

Max Mara can be given as a good example of detail selection through online sales. Applications can be enhanced and adapted into plus-size brands. Therefore, as seen in Fig.2.5, Max Mara offers different hood, belt and cuffs selections which can be combined with the brand's coat models.



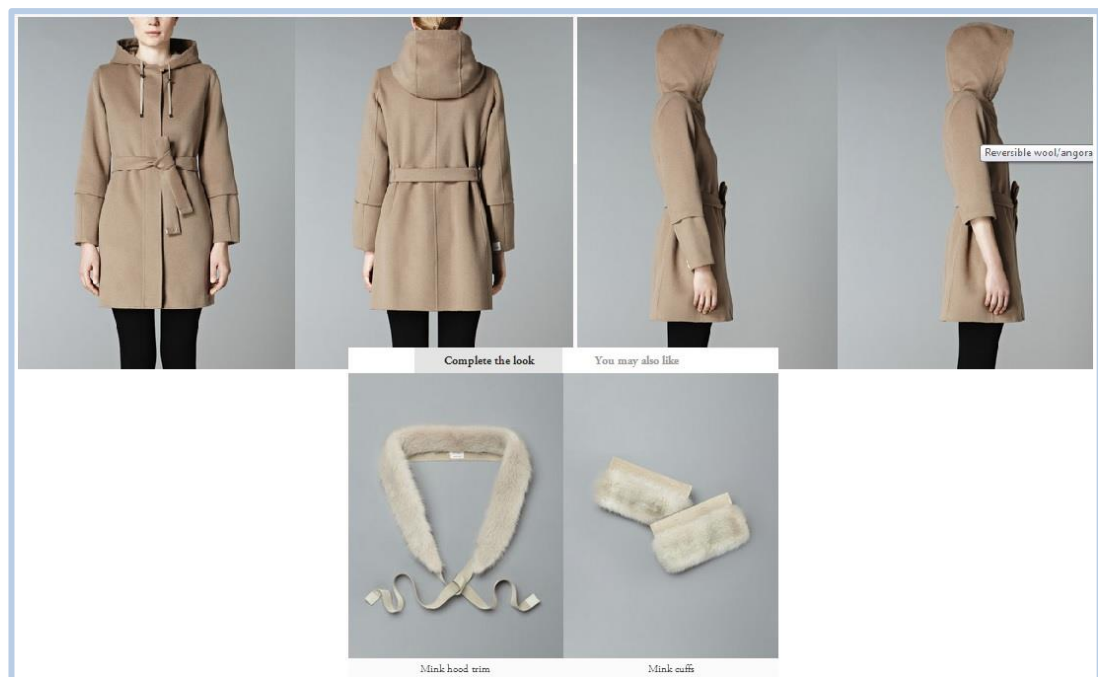**Figure 2.5.** Max Mara's collar, belt and cuff options (www.world.maxmara.com)



**Figure 2.6.** Max Mara coat with adjustable sleeve, hood collar and cuff options

Fig.2.6 shows one of the Max Mara coats that enable the customers to shorten the sleeve length and to add different hood collar or cuffs styles.



**Figure 2.7.** Max Mara-coat with hood collar and adjustable sleeve options (www.world.maxmara.com)



**Figure 2.8.** Max Mara cuff options (www.world.maxmara.com)

Although, Max Mara is not a plus-size brand, such applications or options can be integrated into the plus-size brands. Besides the detail/ accessories, the style and model options can be enhanced according to different body types, body proportions of plus-size women. For instance, one dress style can be adapted into different models depending on body shapes.

- **UPcload**

As given in Fig.2.9, UPcload has developed algorithms in order to define the most suitable size for clothes in online shopping so algorithms use data provided by customers (weight, height, gender and age). Customers select one from the samples of figures according to their own shapes and an extensive database of sizes (about one million of products are integrated in UPcload's database). Based on these elements, the IT tool that is integrated into UPcload's customers websites, provide customers with a size recommendation and a selection of clothes that would best suit them.

To use UPcload application firstly, it is required the customers to choose the brand that they ask as shown in the Fig.2.9.
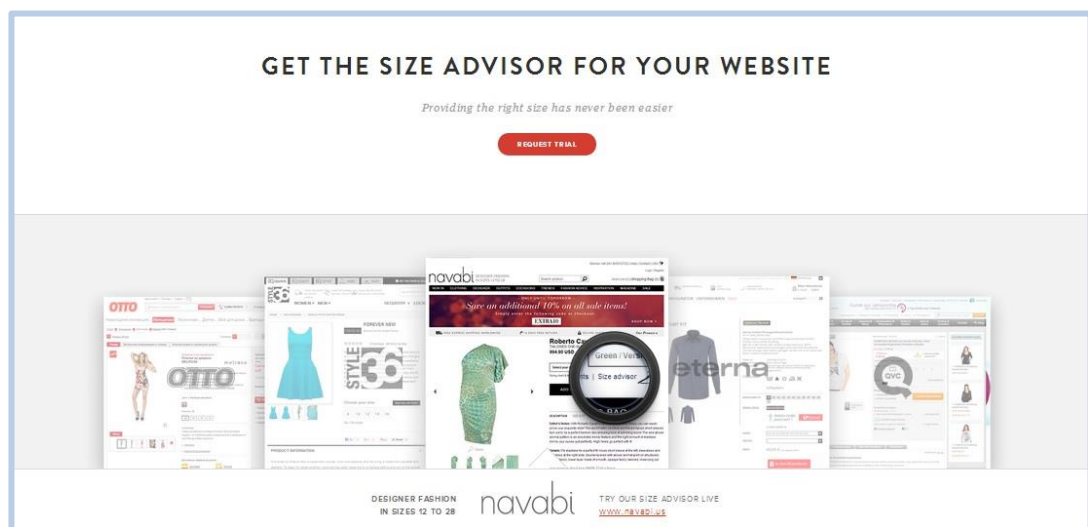


**Figure 2.9.** Home page of UPcload (www.upcload.com)

Secondly, as given in the Fig.2.10, the customers must enter the information (weight, height, age and bra info) asking to them.
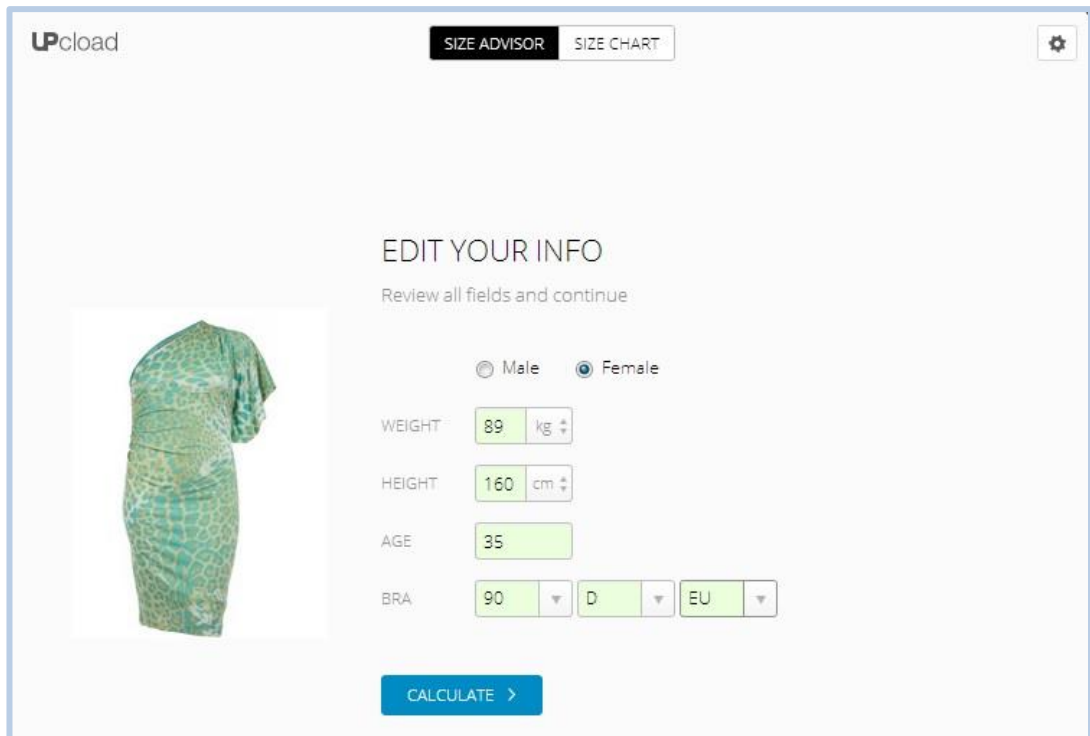
**Figure 2.10.** Edition of personel information (www.upcload.com)
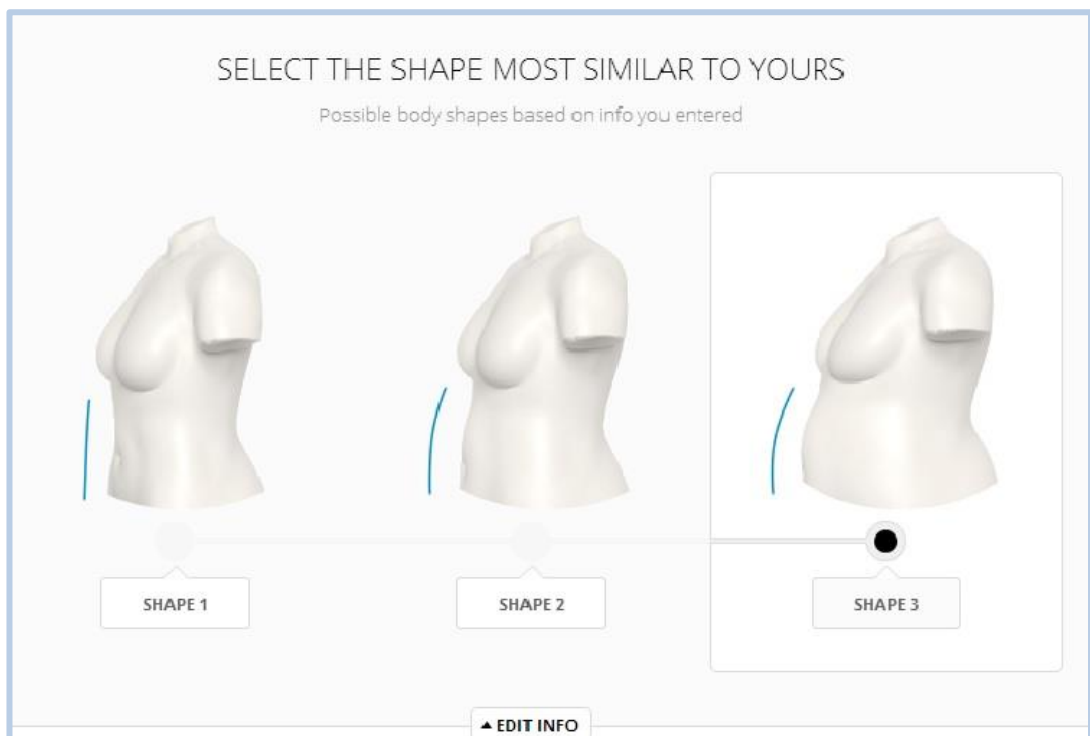


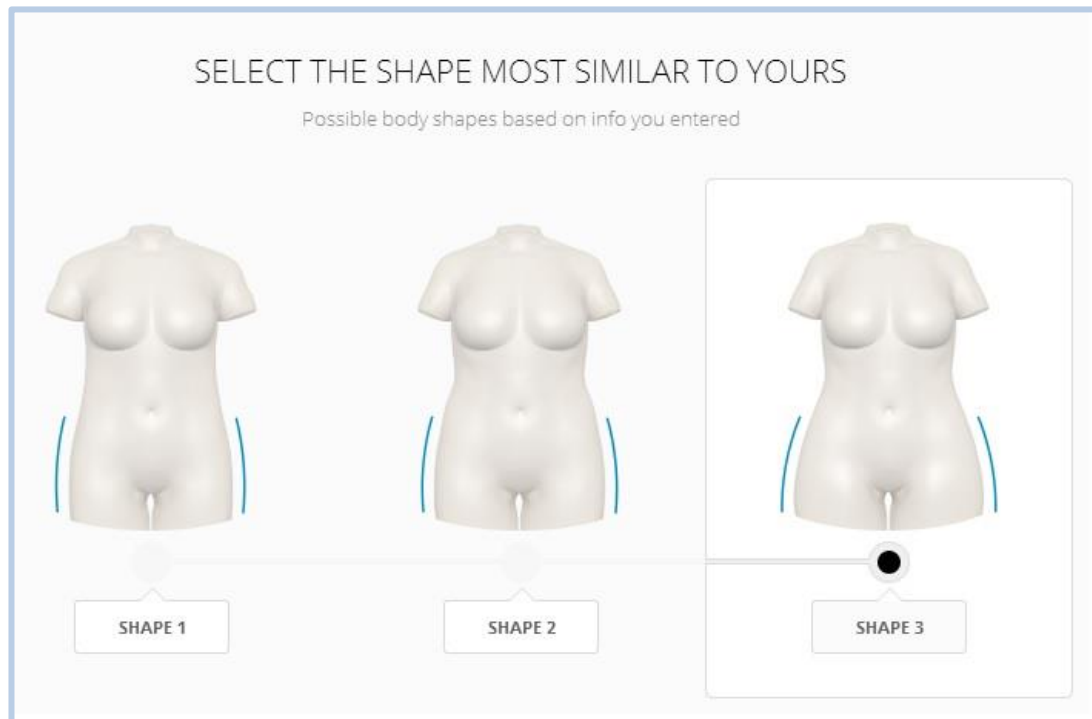**Figure 2.11**. Select the most similar abdomen shape (www.upcload.com)

**Figure 2.12**. Select the most similar hip shape (www.upcload.com)

Finally, as given in the Fig.2.11 and Fig.2.12, the users are selecting the most appropriate body shape. After completing the steps, application offers the best size for you according the chosen brand (as shown in Fig.2.13).
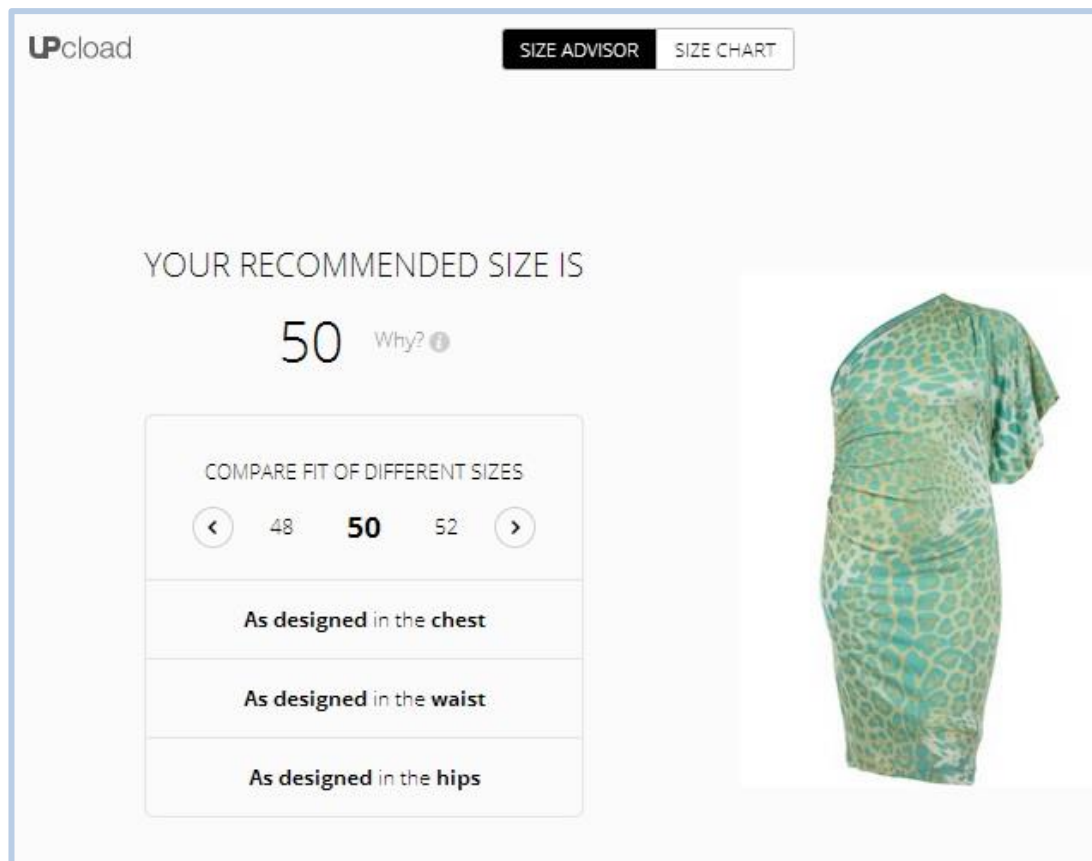
**Figure 2.13**. Recommended size (www.upcload.com)

- **Quiz Clothing UK**

Quiz Clothing is a fast fashion retailer group that sells garments (size 8-18) and accessories. As shown in the Fig.2.14 and Fig.2.15, it offers similar service with UPCload, so it enables the customers to see how on the garments them after entering the data (e.g. length, weight, bra size, under bust, waist and hips) and editing their models.  Here, it may helpful for plus-size women customers to try on garments before purchasing.
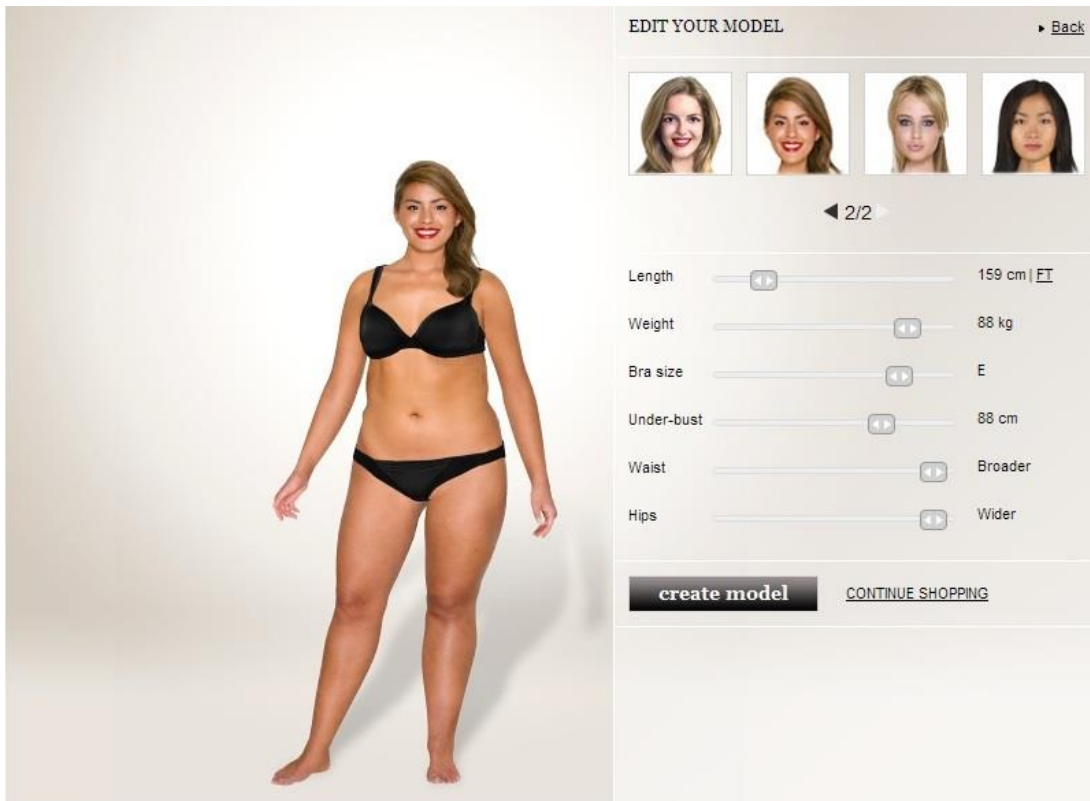
**Figure 2.14.** Editing customer's model (www.quizclothing.co.uk/fitting_room.com)
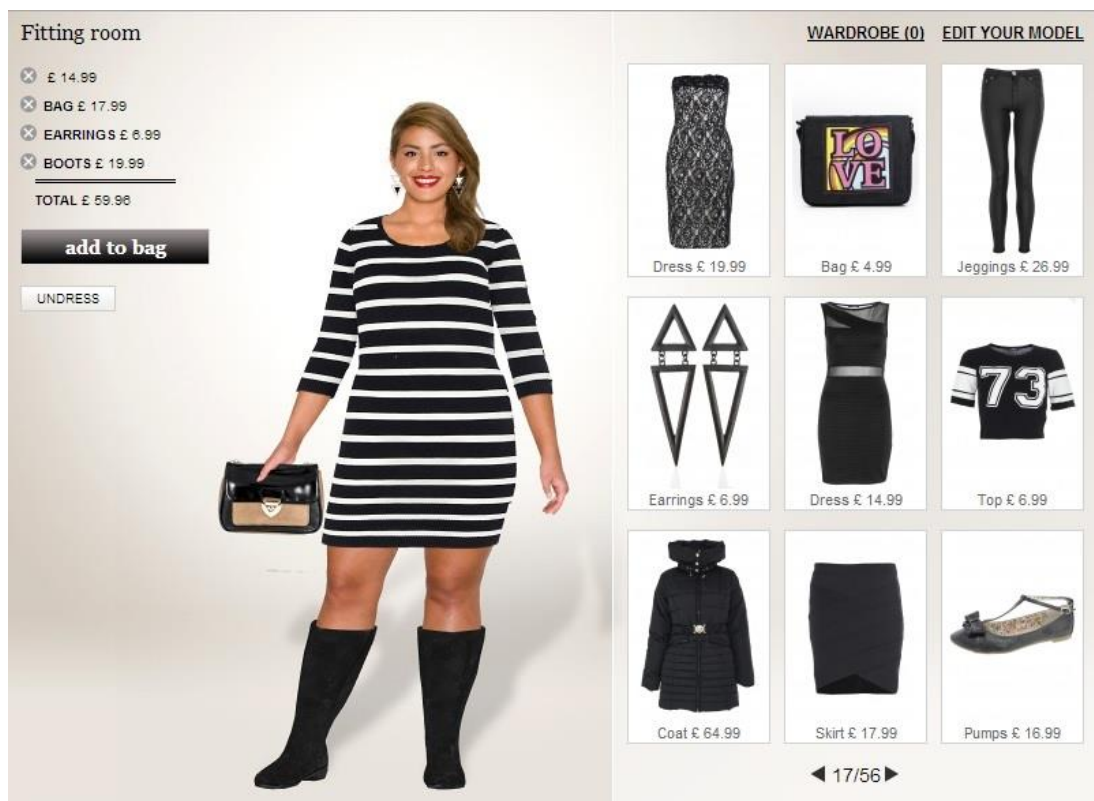


**Figure 2.15.** Virtual fitting room (www.quizclothing.co.uk/fitting_room.com)

In US and Europe marketing of plus-size garments are often not visually apparent in the store, and sales are often delegated to online shopping. Also, as seen in the examples, some companies offer different options instead of the classical online shopping. On the contrary, in Turkey plus-size garments are often sold in local boutiques instead of online shopping.

To sum up, ever-developing 3D body scanning systems as a mass-customization tool can help to reduce the effort and time spent. Other advantage for production process is that 3D body scanners shorten the pre-production time of garment in prospect. Additionally, the system allows observing how various fabric types look on the garment by dressing the different types of fabrics onto the 3D model (Dayık, 2008; Ondoğan, 2005). Also, it may help to provide customer satisfaction with fit, so it reduces commercial waste and waste related with manufacturing products (i.e. that are never used) caused by ''poor or ill-fit'' (Apeagyei, 2010). On the other hand, considering the mass-customization tools, online shopping options, and with regards to customers, they become co-designers and they are able to order personalized garments according their own style and fit requirements.

# CHAPTER 3

# SURVEY ANALYSIS

This chapter includes the detailed survey analysis. Data collection, survey's contents and details, and survey methods are mentioned in this chapter. Later, in the final part, some design recommendations related with the survey results are given. The survey form is given in Appendix I.

## 3.1) Data Collection

The target population of the research consists of the plus-size women who live in Turkey. The sample group is based on the women who are between the ages of 25-65 and are wearing size 44 and over. Plus-size men and children, pregnant women were taken out of the context.

To collect the data, a survey form was built up. For making the content of the survey, literature review was taken as a source and pre-interviews were realized with the plus-size women consumers. To reach the sample group, the survey was applied by two different methods as online and printout. Also contacts were built up some dietitians in İzmir and the Turkish Association for the Study of Obesity to apply the survey to the women who come there. Another way for transmitting the survey forms, getting in touch to the kith and kin and reaching more people by the snowball sampling. Before starting the survey, a draft was prepared and a pilot study was done to test the questions. The pilot study was applied to 10 women.

Consequently, necessary points were revised. Among all received forms, 100 survey forms were taken into evaluation.

**3.2) Survey Contents**

The survey consists of 14 questions within two main sections and one open ended question. Types of questions were determined according to the content of the main sections. The first part includes demographic information. In this section, age ranges, income levels, sizes and body types of respondents were asked as a multiple choice question. In addition, their height and weight were asked for the calculation of BMI values.

The second part contains the questions about respondents' problems encountered in ready-to-wear. This section is divided into 3 parts in itself as ''general problems'', ''pattern and model based problems'', ''through usage problems''. In this part, there are ordinal scale questions, table questions and multiple choice questions. In ''pattern and model based problems'' part, it was requested from the respondents to fill only one of the table questions according to their most problematic garment category including tops, bottoms and dress/ suits. After this part the survey is finished with an open-ended question asking any additional comments.

**3.3) Methods**

After data collection, to analyze the data, respondents' body mass indexes (BMI) were calculated based on their weight and height measurements. For this calculation '' Weight (kg)/ Height (cm)² '' formula was used. Related with the results, it did the overweight (pre-obese) and obesity ratings and classifications were done, and their percentages were determined.

The results were evaluated with the help of SPSS (Statistical Package for Social Sciences) program, and visualized as crosstabs with related percentages to obtain the distributions between the variables of age, body shapes, garment size categories, BMI, most problematic garment categories and after using problems. Allocations were shown as pie charts, and the other ranges were illustrated with the help of bar charts.

## 3.4) Survey Results

### 3.4.1) Demographic and General Information of Respondents

#### 3.4.1.1) Age

The distribution of respondents' age range is given by the Fig.3.1. Even though the percentage rates are very close to each other, 45 – 55 age range is only a bit more than others by 29%. Therefore, it can be said that both young (25 aged) women and old (65 aged) women can have problems with the plus-size clothing, and these problems don't belong to any particular or limited age group.
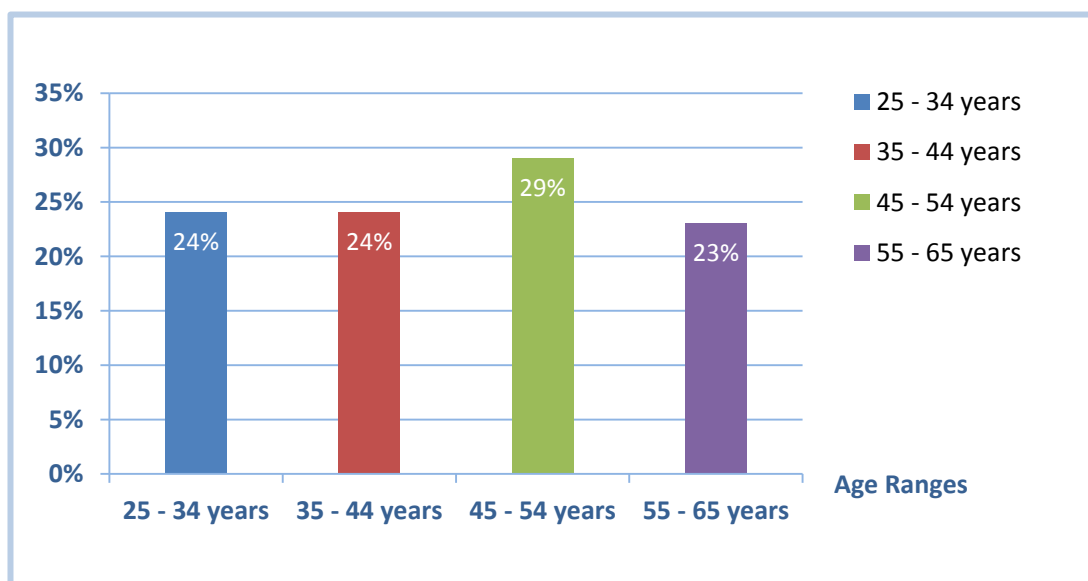


**Figure 3.1.** Distribution of age ranges

## 3.4.1.2) Income Level

Looking at the income level of respondents (shown in Fig.3.2), most of them have income level between 1000 – 2000TL by 33%. Following this, 19% of the sample group have income between 3000 – 5000 TL, 18% have 2000 – 3000TL and 17% have 5000TL and above. Respondents who have an income under 1000TL are totally 13% of the sample group.
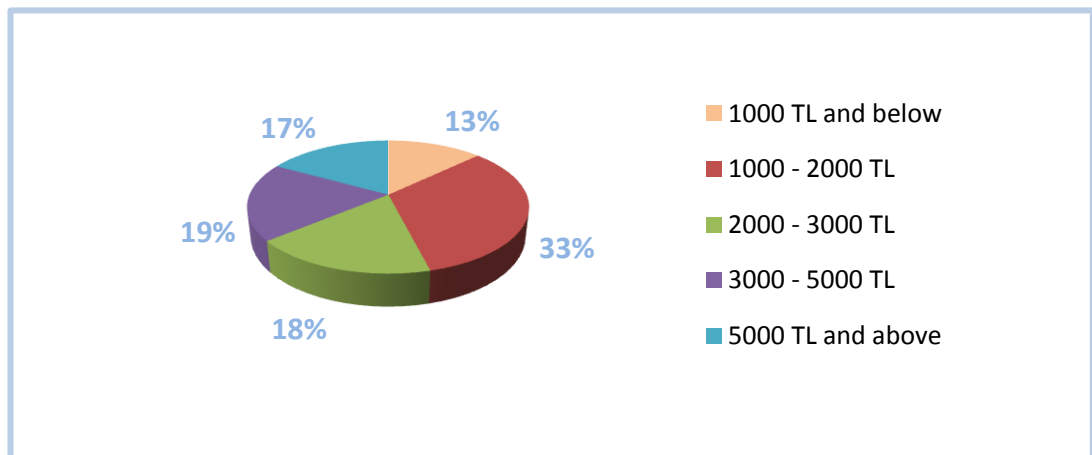


**Figure 3.2.** Distribution of income level

## 3.4.1.3) Body Mass Index (BMI)

To obtain the distribution according to BMI interval, firstly it calculated the formula: BMI (Weight in Kilograms / Height in Meters²) values were calculated. Allocation of obtained BMI values from respondents is shown in Fig.3.3.
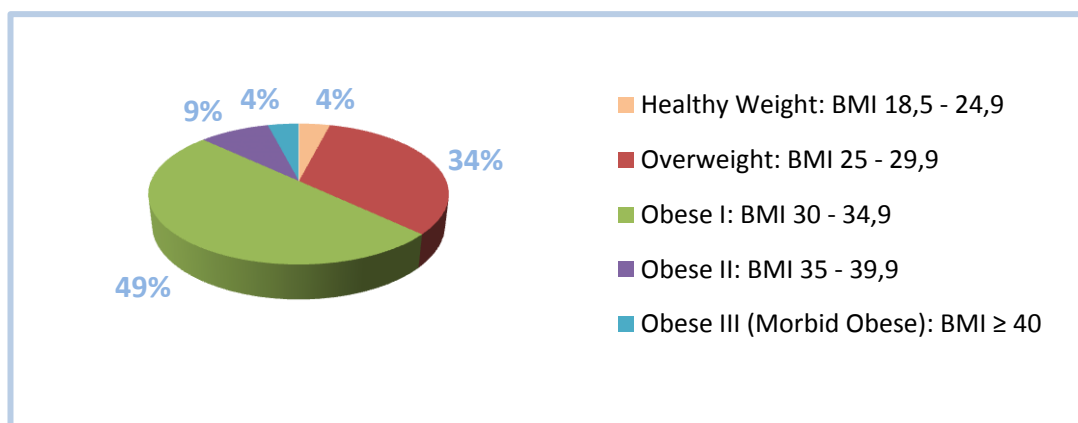
**Figure 3.3.** Distribution of BMI

According to this, almost half of the whole sample group is Obese I (BMI 30 – 34.9); 34% are Overweight and 9% are Obese II. There are respondents in the both ends identified as ''Healthy Weight and Obese III (Morbid Obese) at equal rates of 4%. Clothing in plus-size of the healthy weighted respondents (BMI 18,5-24,9) underlines the regional weight and fat accumulation in the plus-size bodies.

**Table 3.1** BMI distribution depending on age range

| BMI INTERVALS | AGE RANGE | | | | |
|---|---|---|---|---|---|
| | 25 - 34 | 35 - 44 | 45 - 54 | 55 - 65 | TOTAL Number of women |
| **Healthy** 18,5 – 24,9 | 1 | 2 | 1 | 0 | 4 |
| **Overweight** 25 – 29,9 | 8 | 5 | 13 | 8 | 34 |
| **Obese I** 30 – 34,9 | 12 | 14 | 11 | 12 | 49 |
| **Obese II** 35 – 39,9 | 1 | 2 | 4 | 2 | 9 |
| **Obese III (Morbid)** BMI ≥ 40 | 2 | 1 | 0 | 1 | 4 |
| **TOTAL Number of women** | 24 | 24 | 29 | 23 | **100** |

Table 3.1, shows the BMI intervals' distribution according to the number of respondents for each age range. There are no Healthy Weighted respondents in 55 – 65 age bracket and no Obese III respondents in 45 – 54 age brackets. Also except the 45 – 54 interval, majority of respondents in each group exist in BMI 30 – 34.9 interval. As for the 45 – 54 age bracket, although the majority is Overweight, there are 11 respondents in Obese I row which is very close to this number. As a result, it was not observed any tendency in BMI value according to the age bracket.

### 3.4.1.4) Body Shapes
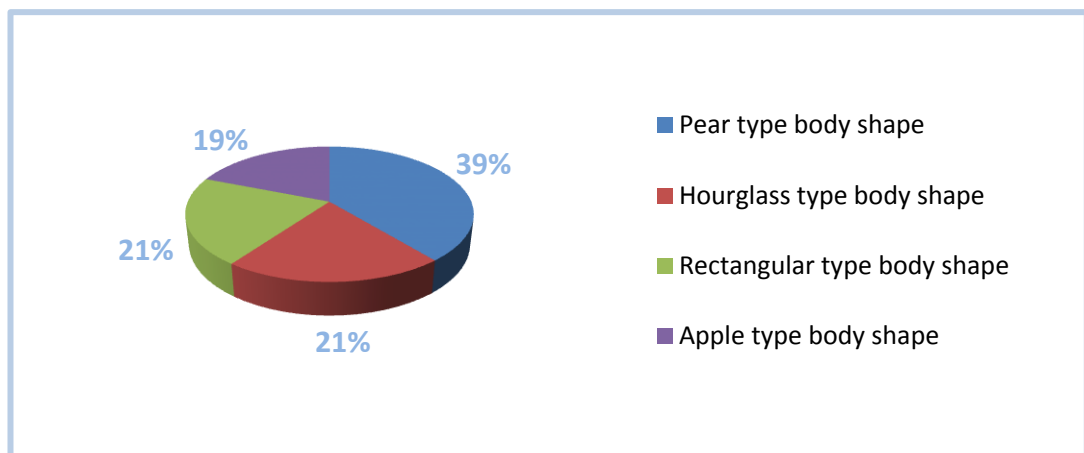


**Figure 3.4.** Distribution of body shapes

Analyzing the body shapes of the respondents, it's seen that most of the sample group has Pear Type body shapes by 39%.This finding also supports the studies about the body shape of Turkish plus-size women (Çileroğlu, 2010; Yıldıran, 2006). Following this, 21% have hourglass and rectangular body shapes with equal rates and least seen body shape is apple type at the rate of 19%. However, the rate of 19% cannot be underestimated, so designers/ brands should analyze well each body shape when considering the problems through design and fit/ pattern. For plus-size women, regional weight or fat accumulation is significant. Thus, it may cause to disproportions in their body shapes.

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**Table 3.2** Crosstabs of age groups and body shapes

| AGE RANGES | BODY SHAPES | | | | TOTAL = PERCENTAGE |
| --- | --- | --- | --- | --- | --- |
| | Apple Type | Pear Type | Hourglass | Rectangular | |
| **25-34** | 3 | 9 | 6 | 6 | 24 |
| **35-44** | 5 | 9 | 6 | 4 | 24 |
| **45-54** | 4 | 13 | 7 | 5 | 29 |
| **55-65** | 7 | 8 | 2 | 6 | 23 |
| **TOTAL = PERCENTAGE** | 19 | 39 | 21 | 21 | 100 <br> 100,0% |

Table 3.2 gives the distribution of the body shapes according to age brackets. Again, the pear type body shape is the most seen body shape among the age brackets. The other factor noted in the Table 3.2 is that there is an increase in apple type body shape towards the 55 – 65 age range as there are only 3 respondents in 25-34 age range while 7 respondents exist in 55-65 age range. Besides, in 55 – 65 age range, there are only two respondents for hourglass body shape. Thus, it can be said that adiposity in the waist and abdomen girth of women increases with menopause, and it leads to changes in body shapes. Therefore, it's an important issue which should be considered in the design and pattern making process of plus-size garments.
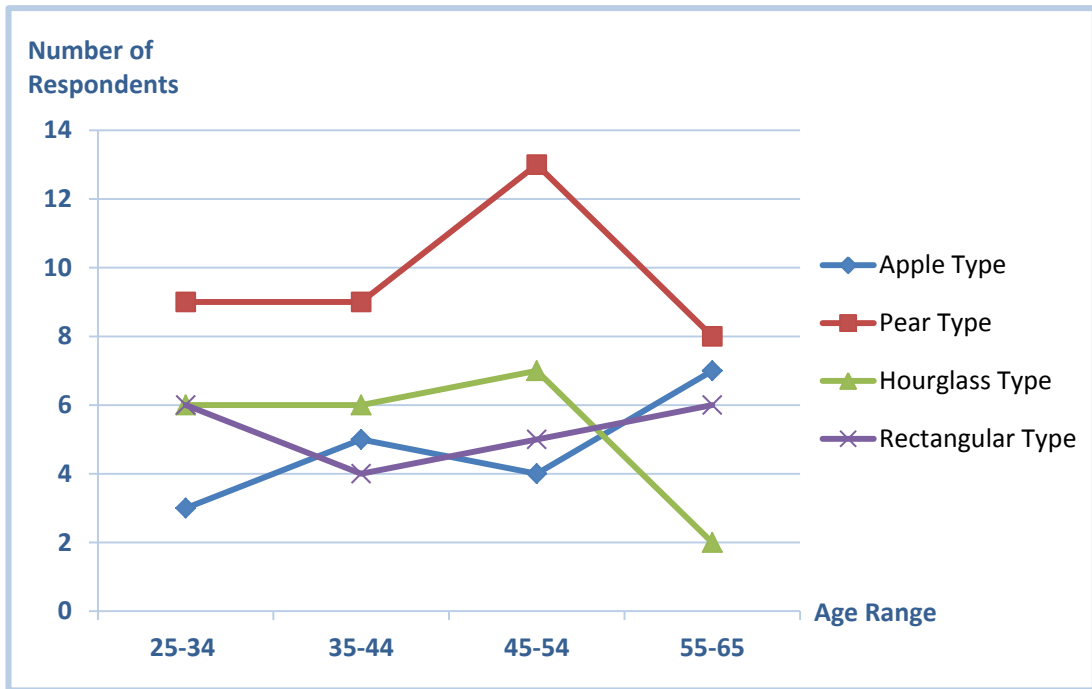
**Figure 3.5.** Tendency for body shapes

Likewise, Fig.3.5 shows more clearly the tendency for body shapes so while pear type and hourglass type decline, reversely, apple and rectangular type body shapes get more with increasing age.
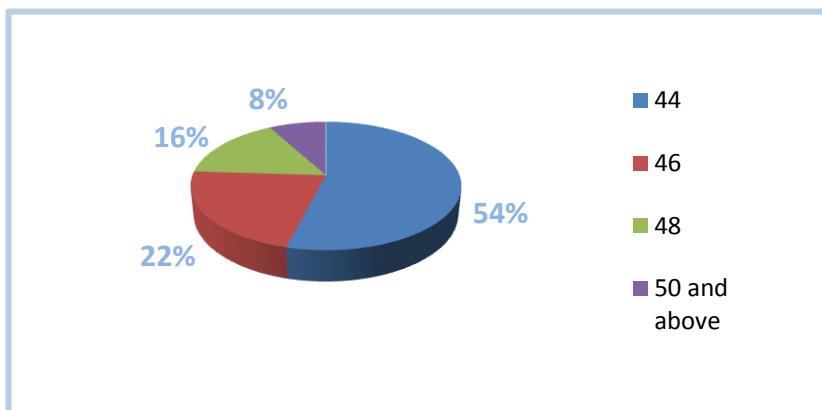
### 3.4.1.5) Garment Sizes



**Figure 3.6.** Distribution of garment size for tops

As shown in Fig.3.6, more than half of the sample group wears size 44 for tops including shirts, blouses, jackets etc. Following, 22% wear a size 46, 16% wear a size 48 for tops, and only 8% wear a size 50 and above for tops.
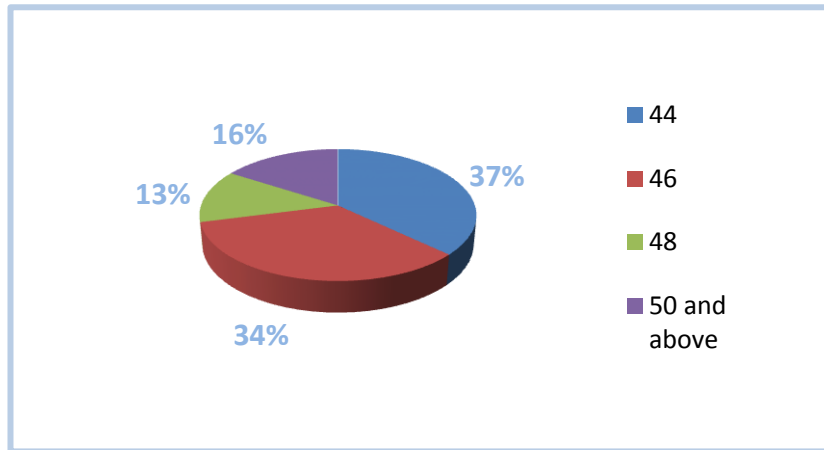


**Fig.3.7.** Distribution of garment size for bottoms

Analyzing the sizes for bottoms including pants/ trousers and skirts (shown in Fig.3.7), it's seen that 37% of respondents wear a size 44, 34% wear 46, 13% wear 48 and 16% wear 50 and above. Hence, compared with the distribution of the sizes for tops, while the rate of the respondents who wear 44 is decreasing, the rate of respondents who wear 46, 50 and above is increasing. Then, it can be said that the weight and fat accumulation is seen mostly in bottom part of body for women. In addition, having the majority of participants as pear type body shape is another supporting fact this result.
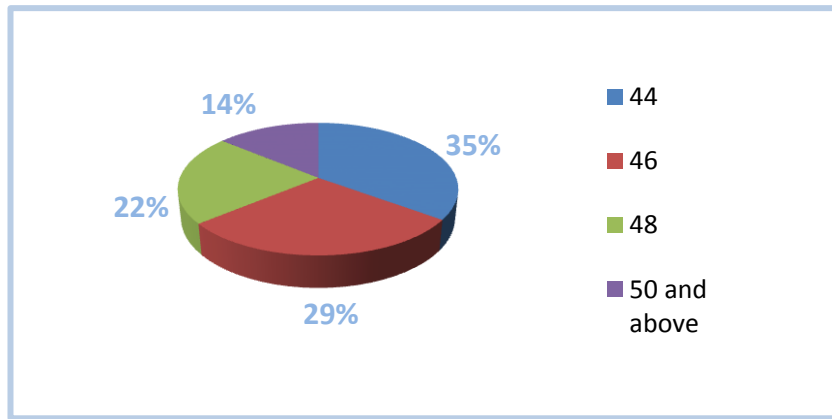
**Fig.3.8.** Distribution of garment size for dresses

Looking at the size distribution for dresses (as shown in Fig.3.8) it's seen that the most preferred garment size is 44 at the rate of 35%. The second one is 46 by 29%. Similarly, while the rate of respondents wearing 50 and above for tops are 8%, this rate increases to 14% for dresses. As the same, the rate of respondents wearing 48 increased from 16% to 22% so it can be said that some part of the respondents consider their bottom sizes when buying dress.

According to the sizes for all garment categories, it was observed that the distributions differ for each garment categories, and garment sizes increased in bottoms. For this reason, this difference should be considered for dresses or suit, and there should offer opportunity of purchasing them with different sizes. Also some of the respondents touched this point in the comment part.

As determined in the literature review, the body shapes of overweight and obese women are defined according to parts within the body weight and fat accumulation. Therefore, measurements of these parts are higher, and finding garments which are appropriate to body shape where the right size is important for plus-size women.

Table 3.3. Body shapes and sizes for garment categories

| BODY SHAPES | SIZES FOR TOPS | | | | SIZES FOR BOTTOMS | | | | SIZES FOR DRESSES/ SUITS | | | | TOTAL Number for Body Shape |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 44 | 46 | 48 | 50 and above | 44 | 46 | 48 | 50 and above | 44 | 46 | 48 | 50 and above | |
| Apple Type | 7 | 5 | 4 | 3 | 10 | 7 | 0 | 2 | 7 | 5 | 4 | 3 | 19 |
| Pear Type | 25 | 7 | 6 | 1 | 9 | 14 | 7 | 9 | 10 | 13 | 9 | 7 | 39 |
| Hourglass Type | 11 | 6 | 2 | 2 | 9 | 6 | 3 | 3 | 9 | 6 | 4 | 2 | 21 |
| Rectangular Type | 11 | 4 | 4 | 2 | 9 | 7 | 3 | 2 | 9 | 5 | 5 | 2 | 21 |
| TOTAL | 54 | 22 | 16 | 8 | 37 | 34 | 13 | 16 | 35 | 29 | 22 | 14 | 100 |

Table 3.3 shows the amount of respondents for each garment category according to their body shapes. Accordingly, while garment sizes of the respondents with apple type body shape change from size 50 to lower size categories in transition from tops to bottoms; garment sizes of the respondents with pear type body shape tend to show a reverse direction. Also in selection of size for dress/ suit, measurement of the area where the body weight and fat accumulate is important. Thus, it's seen that the respondents with the apple type body shape preferred exactly the same sized dresses/ suit with tops. Even if not the same as them, respondents with pear type body shape also preferred dress/ suit size in accordance with the size for bottoms.

Looking at the distribution of respondents with hourglass and rectangular body shape, it was observed that the rate of those wearing size 44 for tops shifted to higher sizes. However, it cannot be said clearly which area is important in selection of dress/ suit for them in contrast to respondents with apple or pear type body shape. Thus, it can be said that it's caused by the proportional accumulation of body weight and fat between the body parts.

Analyzing the Table 3.4, it's seen that Healthy-weight, Overweight and Obese I respondents wear mostly the size 44 for tops, but for Obese II level, respondents prefer size 48, 50 and above for tops; increasing in a linear fashion. However, same linear increase was not observed in Obese III respondents. While half of them are wearing size 44, the other half wear size 50 and above, so it can be said that the respondents who have BMI 40 and above can wear size 44 for tops because their body weight and fat accumulated in their hip circumference. Looking at Table 3.4 (BMI – Body Shape), it's seen that the half of these respondents have pear type body shape and also most of them wear 50 and above for bottoms supporting this idea. Also, it was observed that the number of respondents decreases for size 44, in transition from tops to bottoms and dresses.

Table 3.4. BMI and sizes for garment categories

| BMI INTERVALS | SIZES FOR TOPS | | | | SIZES FOR BOTTOMS | | | | SIZES FOR DRESSES/ SUITS | | | | TOTAL Number for BMI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 44 | 46 | 48 | 50 and above | 44 | 46 | 48 | 50 and above | 44 | 46 | 48 | 50 and above | |
| 18,5-24,9 Healthy Weight | 4 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 4 |
| 25-29,9 Overweight | 24 | 9 | 1 | 0 | 21 | 10 | 2 | 1 | 18 | 14 | 2 | 0 | 34 |
| 30-34,9 Obese I | 23 | 11 | 12 | 3 | 13 | 21 | 8 | 7 | 13 | 13 | 16 | 7 | 49 |
| 35-39,9 Obese II | 1 | 2 | 3 | 3 | 0 | 2 | 2 | 5 | 0 | 2 | 3 | 4 | 9 |
| BMI ≥ 40 Obese III (Morbid) | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 3 | 4 |
| TOTAL | 54 | 22 | 16 | 8 | 37 | 34 | 13 | 16 | 35 | 29 | 22 | 14 | 100 |

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### 3.4.2) Problems in Plus-size Clothing and Garments

### 3.4.2.1) General Problems

The distribution of general problems of respondents regarding the plus-size ready-to-wear and according to their importance level is given in Fig.3.9 and Fig.3.10. "5" refers to the most important problem and "1" refers to the least important problem, so to receive the total grades shown in Fig.3.10, firstly each percentage was multiplied by the importance coefficient of the column that it belongs to and then, the percentage was added for each problem option.
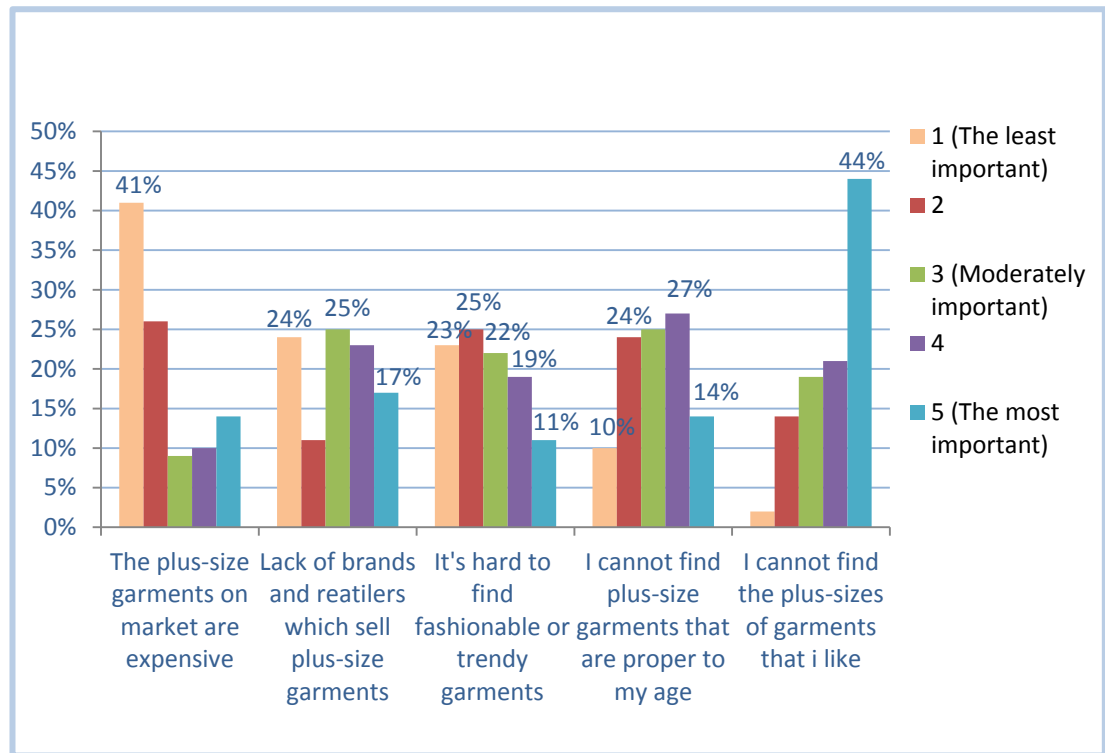


**Figure 3.9.** Percentages of the general problems
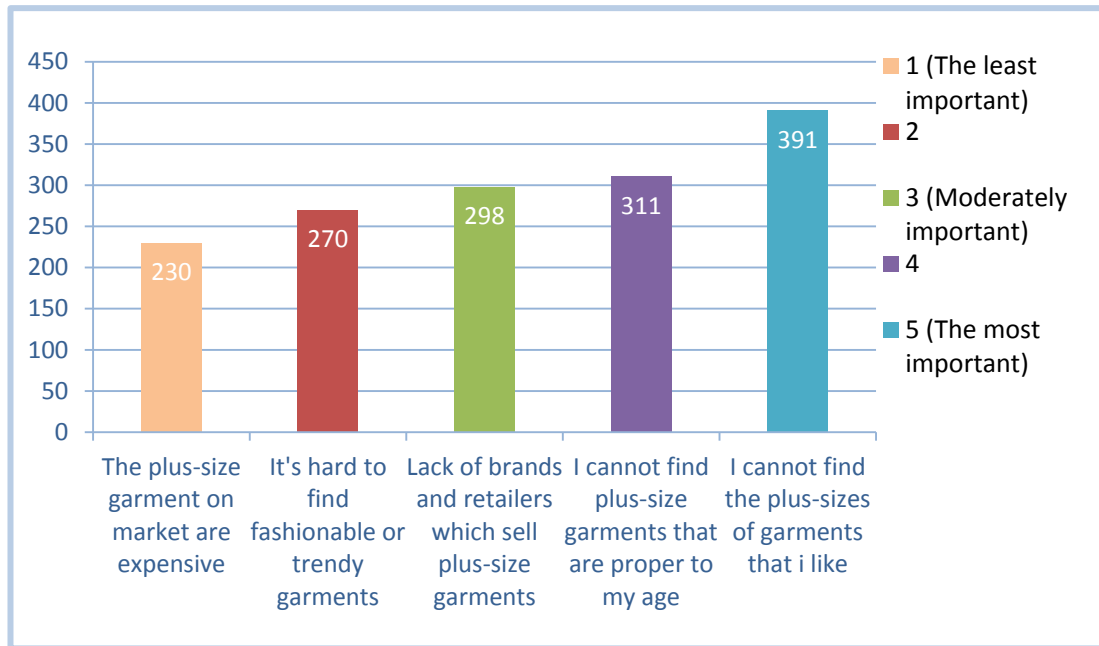
**Fig.3.10.** General problems with total grades

According to this calculation, the most important problem was determined as the difficulty of respondents' to find the plus-sizes of garments that they like' (with the total grade of 391). The second one is defined as the difficulty of finding garments suitable for their age' according to 27% of respondents and they marked this option as ''4''. Also, its grade is calculated as 311.

As for the least important problem, price of the plus-size garments was selected with total grade of 230. However, this grade is still high in comparison with other options so it shouldn't be ignored.

Thus, the distribution of this option according to the income levels is given in Tab. 3.5. Analyzing the percentages, it is seen that price of plus-size garments is a very important problem for respondents with income level of 1000TL and below.

**Table 3.5** Crosstab of ''plus-size garments in market are expensive'' and income level

| INCOME LEVEL | | The Plus-size Garments On Market Are Expensive... | | | | | TOTAL |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | | Least Important 1 | 2 | 3 | 4 | Most Important 5 | |
| **750 TL and below** | **Count** | **1** | **1** | **1** | **0** | **1** | **4** |
| | % within income | 25% | 25% | 25% | 0% | 25% | 100% |
| **750 – 1000 TL** | **Count** | **0** | **2** | **1** | **1** | **5** | **9** |
| | % within income | 0% | 22,2% | 11,1% | 11,1% | 55,6% | 100% |
| **1000 – 2000 TL** | **Count** | **15** | **10** | **2** | **3** | **3** | **33** |
| | % within income | 45,5% | 30,3% | 6,1% | 9,1% | 9,1% | 100% |
| **2000 – 3000 TL** | **Count** | **8** | **4** | **2** | **3** | **1** | **18** |
| | % within income | 44,4% | 22,2% | 11,1% | 16,7% | 5,6% | 100% |
| **3000 – 5000 TL** | **Count** | **9** | **4** | **1** | **2** | **3** | **19** |
| | % within income | 47,4% | 21,1% | 5,3% | 10,5% | 15,8% | 100% |
| **5000 and above** | **Count** | **9** | **4** | **2** | **1** | **1** | **17** |
| | % within income | 52,9% | 23,5% | 11,8% | 5,9% | 5,9% | 100% |
| **TOTAL** | **Count** | **42** | **25** | **9** | **10** | **14** | **100** |
| | % within income | 42% | 25% | 9% | 10% | 14% | 100% |

## 3.4.2.2) Alterations
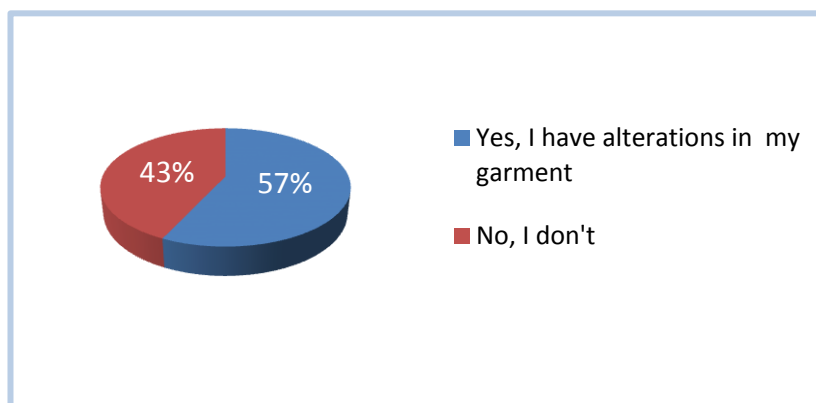


**Figure 3.11.** Alterations

Respondents were asked if they have any alterations in purchased garments. Thus, it was observed that more than the half of them answered as ''yes'' for the question.

This question was not detailed in the survey but the researcher asked questions to some respondents about the detail of these modifications. As a result of this, it was determined that the shortening of trouser legs, skirt or dress lengths are the most frequent modifications. Another alteration is changing in the armhole or arm measurements for tops/ dresses purchased with the suitable size. It can be said that this is because the garments' design and patterns may not be appropriate to features of the body shapes. For this reason, it should be better to analyze the Turkish women's body features for each body shape, and make a suitable pattern grading system.

### 3.4.2.3) Most Problematic Garment Category
### (Considering Pattern and Design)
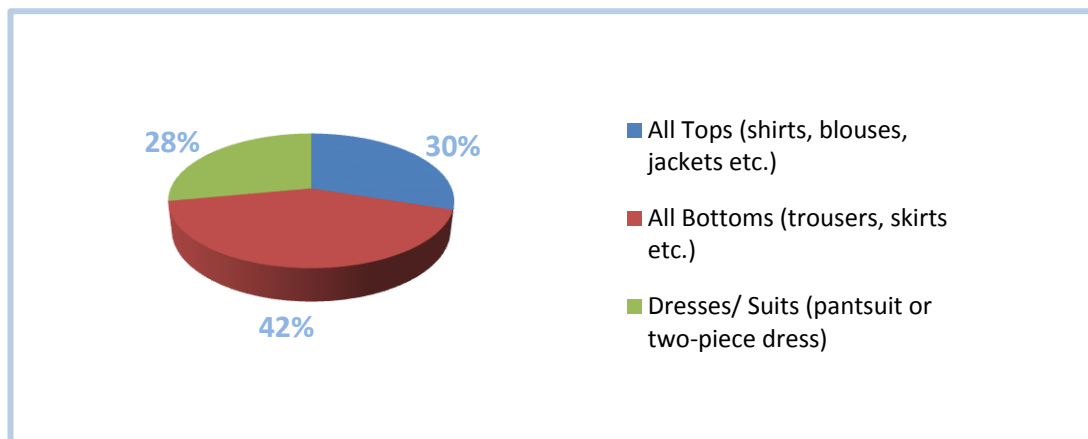


**Figure 3.12.** Most problematic garment category

Respondents were asked for the most problematic garment category in terms of design and pattern of the garment. 42% of the respondents chose the 'all bottoms' option. 30% picked 'all tops' options and 28% picked 'dresses/ suits'. Based on this result, it can be said that most of the sample group consists of the respondents with pear type body shapes and the weight and fat accumulate around the hipline so the most problematic garment category is the bottom.

However, as determined before, percentages of the other body shapes and also the problematic garment categories should be considered by the designer and producer.

Another result is the primary reason to choose a garment is its fit on one's body and its high quality of sewing. However, one of the most important problems for plus-size women is the difficulty of finding a garment that fits on their body.

Therefore, one of the main elements that should be regarded during garment design and pattern making is to analyze the customers' most problematic garment categories according to their body shape and to identify the main problems belonging to these categories are.

**Table 3.6** Crosstab of most problematic garment categories and body shapes

| BODY SHAPES | TOPS | BOTTOMS | DRESS and SUIT | TOTAL |
|---|---|---|---|---|
| **Apple Type** | 11 | 4 | 4 | 19 |
| **Pear Type** | 4 | 24 | 11 | 39 |
| **Hourglass** | 8 | 7 | 6 | 21 |
| **Rectangular** | 7 | 7 | 7 | 21 |
| TOTAL | 30 | 42 | 28 | 100 |

Relatively, Table 3.6 shows the distribution of the respondents regarding the most problematic garment categories through the design and pattern issue. Then, while 58% (n=11) of the respondents with apple type body suffer from the tops, 61.5% (n=24) of the respondents with pear type body suffer from the bottoms. In addition, respondents with hourglass and rectangular body have problems with all categories by almost equal rates.

Hence, a connection can be seen between the respondents' body shapes being formed by local adiposity or weight accumulation and the most problematic garment categories.

### 3.4.2.4) Problems' Details for Each Garment Categories

### 3.4.2.4.1) Design and Fit Problems of Tops

According to the respondents' answers, 30% of them have mostly design and fit problems with tops. Thus, distribution of the most important four of these problems and their grades are given in the Table 3.7.

**Table 3.7.** Frequencies of design/ pattern problems with **Tops** (with suitable garment size)

| PROBLEMS | 1 Never | 2 Sometimes | 3 Usually | 4 Mostly | 5 Always | TOTAL GRADE |
|---|---|---|---|---|---|---|
| Being tight in chest line | 4    13% | 5     16% | 2    6% | 11  36% | 8  26% | **324** |
| Being tight in biceps line | 5    16% | 6    20% | 6    20% | 8    26% | 5    16% | **284** |
| Inappropriate stylelines and darts | 3    10% | 11    36% | 7    23% | 8    26% | 1    3% | **260** |
| Being tight in hem line | 5    16% | 13    43% | 6    20% | 4    13% | 2    6% | **228** |

Related to this, the most seen problem is being tight in chest line with grade of 324. The second one is being tight in biceps line with the grade of 284. Also, inappropriate stylelines or darts and tightness of hem width are the other important problems with tops. On the contrary, being loose of biceps/ arm girth is least seen problem.

**3.4.2.4.2) Design and Fit Problems with Bottoms**

Majority of the respondents (42%) have design and fit problems in bottom. The distribution and grades according to prevalence of the problems in bottom that respondents purchased with appropriate size is shown in Table 3.8.

**Table 3.8.** Frequencies of design/ pattern problems with **Bottoms** (with suitable garment size)

| PROBLEMS | 1<br>Never | 2<br>Sometimes | 3<br>Usually | 4<br>Mostly | 5<br>Always | TOTAL<br>GRADE |
|---|---|---|---|---|---|---|
| Patterns get distorted in grading | 1   2% | 3     7% | 5    11% | 19   45% | 14  33% | **392** |
| Long Pants/ Trousers' Length | 3   7% | 10    23% | 6    14% | 12   28% | 11  26% | **330** |
| Low Waist of Pants/ Trousers | 5  11% | 13    30% | 9    21% | 12   28% | 3    7% | **270** |
| Being tight in hipline | 5  11% | 14    33% | 11  26% | 8    19% | 4    9% | **265** |

The most common problem is distorted patterns in grading (392 points). Likewise, considering the calculation, being long of trouser legs, being low of their waist and being tight in their hipline are the other important problems and least seen problem is having short trouser legs. Here the grading problems can be mentioned as its reasons. While grading for plus-size, it is ignored that deformation and fat accumulation in one's body varies from person to person. Also, as stated in the literature review, grading is generally based on size 36 so it doesn't match with plus-sizes' body proportions (MEGEP, 2006).

**3.4.2.4.3) Design and Fit Problems of Dresses/ Suits**

As for 28% of the sample group, the most problematic garment category was determined as dresses and suits. The detailed problems of this category and their prevalence were given in Table 3.9. Here, the first four of these problems were selected.

**Table 3.9.** Frequencies of design/ pattern problems with **Dresses/ Suits** (with suitable garment size)

| PROBLEMS | 1<br>Never | | 2<br>Sometimes | | 3<br>Usually | | 4<br>Mostly | | 5<br>Always | | TOTAL<br>GRADE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Increase in disproportion with increasing sizes | 0 | 0% | 5 | 17% | 6 | 21% | 7 | 25% | 10 | 35% | **372** |
| Ill-fitting armhole of sleeveless/ short sleeve dresses | 2 | 7% | 15 | 53% | 5 | 17% | 6 | 21% | 0 | 0% | **241** |
| Fitted skirt/ pants but tight jackets/ tops | 10 | 35% | 4 | 14% | 6 | 21% | 4 | 14% | 4 | 14% | **217** |
| Loose waistline | 6 | 21% | 12 | 42% | 4 | 14% | 3 | 10% | 3 | 10% | **216** |

Most frequently encountered problem is increase in disproportion between the upper and lower part of dresses or suits with increasing sizes with total grade of 372. With the grade of 241, being loose of armhole for short sleeve or sleeveless dresses are ranked at the second place. Also, fitted skirt/ pants but tight jackets/ tops are another important problem for suits.

## 3.4.2.5) Problems Encountered Through Garment Usage

Fig.3.13 and Fig.3.14 show the distribution of the problems encountered by using process according to their importance level, so as in the general problems, '5' refers to the most important problem and '1' refers to the least important problem.
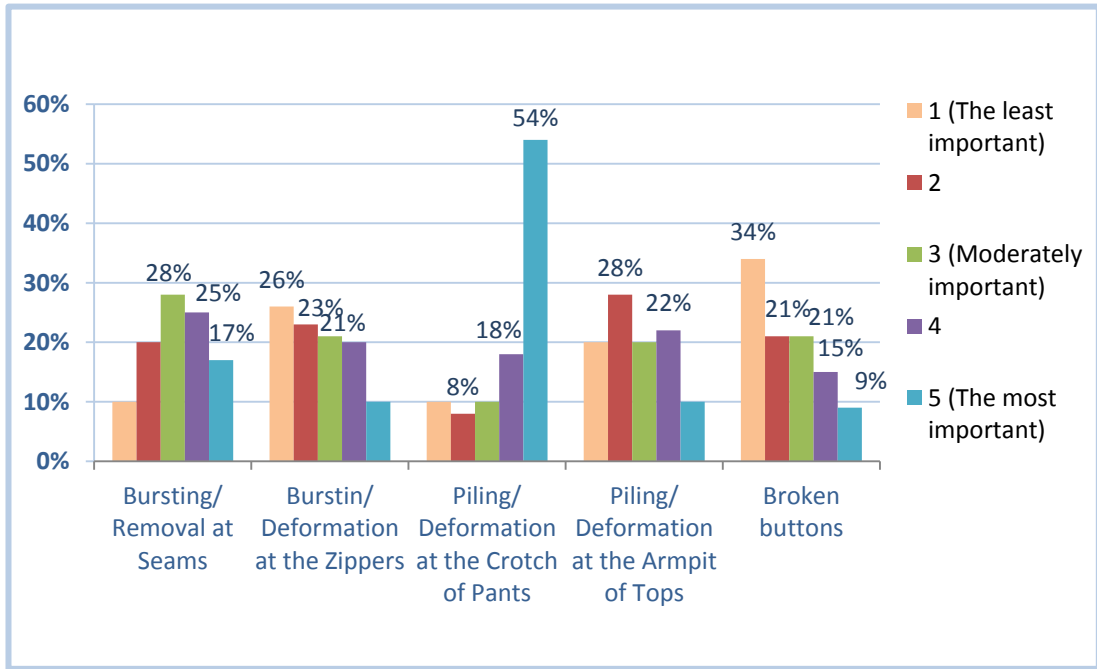


**Figure 3.13.** Problems encountered through garment usage with percentages
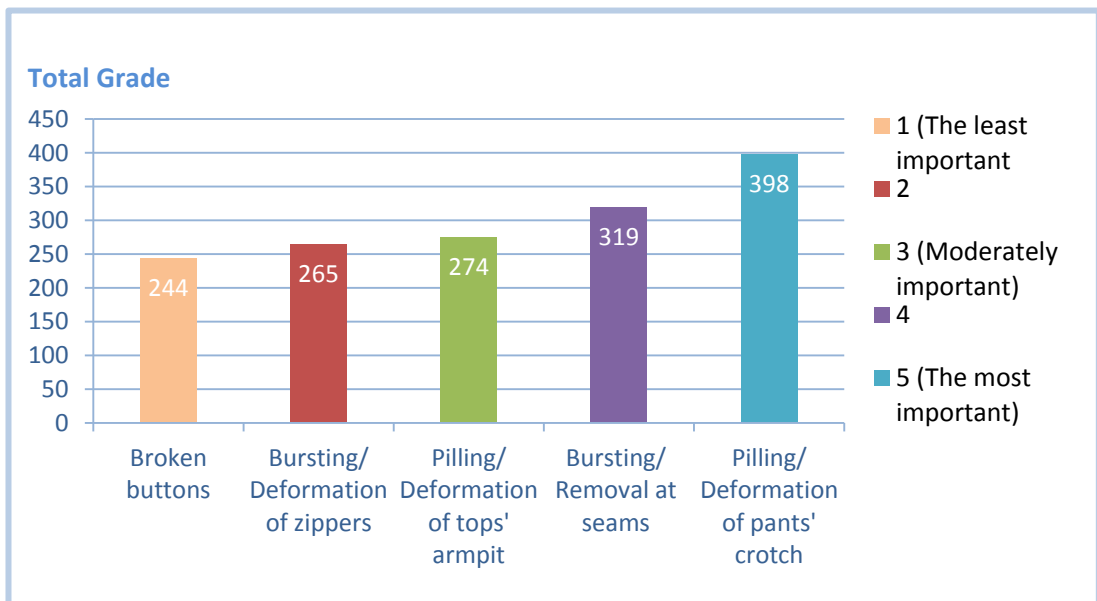


**Figure 3.14.** Problems encountered through garment usage with total grades

When the options' grades are calculated it's observed that the most important problem is the pilling or deformation in the pants' crotch with the total grade of 398 and the least important problem is broken buttons with the grade of 244.

In addition, as stated in the Table 3.10, it can be said that this problem is related with the body shapes of respondents. When adding the percentages in the ''3'', ''4'', and the ''5 the most important'' column, it is seen that because pear and hourglass types' weight accumulate around the hip area and buttocks, these respondents are the most suffering group from pilling or deformation at pants' crotch.

**Table 3.10** Pilling/ deformation at pants' crotch and body shapes

| BODY SHAPES | | Pilling/ Deformation of Pants' Crotch | | | | | TOTAL |
|---|---|---|---|---|---|---|---|
| | | Least Important 1 | 2 | 3 | 4 | Most Important 5 | |
| **Apple Type** | Count | 1 | 4 | 2 | 5 | 7 | 19 |
| | % within body shapes | 5,3% | 21,1% | 10,5% | 26,3% | 36,8% | 100,0% |
| **Pear Type** | Count | 3 | 0 | 6 | 4 | 26 | 39 |
| | % within body shapes | 7,7% | 0,0% | 15,4% | 10,3% | 66,7% | 100,0% |
| **Hourglass** | Count | 2 | 2 | 0 | 4 | 13 | 21 |
| | % within body shapes | 9,5% | 9,5% | 0,0% | 19,0% | 61,9% | 100,0% |
| **Rectangular** | Count | 4 | 1 | 2 | 5 | 9 | 21 |
| | % within body shapes | 19,0% | 4,8% | 9,5% | 23,8% | 42,9% | 100,0% |
| TOTAL | Count | 10 | 7 | 10 | 18 | 55 | 100 |
| | % within body shapes | 10,0% | 7,0% | 10,0% | 18,0% | 55,0% | 100,0% |

Also, it can be said that pilling or deformation problem is caused by having more friction and perspiration of plus-size women through body activities or movement. Some of the respondents also mentioned this point so they demand to increase the fabric and sewing quality and to use more durable/ strong fabrics.

### 3.4.3) Respondents' Comments

In this part, there are some important comments of the respondents that they wrote in the survey optionally. First of all, the respondents generally complained from not to find modern and chic garments that are suitable for their body. Additionally, they demanded elegant, high quality and useful plus-size garments that are suitable for all age ranges, all tastes and are designed for several social standings. They also desired plus-size garments to be more colorful instead of just dark colors.

Secondly, lack of plus-size brands or stores selling plus-size garments, and being expensive of plus-size garments are the other problems in the respondents' comments. One of the respondents gave a specific example on this issue and she determined that the stores were limited in Manisa. Besides, they were selling plus-size garments at high prices.

Looking at the comments about the design and fit, low-wait pants is the most important problem, so most of the respondents indicated that the pants' waist line should not be too low. One respondent said that while high waist pants are hiding the body weight around the belly as a corset, conversely, low-cut pants show it more. Besides, designing more versions of the pants which are produced using elastane fabric and having elastic waistband are another demands of the respondents. Moreover, disproportion or ill-fitting of the pants' hip circumference or upper leg parts is another problem about the pants that respondents indicated.

On the other hand, respondents mentioned the complaints about tops, too. Accordingly, one respondent with the apple type body shape said that loose fitted tops are designed for plus-size women. However, these tops show wearer bigger, so she requested for fitted but not too tight tops.

Likewise, another respondent emphasized that chic blouse or shirt designs which show the body slimmer and shapelier without being too tight are necessary in the market. In this part, there are also some technical detailed comments about the design or fit of a garment so being asymmetrical of armhole is one of them. Then, one respondent stated that she encountered puckering in side seams of skirts, problems in front seam line and seam allowance in garments. Finally, a respondent's suggestion was, that plus-size garments can be designed as more elastic or/and adjustable such as in maternity wear.

### 3.4.4) Summary of the Survey

The survey was prepared in order to identify the problems of plus-size women encountered in clothing. Thus, besides the general problems, both fit and style problems are also examined. It was found that the plus-size respondents face with many problems in terms of finding stylish and well-fitted clothes basically. Therefore, summary of these problems stated in the results of the survey is given.

Firstly, the number of respondents is almost equal in each age range but the 45 – 55 age range is only slightly more at 29%. Thus, it was determined that both 25 aged and 65 aged women have problems with the plus-size clothing so plus-size does not refer to any particular  age range and relatively particular style.

Examining the BMI values of each respondent based on their weight and height, almost the half of the whole sample group at 49% rates as Obese I. However, there were also Healthy Weighted respondents at rates of 4%. Thus, Healthy Weighted respondents' clothing in plus-size underlines the local weight and fat accumulation in the plus-size bodies.

Analyzing the body shapes of the respondents, it was determined that respondents owned mostly the pear type body shape at rate of 39%, so this result also supports the studies about the body shape of Turkish plus-size women (Çileroğlu, 2010; Yıldıran, 2006). On the other hand, it was noticed that there is an increase in apple type body shape towards the 55 – 65 age range so while pear type and hourglass type decline, conversely apple and rectangular type body shapes are rising with increasing age. Thus, it can be said that adiposity in the waist and abdomen girth of women increase with menopause so it causes changes in body shapes. It's an important issue that should be considered in the design and pattern making process of plus-size garment.

Respondents were also asked if they had alterations to garments purchased or not and it was observed that more than the half of them answered as yes to the question. This question was not detailed in the survey but questions were asked to some respondents about the detail of these alterations so it was determined that shortening of trouser legs, skirts' or dresses' length was the most frequent had modification. Another alteration was to take in the armhole or arm measurements for tops/ dresses purchased with the suitable size. It can be said that this is because the garments' design and patterns are not appropriate to features of the body shapes.

As another survey result, the most problematic garment category was defined as the bottoms, so it can be said that it was because most of the respondents were pear type body shapes and the weight or fat accumulate around the hipline. However, there were problems in all garment categories, so this should not be ignored in the design or production process.

Furthermore, in the interview with some respondents was that the fit of a garment and its high quality of sewing are the primary reasons to choose a garment. However, one of the most important problems for plus-size women is not finding a garment that fits their body. Hence, it is important to analyze the customers' most problematic garment categories according to their body shape, and what the main problems belonging to these categories are in order to succeed in the design and pattern making processes.

After determining the most problematic garment categories, it was asked what problems were mostly seen in each category. Thus, for tops the problem mostly seen was determined as being tight in chest line. Being tight in biceps/ arm girth was in second place. Also nonconforming style lines or darts and tightness of hem width were the other important problems for tops.

As for the bottoms, respondents mostly have difficulty in patterns getting distorted with increasing sizes, so here can be mentioned the grading problems as the cause. In the second place, there was trouser length's being long. Also, low waistline and tight hipline were determined as the other important problems.

On the other side, as for dresses and suits, the problem most frequently seen was the increment in disproportion between the upper and lower part of dresses or suits by increasing size. Besides, loose armhole for short sleeve or sleeveless dresses took the second place. Also, fitted skirts/ pants but tight jacket/ tops are another important problem for suits.

Then, it lastly asked the problems through usage so it was observed that the most important problem was pilling or deformation of the pants' crotch. Relatively, analyzing this problem, it can be said that this problem is relatively with the body shapes of respondents.

Therefore, because weight of the respondents with pear and hourglass types accumulated around the hip area and buttocks, these respondents were the most suffering group from pilling or deformation of pants' crotch.

## 3.5) Design Recommendations Related to the Survey Results

This part includes brief, style recommendations for future research considering the survey results. In the survey results, it was determined that, in comparison to hourglass and rectangular type plus-size respondents, apple and pear type ones face with more difficulties with specific problematic garment category (e.g. apple type-tops, pear type-bottoms). Considering the first four of the most important problems of apple and pear type body shapes appeared in the survey results, some hints for each garment category (tops, bottoms, dresses/ suits) were given which will be extended in future works considering all body shapes[*].

As stated in the survey results, the most common problems for the apple types are narrow chest circumference, narrow arm girth, uncomfortable stylelines or darts and narrow hem width.

- First of all, using light or soft fabrics for tops (e.g. cotton, silk, modal or lyocell mixtures) may help to avoid tightness. The silhouette of the top should be consistent with the body contour (not too loose or too tight). The fabric of blouse seen in Fig.3.15 consists of 70% cotton 30% silk, so the softness of the fabric let the apple type figures feel more comfortable.

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[*] Most of the garments which are given in part 3.5 for design recommendations were photographed with sample products from Marks & Spencer and ATALAR Giyim.

**Figure 3.15.** Blouse with soft fabric          **Figure 3.16.** Placket and mini pleat

- Also the placket (Fig.3.16) used with following pleat provide comfort at chest and abdomen area and prevent the tightness. Moreover, they make an illusion and visually divide the front bodice, which helps to cover the fat accumulation and show the wearer slimmer.

- Dartless blouses (Fig.3.17) and shirts can be some other design examples with/ without little buttons in front for apple type body. Little triangular and soft woven fabric can be added into the V neck area with/ without loop sewing and little buttons. Besides, wider darts can be used in the chest. However, more detail on upper bodice can show bulkier, which should be considered in mind.

**Figure 3.17.** Dartless blouse with light fabric

- On the other hand, larger hem width or flared hemline (Fig.3.18 and Fig.3.19) for straight fitted tops will be better for plus-size women suffering from narrower hem width.

- Inserting a fabric strip from side seams can spread the bodice of garment. If this additional fabric strip is in contrast color, it will also show slimmer.

- Wider armholes or using reglan, kimono, dolman sleeves (Fig.3.19) or dropped shoulder (Fig.3.20) with lowered side seam in both woven and knitted tops help the apple type plus-sizes for easier movement and hide the fat accumulation around the shoulder, biceps or bust area.

**Figure 3.18.** Blouse with dropped shoulder      **Figure 3.19.**Blouse with dolman sleeves



**Figure 3.20.** Blouse with dolman sleeves and bateau collar

- For enhancing the sleeve of the garment, fabric strip can be inserted, which tapers to zero at the shoulder. Using gusset at shoulders, underarms and hems of shirts or blouses also reduce stress from tight-fitting tops.

- For bottoms, waistband should be wider because of the fat accumulation around waistline and abdomen area. Also using elastic waistbands or adjustable waistbands (Fig.3.21 and Fig.3.22) may help for comfortable garment waist. In addition, using these types of waistbands makes the garment suitable for women at same size but with different types of abdomen and belly girth.



**Figure 3.21.** Elastic waistband



**Figure 3.22.** Adjustable and elastic waistband

(http://www.kundhi.com/blog/2009/11/24/)

- Designing dresses for apple type plus-sizes, it should be considered to give some curve to their hipline and to hide their wide bust and waistline or abdomen. An asymmetrical model and right/ left front draping could be applied to dresses. The knee length and A-line or quarter circle skirt dresses also provide balance between wider chest, waist areas and hipline.

As another body shape, pear type means narrower shoulder and chest circumference in proportion to hip and buttocks. As stated in the survey results, the most common problems for the pear types are pattern distortion with increasing size (the grading problems), trouser length's being long, low waistline and tight hipline.

- The design of the garments should show those plus-size women's shoulder wider, so garments can be supported with shoulder paddles or using set-in sleeves (Fig.3.23).



**Figure 3.23.** Set-in sleeves supported with shoulder paddles for jacket

- Attention should be distracted from hip and buttocks to the upper bodice, so some ornaments, or drapes can be used for tops, but it should be considered that obese women may have adiposity around abdomen or arms so designers should be careful when using details. Moreover, some collar shapes such as scoop, bateau or décolletage help to show shoulder wider.

- As determined by survey results, bottoms are the most problematic garment category for pear type plus-size women. The respondents complained from low-cut pants and loose waistline, so it can be claimed that design the high-waist bottoms for plus-size women can be more appropriate. Also again, designing adjustable waistbands or using elastic casings at bottoms' waist can be helpful for avoiding loose-fit.

- As another problem, respondents indicated that hip-line and buttocks-line of the bottoms were generally too tight. Hence, tightness at hipline stresses wrinkles form around the hips and skirts may ride up above the hipline so the hips need more fabric width.
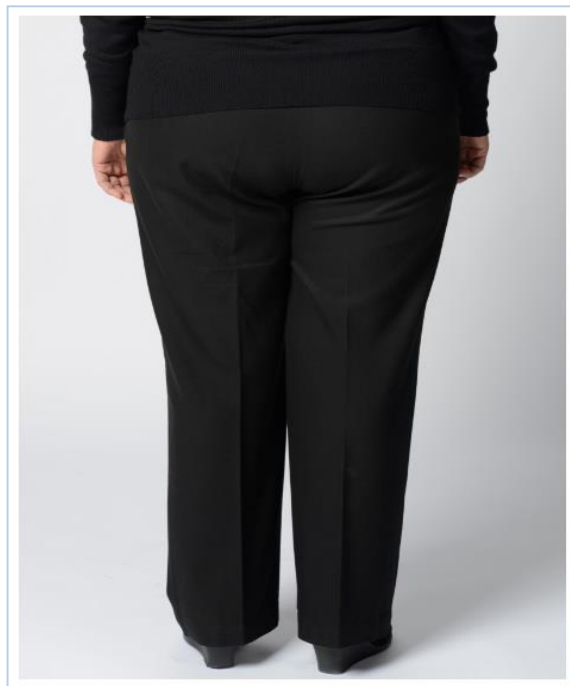


**Figure 3.24.** Diagonal wrinkles toward the crotch

Also, tightness at buttocks causes diagonal wrinkles' radiated from the buttocks and the back pant leg may have diagonal wrinkles angled toward the crotch (Fig.3.24) or the back waistline may be pulled down.

- For this reason, pants/ trousers' hip lines should be designed curvier. Larger darts should also be used at waist width or back crotch height should be longer than front. Alternative models for variouship shapes and curves could be offered in collections of brands.

- For some cases, using elastane fabrics provides both shapelier outlook and comfortable feeling considering that they have a corset effect.



**Figure 3.25.** Dress with stylelines

- As stated for tops, also for dresses, the important point for pear type body shape is to make balance between the upper and lower bodice and makes the body look like an hourglass figure type. Therefore, using stylelines supported with appliqué tapes (Fig.3.25/ Fig.3.26 and Fig.3.27) helps to show wearer longer and slimmer.
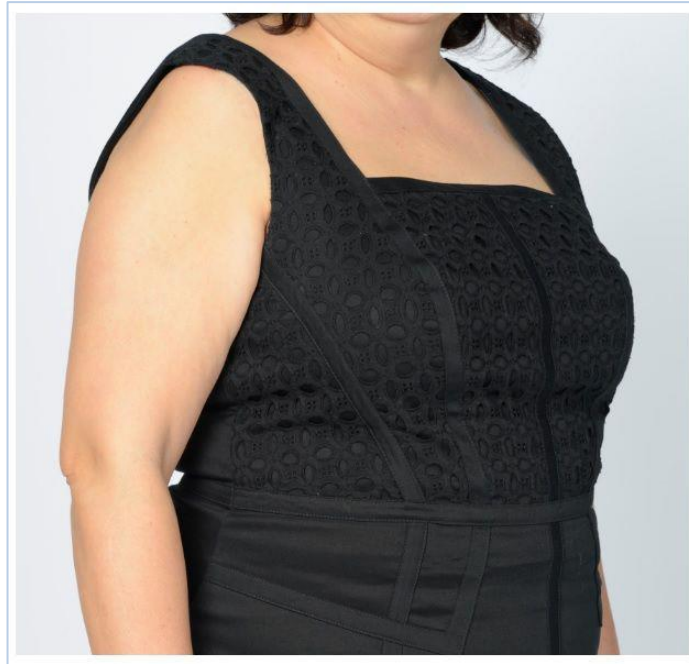
**Figure 3.26.** Stylelines in upper part of dress
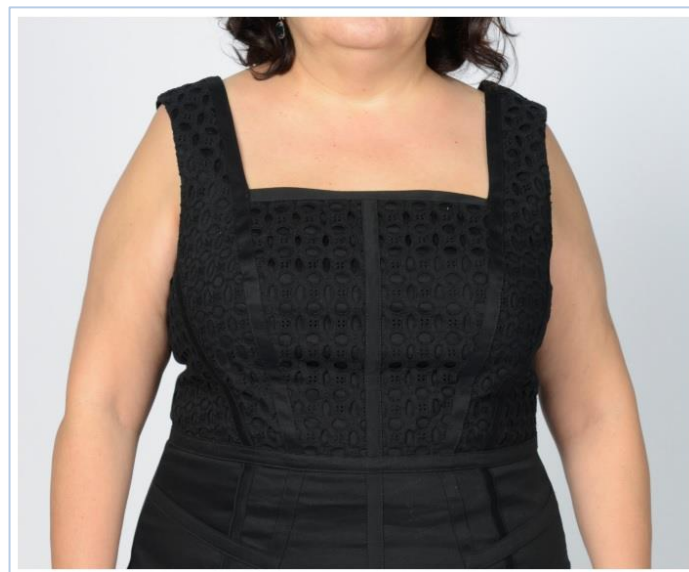


**Figure 3.27.** Square neckline and stylelines

- As shown in Fig.3.27, using square neckline and the armholes shows the person's shoulders wider and also provides a look similar to the hourglass body shape. Besides, fabric of the dress (as elastic cotton woven fabric) creates corset effect by fitting the body.
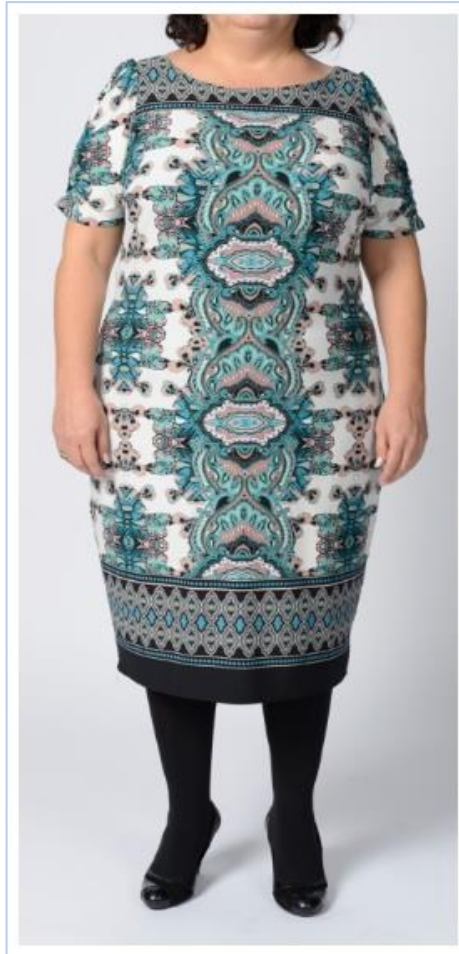
**Figure 3.28.** Fabric, print and color example

- As a hint for dress models such as shown in Fig.3.28, using polyamide-Lycra mixed fabric for interlining (with corset effect) and interlock/ punto di roma for main fabric show shapelier and slimmer. However, it should pay attention that the main fabric should match with the body contour without being too tight.

- Also, this dress can be given as a good example of using different color and print pattern. Because colors and patterns of the garment are aligned in the center front part of the body, and they are vertically oriented, these hide the fat accumulation at abdomen area, and distract the attention from hipline.

- For the lower part of dresses, envelope (Fig.3.29), flared, asymmetric or quarter circle skirts models, light drapes (Fig.3.30) and soft pleats towards waistline (Fig.3.31/ Fig.3.32) help to camouflage the hipline and abdomen area for pear shapes. Also extended diagonal lines appear to length, in the figure as the eye continues to move upward and distract to the upper bodice.



**Figure 3.29.** Dress with envelope skirt
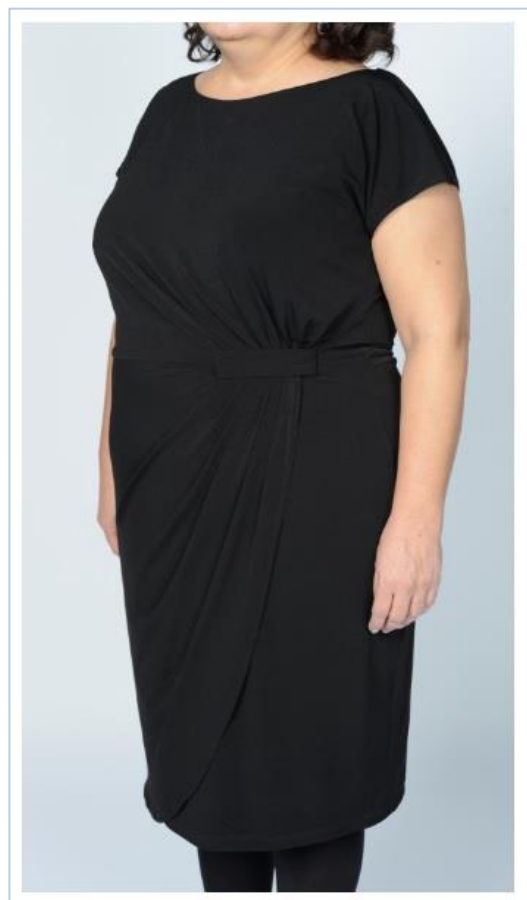
**Figure 3.30.** Draped and envelop skirt

**Figure 3.31.** Draped dress



**Figure 3.32.** Drapes and ornaments at waistline

- Fig.3.29/ Fig.3.30 and Fig.3.31/ Fig.3.32 show examples, where drapes towards right or left side of dress' skirt part, and preferred

- Neckline and sleeve style show the shoulder wide and provide a shift of the outlook from pear type to hourglass type.

**Figure 3.33.** Dress with mini pleats

- Mini pleats and tucks at the waist line with an additional belt piece help to cover the fat accumulation in abdomen girth and hipline.



**Figure 3.34.** Mini pleats toward the waistline of dress

# CHAPTER 4

## CONCLUSION

This chapter includes style conclusions as a base the plus-size clothing and the survey as well as brief recommendations for future research. In this thesis, the current status of the plus-size clothing was examined, and the views of Turkish plus-size women about the issue were investigated. For this reason, firstly, literature review (about the issue and innovations in this area) was made, and then, the survey was realized to find out the most problematic issues. In the survey results it was determined that in comparison to hourglass and rectangular type plus-size respondents, apple and pear type ones were facing with more difficulties with specific problematic garment category (e.g. apple type-tops, pear type-bottoms). Considering the most important problems of apple and pear type body shapes, some hints for each garment category (tops, bottoms, dresses/ suits) were given to be improved in future works and for all body shapes.

As stated in the literature review and in the results of the survey, it was seen that plus-size women had difficulty in clothing. It was also determined that there is a deficiency in this market in terms of brands or retailers and garment design/ style. In other respects, the garment characteristics, such as style, color, fabric and fit are key elements of brands/ retail selection. The study indicated that women who wear size 42/ 44 and over cannot find fashionable, chic and stylish garments with a good fit.

First of all, having more brands or retailers selling plus-size garments is seen as a necessity. Besides, since the plus-size market is underserved in Turkey, this market offers opportunities for brands/ retailers that will meet the needs. The brands or retailers should realize a market research in order to better understand the target customers and their expectations. Secondly, companies should increase the variety of plus-size products, therefore, contemporary fashion trends should be followed to create a more sophisticated look.

In the survey analysis, it was observed that not only the middle aged or old women belong to plus-size categories but also younger women could be plus-size, so it is required to prepare collections for young plus-size women. Also with changing fashion sense and forever young look even the older women may desire for the modern, fashionable and stylish garments. Analyzing the respondents' general problems about plus-size clothing, the most important problem was defined as ''not being able to find plus-sizes of garments that they like'', and ''not being able to find garments suitable for their age'' was in the second place. Therefore, different lines should be created depending on age groups and products should be differentiated with little fashionable details. Also, in design process it should using colors, different textures, ornaments or prints may contribute to the look as long as they are not exaggerated. If they are used appropriately by regarding the garment's model and wearer's body shape, they increase the variety and also provide a recovering from insipidity. Besides, as mass-customization tool, adjustable details or accessories options may be offered in both online and instore shopping. This will increase the product variety, make plus-size women enjoy shopping, and make them feel special with individualized garments.

Products of plus-size brand Marina Rinaldi (was born in Max Mara Fashion Group) and Elena Miro (from Italian Miroglio Group) can be shown as examples for high quality, stylish and fashionable garments in terms of using high quality fabrics, designing modern/ chic garments for plus-size women and making the customers feel special by  successful store atmosphere.

Another important point was determined as the fabric quality. Brands should use substantial fabrics, which do not easily deform as well as more natural fibers or mixtures allowing the skin to breathe. Fabric research is seen as necessity for plus-size clothing.

As stated in the literature review and survey results, ill-fitted garments were observed to be the most common problems in plus-size clothing. It was determined that plus-size did not mean the proportionally bigger version of regular sizes, and it is required to specially design the patterns. Besides, survey results indicated that for plus-size women one of the most important problems was the patterns distortion with increasing sizes. Therefore, in design and pattern making process, the regional adiposity and differences between body shapes or body proportions of plus-size women should be considered. Another important problem of plus-size female customers was identified as the difference between their upper and lower body part. To solve this problem companies should sell suits' tops and bottoms separately in different sizes. Additionally, it is necessary to bear in mind that plus-size women differentiate more in body shape in comparison to regular sizes.

Hence, it is required to analyze deeply the physical features of Turkish plus-size women, and their anthropometric measurements. For this aim, 3D body scanning technology may help to collect data, and transfer them into the pattern making process automatically.

Hereby, not only the measurements are automatically and correctly calculated, but also the data about the whole and component body shape of plus-size women is obtained. Thus, it helps companies to visualize their customers' body proportions or body shapes more clearly to identify and develop classification of different body shapes.

In this thesis, the lack of design in the plus-size clothing was observed by the literature review and the survey results. Therefore, the plus-size body shapes should be firstly classified, and garments should be designed according to these body shapes with some adjustments that show the plus-size women shapelier and slimmer. For all tops and bottoms there should be alternatives. Thus, generally there should be length alternatives for pants/ trousers, skirts or dresses, and drop measurements for tops as in men's clothing (4,6,7 or 8 drop).

On the other hand, lastly, mentioned design recommendations for apple and pear type body shapes are mostly related with the survey results. Also they are related with mostly the construction of garments instead of color and print patterns. Therefore, these recommendations can be enhanced; in particular, patterns and fabrics can be improved. This issue is rather complex and extensive, so a deeper examination about the design contributions for plus-size clothing is necessary.

The main point in this thesis is defined as to evaluate the problems in plus-size clothing and try to understand the possible design solutions, and contribution of design to solve the problems in plus-size clothing. Thus, the thesis remark that producing better fitting and chic garments, which also show wearer slimmer, is possible by combining the innovative, technical and adjustable design solutions.

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# APPENDICES

**APPENDIX I:** SURVEY FORM

**APPENDIX II:** GENERAL PROBLEMS IN PLUS-SIZE CLOTHING (Q.8)

**APPENDIX III:** FREQUENCIES OF THE PROBLEMS IN TOPS (Q.11)

**APPENDIX IV:** FREQUENCIES OF THE PROBLEMS IN BOTTOMS (Q.12)

**APPENDIX V:** FREQUENCIES OF THE PROBLEMS IN DRESSES/ SUITS (Q.13)

**APPENDIX VI:** PROBLEMS ENCOUNTERED THROUGH GARMENT USAGE (Q.14)

İZMİR UNIVERSITY OF ECONOMICS

**TÜRKİYE'DEKİ BÜYÜK BEDEN KADIN HAZIR GİYİMİNDE KARŞILAŞILAN**

**SORUNLARIN ANALİZİ**

Bu anket çalışması İzmir Ekonomi Üniversitesi Sosyal Bilimler Enstitüsü, Tasarım Çalışmaları Yüksek Lisans Programı'nda yürütülen tez kapsamında uygulanmaktadır. Anket formu, 44 beden ve üstü kadın tüketicinin hazır giyimde karşılaştığı sorunlara derinlemesine bir ışık tutmayı ve sizlerin de katkılarıyla, bu giyim sorunlarını üretici ve tasarımcıya doğru bir şekilde aktarmayı hedeflemektedir. Böylelikle tüketici ile üretici firmalar arasında bir köprü kurulacak ve sizlere daha iyi, daha kaliteli ürün ve hizmet sunulmasına katkıda bulunulacaktır.

İlginiz ve katkılarınız için şimdiden teşekkür ederim.

<div align="right">

**Araş.Gör. Başak Süller**

**İzmir Ekonomi Üniversitesi**
**Güzel Sanatlar ve Tasarım Fakültesi**

Moda ve Tekstil Tasarımı Bölümü

</div>

# BÖLÜM 1 (Demografik Bilgiler)

1. **Yaş Grubunuz**
   a. 25 – 34
   b. 35 – 44
   c. 45 – 54
   d. 55 – 65

2. **Gelir Durumunuz**
   a. 750 TL altı
   b. 750 – 1000 TL
   c. 1000 – 2000 TL
   d. 2000 – 3000 TL
   e. 3000 – 5000 TL
   f. 5000 TL ve üzeri

3. **Boyunuz:……….  Kilonuz:..........**

4. **Vücut Tipiniz**
   a. Elma Tipi; Göğüs ve bel çevresi geniş, kalça/ basen daha dar
   b. Armut Tipi; Kalça/ basen çevresi geniş, omuz ve üst beden daha dar
   c. Kum Saati; Omuz, göğüs ve kalça/ basen çevresi orantılı, bel çevresi daha ince
   d. Dikdörtgen; Omuz, göğüs ve kalça/basen aynı orantıda

5. **Üst Gruplar İçin Beden Numaranız (Ceket, bluz, gömlek vs.)**
   a. 44
   b. 46
   c. 48
   d. 50 ve üzeri

6. **Alt Gruplar İçin Beden Numaranız (Pantolon, etek vs.)**
   a. 44
   b. 46
   c. 48
   d. 50 ve üzeri

7. **Elbise ve Takımlar İçin Beden Numaranız**
   a. 44
   b. 46
   c. 48
   d. 50 ve üzeri

# BÖLÜM 2 (Büyük Beden Hazır Giyimde Karşılaşılan Sorunlar)

## A)  Genel Sorunlar

**8.  Büyük beden hazır giyimde karşılaştığınız sorunlar nelerdir?**
**(Lütfen önem derecesine göre sıralayınız; 5 en önemli – 1 en az önemli)**

(  ) Hazır giyimde büyük bedene yönelik ürünleri satan marka/ mağaza sayısı yetersiz

(  ) Beğendiğim ürünlerin büyük bedenini bulamıyorum

(  ) Modaya ve trendlere uygun ürün bulmakta sıkıntı çekiyorum

(  ) Piyasadaki büyük beden ürünleri pahalı buluyorum

(  ) Piyasada yaşıma uygun büyük beden giysi bulmakta sıkıntı çekiyorum

**9.  Satın almış olduğunuz ürünlerde tadilat yaptırıyor musunuz?**
   a.  Evet
   b.  Hayır

## B)  Kalıp ve Model Kaynaklı Problemler

**10. En sık model ve kalıp kaynaklı sorun yaşadığınız giysi grubu hangisidir?**
   a.  Üst Grup (gömlek, bluz, ceket vb.)

   **(Bu seçeneği işaretlediyseniz, lütfen sadece 11. soruyu yanıtlayıp C Bölümüne geçiniz.)**

   b.  Alt Grup (pantolon, etek vb.)

   **(Bu seçeneği işaretlediyseniz, lütfen sadece 12. soruyu yanıtlayıp C Bölümüne geçiniz.)**

   c.  Elbise/ Takım (pantolon/ etek takımlar)

   **(Bu seçeneği işaretlediyseniz, lütfen sadece 13. soruyu yanıtlayıp C Bölümüne geçiniz.)**

**11. Satın almış olduğunuz (size uygun beden numarasıyla) üst grup ürünlerinde karşılaştığınız kalıp ve model kaynaklı sorunlar nelerdir? (Lütfen karşılaşma sıklığına göre işaretleyiniz)**

| ÜST GRUP ÜRÜNLERİNİN; | HİÇBİR ZAMAN | ARA SIRA | GENELLİKLE | ÇOĞU ZAMAN | HER ZAMAN |
|---|---|---|---|---|---|
| Yakası yukarıda kalıyor | | | | | |
| Yaka çevresi bol | | | | | |
| Yaka çevresi dar | | | | | |
| Yaka çevresi bol | | | | | |
| Yaka çevresi dar | | | | | |
| Omuz ölçüsü geniş | | | | | |
| Omuz ölçüsü dar | | | | | |
| Kolevi ölçüsü bol (Kolun bedene takıldığı yer) | | | | | |
| Kolevi ölçüsü dar | | | | | |
| Pazu çevresi dar | | | | | |
| Pazu çevresi bol | | | | | |
| Uzun kollu ürünlerin kol boyu uzun | | | | | |
| Uzun kollu ürünlerin kol boyu kısa | | | | | |
| Göğüs çevresi bol | | | | | |
| Göğüs çevresi dar | | | | | |
| Uygulanan pens ve kupların yeri uygun değil | | | | | |
| Etek ucu genişliği bol (kalçaya denk gelen kısmı) | | | | | |
| Etek ucu genişliği dar | | | | | |
| Ön ve arka beden boyları uyumsuz | | | | | |

**12. Satın almış olduğunuz (size uygun beden numarasıyla) alt grup ürünlerinde karşılaştığınız kalıp ve model kaynaklı sorunlar nelerdir?**
   **(Lütfen karşılaşma sıklığına göre işaretleyiniz)**

| ALT GRUP ÜRÜNLERİNİN; | HİÇBİR ZAMAN | ARA SIRA | GENELLİKLE | ÇOĞU ZAMAN | HER ZAMAN |
|---|---|---|---|---|---|
| Bel ölçüsü bol | | | | | |
| Bel ölçüsü dar | | | | | |
| Basen/ kalça çevresi bol | | | | | |
| Basen/ kalça çevresi dar | | | | | |
| Pantolonların ağ kısımları bol | | | | | |
| Pantolonların ağ kısımları dar | | | | | |
| Pantolonların beli çok yüksek | | | | | |
| Pantolonların beli çok düşük | | | | | |
| Pantolonlarda bacağın üst kısımları bol | | | | | |
| Pantolonlarda bacağın üst kısımları dar | | | | | |
| Pantolonların baldır kısımları bol | | | | | |
| Pantolonların baldır kısımları dar | | | | | |
| Pantolonların boyu uzun | | | | | |
| Pantolonların boyu kısa | | | | | |
| Eteklerde etek ucu kısmı önden yukarı kalkıyor | | | | | |
| Eteklerde etek ucu kısmı arkadan yukarı kalkıyor | | | | | |
| Beden büyüdükçe kalıplar bozuluyor | | | | | |

**13.** Satın almış olduğunuz (size uygun beden numarasıyla) elbise/ takımlarda karşılaştığınız kalıp ve model kaynaklı sorunlar nelerdir? (Lütfen karşılaşma sıklığına göre işaretleyiniz) *Alt ve üst bedenim orantılı olmadığı için;

| ELBİSE ve TAKIMLARDA; | HİÇBİR ZAMAN | ARA SIRA | GENELLİKLE | ÇOĞU ZAMAN | HER ZAMAN |
|---|---|---|---|---|---|
| Ceket/ üst kısım (elbise için) tam, etek kısmı/pantolonu dar | | | | | |
| Etek/ pantolon tam, ceket/ üst kısım dar | | | | | |
| Kolsuz/ kısa kollu elbiselerde kolevi ölçüsü bol (Kolun bedene takıldığı yer) | | | | | |
| Kolsuz/ kısa kollu elbiselerde kolevi ölçüsü dar | | | | | |
| Elbiselerin beli bol | | | | | |
| Elbiselerin beli dar | | | | | |
| Beden büyüdükçe alt-üst arasındaki orantısızlıkta artma | | | | | |
| Belden kesmeli/ kemerli elbiselerde kemerden yukarıda kalan kısım uzun | | | | | |
| Belden kesmeli/ kemerli elbiselerde kemerden aşağıda kalan kısım uzun | | | | | |

**C) Kullanım Sonrası Ortaya Çıkan Sorunlar**

**14.** Satın almış olduğunuz giysilerinizde, kullanım sürecinde karşılaşılan sorunlar nelerdir?
(Lütfen önem derecesine göre sıralayınız; 5 en önemli – 1 en az önemli)

( ) Dikişlerde patlama/ sökülme

( ) Fermuarlarda patlama/ bozulma

( ) Pantolonların ağ kısımlarında tüylenme/ erime

( ) Üst grup ürünlerinin kol altı kısımlarında tüylenme/ erime

( ) Düğmelerde kopma

( ) Diğer (Lütfen belirtiniz) …………………………………………………………….

**15. Son olarak, eklemek istedikleriniz/ yorumlarınız ve üreticilerden beklentileriniz nelerdir?**

…………………………………………………………………………………...……………………………

…………………………………………………………………………………………….……………………

………………………………………………………………………………………………….…………………

…………………………………………………………………………………………….……………………

**İLGİNİZ ve YARDIMLARINIZ İÇİN TEŞEKKÜR EDERİM…**

## **APPENDIX II:** GENERAL PROBLEMS IN PLUS-SIZE CLOTHING (Q.8)

Büyük beden hazır giyimde karşılaştığınız sorunlar nelerdir? (Lütfen önem derecesine göre sıralayınız.)

| | 1 En az önemli | | 2 | | 3 | | 4 | | 5 En önemli | |
|---|---|---|---|---|---|---|---|---|---|---|
| Hazır giyimde büyük bedene yönelik ürünleri satan marka/ mağaza sayısı yetersiz | 24 | 24% | 11 | 11% | **25** | **25%** | 23 | 23% | 17 | 17% |
| Beğendiğim ürünlerin büyük bedenini bulamıyorum | 2 | 2% | 14 | 14% | 19 | 19% | 21 | 21% | **44** | **44%** |
| Modaya ve trendlere uygun ürün bulmakta sıkıntı çekiyorum | 23 | 23% | **25** | **25%** | 22 | 22% | 19 | 19% | 11 | 11% |
| Piyasadaki büyük beden ürünleri pahalı buluyorum | **41** | **41%** | 26 | 26% | 9 | 9% | 10 | 10% | 14 | 14% |
| Piyasada yaşıma uygun büyük beden giysi bulmakta sıkıntı çekiyorum | 10 | 10% | 24 | 24% | 25 | 25% | **27** | **27%** | 14 | 14% |

**Cevaplayan Sayısı: 100**

Satın almış olduğunuz (size uygun beden numarasıyla) üst grup ürünlerinde karşılaştığınız kalıp ve model kaynaklı sorunlar nelerdir? (Lütfen karşılaşma sıklığına göre işaretleyiniz)

| | 1 Hiçbir zaman | | 2 Ara sıra | | 3 Genellikle | | 4 Çoğu zaman | | 5 Her zaman | |
|---|---|---|---|---|---|---|---|---|---|---|
| Yakası yukarıda kalıyor | 12 | 40% | **14** | **46%** | 1 | 3% | 2 | 6% | 1 | 3% |
| Yaka çevresi bol | 11 | 36% | **12** | **40%** | 3 | 10% | 3 | 10% | 1 | 3% |
| Yaka çevresi dar | **14** | **46%** | 10 | 33% | 5 | 16% | 0 | 0% | 1 | 3% |
| Omuz ölçüsü geniş | **11** | **36%** | **11** | **36%** | 5 | 16% | 2 | 6% | 1 | 3% |
| Omuz ölçüsü dar | **14** | **46%** | 6 | 20% | 6 | 20% | 3 | 10% | 1 | 3% |
| Kolevi ölçüsü bol (Kolun bedene takıldığı yer) | **12** | **40%** | 8 | 26% | 8 | 26% | 2 | 6% | 0 | 0% |
| Kolevi ölçüsü dar | **10** | **34%** | 8 | 27% | 2 | 6% | 4 | 13% | 5 | 17% |
| Pazu çevresi dar | 5 | 16% | 6 | 20% | 6 | 20% | **8** | **26%** | 5 | 16% |
| Pazu çevresi bol | **22** | **73%** | 7 | 23% | 1 | 3% | 0 | 0% | 0 | 0% |
| Uzun kollu ürünlerin kol boyu uzun | **10** | **33%** | 5 | 16% | 5 | 16% | 6 | 20% | 4 | 13% |
| Uzun kollu ürünlerin kol boyu kısa | **17** | **56%** | 10 | 33% | 1 | 3% | 0 | 0% | 2 | 6% |
| Göğüs çevresi bol | **22** | **73%** | 5 | 16% | 1 | 3% | 2 | 6% | 0 | 0% |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Göğüs çevresi dar | 4 | 13% | 5 | 16% | 2 | 6% | **11** | **36%** | 8 | 26% |
| Uygulanan pens ve kupların yeri uygun değil | 3 | 10% | **11** | **36%** | 7 | 23% | 8 | 26% | 1 | 3% |
| Etek ucu genişliği bol (kalçaya denk gelen kısmı) | **14** | **46%** | 9 | 30% | 4 | 13% | 3 | 10% | 0 | 0% |
| Etek ucu genişliği dar | 5 | 16% | **13** | **43%** | 6 | 20% | 4 | 13% | 2 | 6% |
| Ön ve arka beden boyları uyumsuz | 8 | 26% | **9** | **30%** | 8 | 26% | 3 | 10% | 2 | 6% |

**Cevaplayan Sayısı: 30**

**Boş Bırakan Sayısı: 70**

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**APPENDIX IV:** FREQUENCIES OF THE PROBLEMS IN BOTTOMS (Q.12)

Satın almış olduğunuz (size uygun beden numarasıyla) alt grup ürünlerinde karşılaştığınız kalıp ve model kaynaklı sorunlar nelerdir? (Lütfen karşılaşma sıklığına göre işaretleyiniz)

| | 1 Hiçbir zaman | | 2 Ara sıra | | 3 Genellikle | | 4 Çoğu zaman | | 5 Her zaman | |
|---|---|---|---|---|---|---|---|---|---|---|
| Bel ölçüsü bol | 10 | 23% | **13** | **30%** | 7 | 16% | 8 | 19% | 4 | 9% |
| Bel ölçüsü dar | 11 | 26% | **19** | **45%** | 6 | 14% | 5 | 11% | 1 | 2% |
| Basen/ kalça çevresi bol | **25** | **59%** | 15 | 35% | 1 | 2% | 0 | 0% | 1 | 2% |
| Basen/ kalça çevresi dar | 5 | 11% | **14** | **33%** | 11 | 26% | 8 | 19% | 4 | 9% |
| Pantolonların ağ kısımları bol | **15** | **35%** | **15** | **35%** | 8 | 19% | 3 | 7% | 1 | 2% |
| Pantolonların ağ kısımları dar | **16** | **38%** | 15 | 35% | 4 | 9% | 6 | 14% | 1 | 2% |
| Pantolonların beli çok yüksek | **17** | **40%** | 15 | 35% | 5 | 11% | 5 | 11% | 0 | 0% |
| Pantolonların beli çok düşük | 5 | 11% | **13** | **30%** | 9 | 21% | 12 | 28% | 3 | 7% |
| Pantolonlarda bacağın üst kısımları bol | **25** | **59%** | 11 | 26% | 4 | 9% | 2 | 4% | 0 | 0% |
| Pantolonlarda bacağın üst kısımları dar | 8 | 19% | **18** | **42%** | 7 | 16% | 7 | 16% | 2 | 4% |
| Pantolonların baldır kısımları bol | **18** | **42%** | 9 | 21% | 9 | 21% | 4 | 9% | 2 | 4% |
| Pantolonların baldır kısımları dar | **18** | **42%** | 12 | 28% | 5 | 11% | 6 | 14% | 1 | 2% |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 📊 Pantolonların boyu uzun | 3 | 7% | 10 | 23% | 6 | 14% | **12** | **28%** | 11 | 26% |
| 📊 Pantolonların boyu kısa | **31** | **73%** | 10 | 23% | 1 | 2% | 0 | 0% | 0 | 0% |
| 📊 Eteklerde etek ucu kısmı önden yukarı kalkıyor | **21** | **50%** | 10 | 23% | 5 | 11% | 6 | 14% | 0 | 0% |
| 📊 Eteklerde etek ucu kısmı arkadan yukarı kalkıyor | **18** | **42%** | 11 | 26% | 6 | 14% | 7 | 16% | 0 | 0% |
| 📊 Beden büyüdükçe kalıplar bozuluyor | 1 | 2% | 3 | 7% | 5 | 11% | **19** | **45%** | 14 | 33% |

**Cevaplayan Sayısı: 42**

**Boş Bırakan Sayısı: 58**

**APPENDIX V:** FREQUENCIES OF THE PROBLEMS IN DRESSES/ SUITS (Q.13)

Satın almış olduğunuz (size uygun beden numarasıyla) elbise/ takımlarda karşılaştığınız kalıp ve model kaynaklı sorunlar nelerdir? (Lütfen karşılaşma sıklığına göre işaretleyiniz) *Alt ve üst bedenim orantılı olmadığı için;

| | 1 Hiçbir zaman | | 2 Ara sıra | | 3 Genellikle | | 4 Çoğu zaman | | 5 Her zaman | |
|---|---|---|---|---|---|---|---|---|---|---|
| Ceket/ üst kısım (elbise için) tam, etek kısmı/pantolonu dar | 5 | 17% | **15** | **53%** | 3 | 10% | 5 | 17% | 0 | 0% |
| Etek/ pantolon tam, ceket/ üst kısım dar | **10** | **35%** | 4 | 14% | 6 | 21% | 4 | 14% | 4 | 14% |
| Kolsuz/ kısa kollu elbiselerde kolevi ölçüsü bol (Kolun bedene takıldığı yer) | 2 | 7% | **15** | **53%** | 5 | 17% | 6 | 21% | 0 | 0% |
| Kolsuz/ kısa kollu elbiselerde kolevi ölçüsü dar | 8 | 28% | **10** | **35%** | 6 | 21% | 3 | 10% | 1 | 3% |
| Elbiselerin beli bol | 6 | 21% | **12** | **42%** | 4 | 14% | 3 | 10% | 3 | 10% |
| Elbiselerin beli dar | **13** | **46%** | 9 | 32% | 5 | 17% | 0 | 0% | 1 | 3% |
| Beden büyüdükçe alt-üst arasındaki orantısızlıkta artma | 0 | 0% | 5 | 17% | 6 | 21% | 7 | 25% | **10** | **35%** |
| Belden kesmeli/ kemerli elbiselerde kemerden yukarıda kalan kısım uzun | 9 | 32% | **13** | **46%** | 4 | 14% | 2 | 7% | 0 | 0% |
| Belden kesmeli/ kemerli elbiselerde kemerden aşağıda kalan kısım uzun | **9** | **32%** | 9 | 32% | 4 | 14% | 3 | 10% | 3 | 10% |

Cevaplayan Sayısı: 28

Boş Bırakan Sayısı: 72

**APPENDIX VI:** PROBLEMS ENCOUNTERED THROUGH GARMENT USAGE

(Q.14)

Satın almış olduğunuz giysilerinizde, kullanım sürecinde karşılaşılan sorunlar nelerdir? (Lütfen önem derecesine göre sıralayınız)

| | 1 En az önemli | | 2 | | 3 | | 4 | | 5 En önemli | |
|---|---|---|---|---|---|---|---|---|---|---|
| Dikişlerde patlama/ sökülme | 10 | 10% | 20 | 20% | **28** | **28%** | 25 | 25% | 17 | 17% |
| Fermuarlarda patlama/ bozulma | **26** | **26%** | 23 | 23% | 21 | 21% | 20 | 20% | 10 | 10% |
| Pantolonların ağ kısımlarında tüylenme/ erime | 10 | 10% | 8 | 8% | 10 | 10% | 18 | 18% | **54** | **54%** |
| Üst grup ürünlerinin kol altı kısımlarında tüylenme/ erime | 20 | 20% | **28** | **28%** | 20 | 20% | 22 | 22% | 10 | 10% |
| Düğmelerde kopma | **34** | **34%** | 21 | 21% | 21 | 21% | 15 | 15% | 9 | 9% |

**Cevaplayan Sayısı: 100**

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