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Designing casual wear for male dwarfs

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Abstract:
Dwarfs have to face the inconvenience of shopping for their clothes and the inability of having fashionable clothes that suit their special needs. This research is designed to admit dwarfs' clothing special needs as disabled consumers and suggest items for clothing designs that suit male dwarfs and their special needs. All that will make it possible for male dwarfs to convey acceptable, fashionable look that they can find in stores. In-depth interviews were conducted with 10 male dwarfs of the age group 30-45 years old living in Cairo, Giza and Ismailia in Egypt. The researcher considered five main themes to understand their clothing problems: design, function, social identity, self-efficacy and shopping. The design project for the research is involving designs for male dwarfs, ages 30-45. Researcher suggests 20 designs for 5 dwarfism cases (4 designs per case). The statistic analysis shows that for case 1 " Design 2" has the highest mean of 73.00, for case 2 " Design 6" has the highest mean of 71.50, for case 3 " Design 12"has the highest mean of 72.60, for case 4 " Design 13" has the highest mean of 70.90 and for case 5 " Design 19" has the highest mean of 71.40.

Keywords:
Dwarfs
Clothing Design
Disabled Consumers

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1- Introduction:
Fashionable and attractive clothing is an effective means of appearance management and is used by people with disabilities to enhance social acceptance. People with disabilities also use fashionable clothing to foster feelings of belonging. (Kidd., 2006)

However, clothing decision making is not just limited to pre purchase selection. Clothing consumption also includes the use of clothing post purchase. In this sense, clothing selection occurs both while consumers are shopping and on a daily basis. (Chang et al, 2014)

Since the 1950s, designers and scholars have directed attention to apparel needs of people with physical disabilities. Garments designed especially with their needs in mind have been called functional clothing or functional fashions. (Jane et al, 1992)

Because of dwarfs' physical limitations, they engage in behaviors that are unlike those of others in Egypt. One such behavior that is affected by dwarfism is dress behavior. During the interviews the researcher found that dwarfs want to be part of the fashion scene and wear what the able-bodied are wearing.

The purpose of this research is to explore the special needs of consumers with dwarfism about their clothing as a kind of disability. Also to admit how their clothing selection is related to design, function, social identity, self-efficacy and shopping from a general perspective.

A second purpose of this research is to suggest items and clothing designs that suit male dwarfs and their special needs. The knowledge gained from this research is important in providing guidelines to designers of functional clothing with respect to the critical factors that must be considered in creating acceptable fashionable clothing design for dwarfs.

1-1 Problem statements:
In 2004, "the National Organization on Disability" revealed that life satisfaction is lower for disabled than nondisabled individuals, and disabled people are less likely to socialize or attend religious services than those without disabilities. (Chang et al, 2014) And according to interviews, Egyptian male dwarfs are suffering the same problems.

All that cause financial limitations for dwarfs especially in Egypt, in addition to the unconventional body shapes which exacerbate the problem of finding clothes appropriate for dwarfs' needs and convey tidy and fashionable look.

The following questions guided the research:

- What types of clothing do dwarfs select? What are the reasons for their selection?
- Are dwarfs as disabled consumers satisfied with the clothing available for them?
- What problems do dwarfs experience with their clothing concerning design, function, social identity, self-efficacy and shopping from a general perspective?

1-2- The aims of the research:
The purposes of this research are to:

- Admit male dwarfs' special needs with

their clothing concerning design, function, social identity, self-efficacy and shopping from a general perspective.

- Suggest items and clothing designs that suit male dwarfs and their special needs to make it possible for them to convey acceptable, fashionable look that they can find in stores.

1-3- Research methodology:

Research follows the descriptive analytical method and practical study.

2-Review of literature:

2-1- Disability:

Several models have been created to define disability. According to World Health Organization, the Medical Model in defining disability considers "disability a problem of the individual that is directly caused by a disease, an injury, or some other health condition and requires medical care in the form of treatment and rehabilitation". The medical model attributes the problem to the individual, who has a condition that is unwanted and that places him or her in the "sick role". (World Health Organization, 2001).

Therefore, disabilities are categorized into groups:

First, based on the type of disability: physical and/or mental.

Second, based on whether it is congenital or accidental.

Third, based on the length of time the disability is expected to last: temporary or permanent. (Chang et al, 2014)

2- 2- Functions of Clothing

Special functional features in apparel designed for persons with physical disabilities should be sufficiently inconspicuous to avoid a stigmatizing effect when perceived by others. (Freeman et al., 1985-1986)

The three types of considerations for an apparel product for disabled persons are: functional, expressive and aesthetic. (Jane et al, 1992) In addition to that we shouldn't neglect the need for fashion-ability and attractiveness in functional apparel for dwarfs.

2- 3- Disabled Consumers

Widespread discrimination against people with disabilities severely restricts their employment opportunities in the general labor market. (Christman et al, 1990) Interviews with male dwarfs proved that, because of their disability they are suffering low level of income earned in Egypt due to limited job opportunities. Recently, public policy in Egypt is focusing on enhancing the socioeconomic conditions of dwarfs by allowing for more opportunities in the workplace.

Compared with other market segments, the market for physically disabled people is relatively small it is therefore, probably not feasible for most clothing retailers to aim at the style and style feature preferences of this market. (De Klerk et al, 2002) During the interviews, dwarfs complained about the great difficulty that confronts them which is the impossibility; of shopping for their own and also not being able to buy fashionable clothes that suit their bodies. According to the male dwarfs most of the time they do face more problems with staff who are not knowledgeable in assisting them to make a suitable choice regarding the clothes in stores. (Picture no. 1)

(Picture no. 1) A dwarf consumer, www.lpaonline.org

2- 4- Dwarfism:

In general, "dwarf simply refers to something that is much smaller than average and shorter than the norm for their ethnic background and family history". (Campbell et al, 2006) Little People of America (LPA) defines dwarfism as "a medical or genetic condition, generally caused by one of the more than 200 medical conditions that usually results in an adult height of 4'10" or shorter, among both men and women, although in some cases a person with a dwarfing condition may be slightly taller than that". (www.lpaonline.org) (Picture no. 2)

(Picture no. 2) Dwarfism, www.lpaonline.org

2- 5- The most common types of dwarfism

Generally there are two main classes of dwarfism:

1- Proportionate dwarfism: related to hormone production or simply having short parents may also cause proportionate short-stature.

2- Disproportionate dwarfism: come in all shapes and sizes, short arms and legs with an average torso, shorter torso with longer arms and legs, etc. (Campbell et al, 2006) (Picture no. 3)

(Picture no. 3) The most common types of dwarfism, www.lpaonline.org

2- 6- Dwarfs in Egypt

According to a research conducted by the Egyptian Ministry of Health in 2011, 29% of Egyptians children from 1 to 4 years are stunted, and according to a survey by the same ministry in December 2015, one out of three children under the age of five suffers from stunting (severe shortness of height). (Soliman, 2016)

According to "Dwarfs between the greatness of the past and the marginalization of the present" conference, which was held in Cairo University in Egypt on 31 of October 2015, there are 70000 dwarfs living in Egypt that is about 1/3 of the dwarfs all over the world.

The culture of the Egyptian street has stopped at the picture that is embodied by the scenes of the films and plays about the dwarf to produce an atmosphere of joke, which some dwarfs accept for themselves because there is no decent source of income for them. (Picture no. 7)

According to the interviews, dwarfs suffered from marginalization. Most dwarfs have a constant sense of shame and a desire to hide. There are some dwarfs in Egypt did not leave their homes for more than 18 years and did not extract a national ID card for fear of dealing with irony and cynicism of people on the street. Most of them do not leave their homes except for the utmost necessity.

(Picture no. 7), Egyptian actors with dwarfism, (Abbas, 2015)

2- 7- Methods and analysis:

Since people with disabilities often find it difficult to obtain suitable apparel because of their special needs, nonverbal cues provided by inappropriate clothing may be sending negative information to perceivers. (Christman et al, 1990) Through interviews male dwarfs said that if clothing is appropriate in fitting, with normal look, and attractive, it may draw attention away from their disability.

Therefore, identifying dwarfs needs provides a means for establishing clothing designs that is fashionable yet suits their special needs. Data collected during interviews with 10 dwarfs were analyzed to identify the major problems they have with design, function, social identity, self-efficacy, fashionable styles, dressing, undressing, caring and shopping for their cloths.

Interviews showed that people with dwarfism often have unusual shapes. It is therefore clear that consumers with dwarfism probably have very special clothing needs and probably many problems regarding shopping of fashionable clothes that suite their disability. People with dwarfism do not want functional clothes that are unappealing or that convey a stigmatized image. Therefore, the challenge for the researcher is to create designs that suit the dwarfs' needs, attractive and socially acceptable.

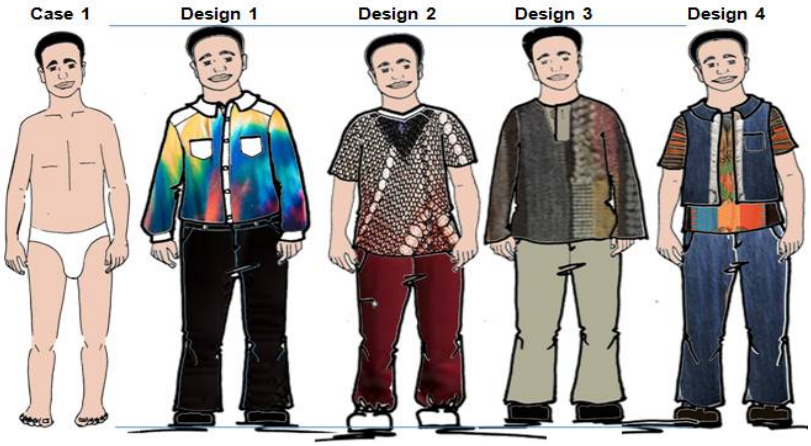
The researcher used figures that present men with 5 different cases of dwarfism. Ideas are sketched out in rough sketches then reworked and redrawn. Computer programs were used to color final designs to achieve the best look of final design with final fabrics.

Aesthetic aspects for the designs: Designs follow the latest fashion trends for SS 2018 to ensure fashionable look, in addition to the preferred lines and colors for the interviewed male dwarfs and

their special needs. (Picture no. 8)

(Picture no. 8), Collection of menswear fashion trends SS 2018, www.trendcouncil.com, www.wgsn.com, www.weconnectfashion.com, www.vogue.com, www.gq-magazine.co.uk

Functional aspects for the designs: Designs' fabrics and items are easy to wash and care. Designs' fabrics are Plain Single Jersey 100% cotton, Pique` Knitted, Linen, Melton cotton, Gabardine 100% cotton and Denim 100%cotton. Buttons, ribbons, elastics and zippers are used to suite the different case's proportions and to be easy dressed and un-dressed.



(Picture no. 9), Dwarfism case 1, designs 1- 4

Dwarfism case 1: Proportionate dwarfism, Normal proportions with short-stature. (Picture no. 9)

Dwarfism case 1: Design (1): long-sleeves shirt with shirt collar, buttons in center front opening, tow pockets and cuffs. Long pant with five pockets and a zipper in center front.

Fabrics: Linen for shirt and Gabardine 100% cotton for pant.

Functional aspects: Small collar, cuffs, pockets and buttons to suite the small body and to be easy for dress and un-dress. Allover print design with vertical design causes taller look for dwarf.

Dwarfism case 1: Design (2): short-sleeves t-shirt with a v neckline. Long sports pant with elastic at waist and hem with tow pockets.

Fabrics: Single jersey 100% cotton for t-shirt and Melton cotton for pant.

Functional aspects: Small neckline and elastic at pant's waist and hem, to suite the small body and to be easy for dress and un-dress. Allover print design causes taller look for dwarf.

Dwarfism case 1: Design (3): long-sleeves collarless shirt, a button in the front opening. Long pant with five pockets and a zipper in the center front.

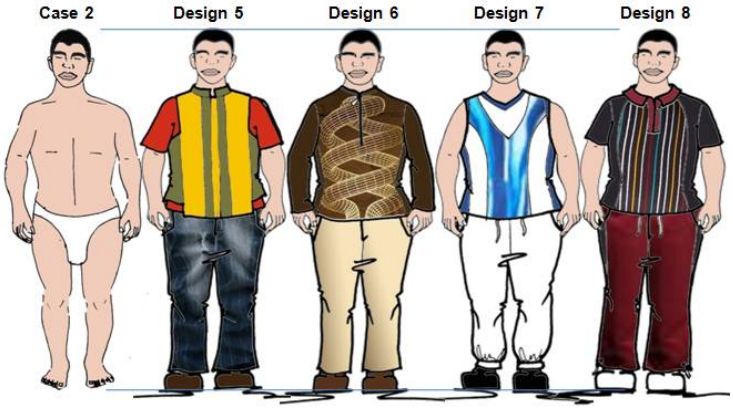
Fabrics: Linen for shirt and Gabardine 100% cotton for pant.

Functional aspects: Small neckline and a small button to suite the small body and to be easy for dress and un-dress. Allover print design causes taller look for dwarf.

Dwarfism case 1: Design (4): short-sleeves t-shirt with round neckline. Waist- length- vests with flat collar. Long pant with five pockets and a zipper in center front.

Fabrics: Single jersey 100% cotton for t-shirt and Denim 100%cotton for vest and pant

Functional aspects: Small neckline, small armhole to suite the small body and to be easy for dress and un-dress. Allover print design causes taller look for dwarf.



(Picture no. 10), Dwarfism case 2, designs 5- 8

Dwarfism case 2: Disproportionate dwarfism: Small head, wide shoulders, narrow hip, short arms and legs, small hands and feet. (Picture no. 10)

Dwarfism case 2: Design (5): short-sleeves t-shirt with round neckline. High-hip length vests with Chinese collar and a zipper in center front. Long pant with five pockets and a zipper in the center front.

Fabrics: Single jersey 100% cotton for t-shirt, Linen for vest and Denim 100%cotton for pant.

Functional aspects: Vertical, striped and colored cut-lines cause taller look for the dwarf. Short shoulder lines and deep armhole with irregular hem for vest cause thinner look for upper part of the body.

Dwarfism case 2: Design (6): long-sleeves t-shirt with round neckline, a short zipper in center front and vertical cutline on both sides. Long pant with tow pockets and a zipper in center front.

Fabrics: Single jersey 100% cotton for t-shirt and Gabardine 100% cotton for pant.

Functional aspects: Spiral shape print and vertical cutline on both sides with dark color cause taller look for the dwarf. Spiral shape print causes thinner look for upper part of the body.

Dwarfism case 2: Design (7): Sleeveless t-shirt with a V neckline and round armholes. Long sports pant with tow pockets, ribbon at waist and elastic at hem.

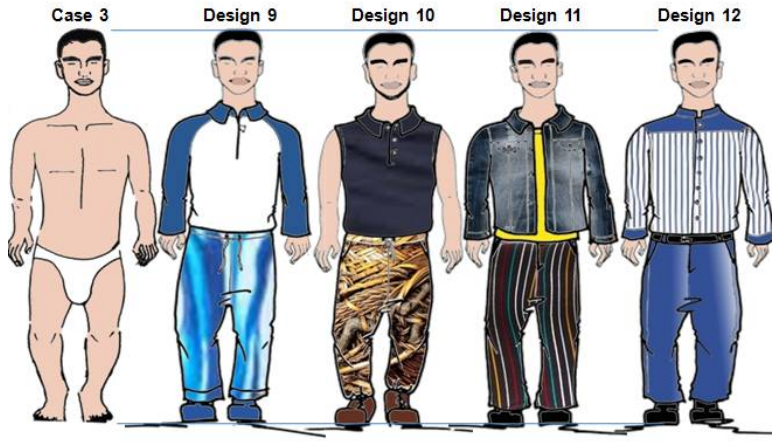
Fabrics: Single jersey 100% cotton for t-shirt and Melton cotton for pant.

Functional aspects: V shape cut-lines and colored vertical print with dark colors on both sides cause taller and thinner look for upper part of the body.

Dwarfism case 2: Design (8): Short sleeves polo-shirt with flat collar and a short zipper in center front. Long sports pant with tow pockets, ribbon at waist and hem.

Fabrics: Pique` Knitted for Polo-shirt and Melton cotton for pant.

Functional aspects: Vertical cut-lines and stripped print with dark colors on both sides for polo-shirt and pant cause taller look for the dwarf. Curvy cut-lines at shoulders cause taller and thinner look for upper part of the body.



(Picture no. 11), Dwarfism case 3, designs 9- 12

Dwarfism case 3: Disproportionate dwarfism: An average torso, small head, narrows hip, short arms and legs, small hands and feet. (Picture no. 11)

Dwarfism case 3: Design (9): long sleeves polo-shirt with flat collar and short zipper in center front. Long sports pant with ribbon at waist.

Fabrics: Pique` Knitted for polo-shirt and Melton cotton for pant.

Functional aspects: Raglan armhole with dark colors on both sleeves and colored vertical print cause taller look for the dwarf. Raglan armhole causes thinner look for shoulders. Polo-shirt under

pant is to balance the length between upper and lower parts of the body.

Dwarfism case 3: Design (10): sleeveless polo-shirt with flat collar and buttons in center front. Long sports pant with tow pockets, ribbon at waist and elastic at hem.

Fabrics: Pique` Knitted for polo-shirt and Melton cotton for pant.

Functional aspects: Straight silhouette cause taller looks for the dwarf. Sleeveless polo-shirt causes thinner look for shoulders. Polo-shirt under pant is to balance the length between upper and lower parts of the body.

Dwarfism case 3: Design (11): short sleeves t-shirt with round neckline. Long sleeves short jacket with flat collar, buttons at center front, tow pockets and cuffs. Long pant with tow pockets and zipper at waist.

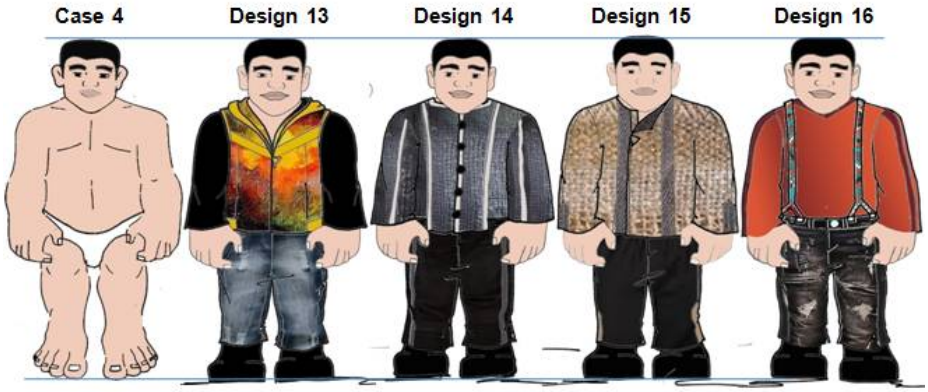
Fabrics: Single jersey 100% cotton for t-shirt, Denim 100%cotton for jacket and Melton cotton for pant.

Functional aspects: Vertical stripes print and cut-lines cause taller look for the dwarf. Straight cut-lines cause thinner look for shoulders. T-shirt under pant and short jacket are to balance the length between upper and lower parts of the body.

Dwarfism case 3: Design (12): long-sleeves shirt with Chinese collar, cuffs and buttons at center front opening. Long pant with four pockets and zipper at waist.

Fabrics: Linen for shirt, Gabardine 100% cotton for pant.

Functional aspects: Vertical stripes print and cut-lines cause taller look for the dwarf. Shirt under pant is to balance the length between upper and lower parts of the body.



(Picture no. 12), Dwarfism case 4, designs 13- 16

Dwarfism case 4: Disproportionate dwarfism: Big head, wide shoulders, wide hip, short legs and big hands and feet. (Picture no. 12)

Dwarfism case 4: Design (13): long sleeves t-shirt with a V neckline. Sleeveless short vest with hood, zipper at center front and tow vertical openings pockets. Long pant with five pockets and zipper at waist.

Fabrics: Single jersey 100% cotton for t-shirt, Gabardine 100% cotton for vest and Denim 100%cotton for pant.

Functional aspects: different dimensions cut-lines cause smaller look for the dwarf. Straight silhouette causes thinner and taller look. Deep armhole cause thinner shoulder look. Wide pocket opening and big zipper tractor are to suite big hands. Wide hem is to suite big feet.

Dwarfism case 4: Design (14): long sleeves collarless shirt, square neckline, irregular hem and buttons at center front opening. Long pant with four pockets and a zipper at waist.

Fabrics: Linen for shirt, Gabardine 100% cotton for pant.

Functional aspects: vertical cut-lines and straight silhouette cause thinner look for the dwarf. Wide pocket opening, big zipper tractor and big buttons are to suite big hands. Wide hem is to suite big feet.

Dwarfism case 4: Design (15): long sleeves collarless shirt, round neckline and zipper at front opening. Long pant with four pockets and a zipper at waist.

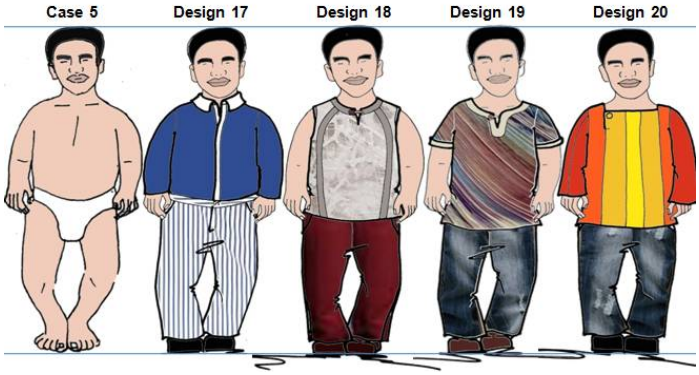
Fabrics: Linen for shirt, Gabardine 100% cotton for pant.

Functional aspects: vertical cut-lines and straight silhouette cause thinner look for the dwarf. Wide pocket opening, big zipper tractor and big buttons are to suite big hands. Wide hem is to suite big feet.

Dwarfism case 4: Design (16): long sleeves t-shirt with V neckline. Long pant with five pockets and a zipper at waist.

Fabrics: Single jersey 100% cotton for t- shirt, Denim 100%cotton for pant.

Functional aspects: vertical cut-lines and straight silhouette cause thinner look for the dwarf. Wide pocket opening, big zipper tractor and big buttons are to suite big hands. Wide hem is to suite big feet. Pant's holder is to keep pant in place.



(Picture no. 13), Dwarfism case 5, designs 17- 20

Dwarfism case 5: Disproportionate dwarfism: big head, narrow shoulders, wide hip, short arched legs and small hands and feet. (Picture no. 13)

Dwarfism case 5: Design (17): long sleeves shirt, shirt's collar and buttons at center front opening. Long pant with four pockets and a zipper at waist.

Fabrics: Linen for shirt, Gabardine 100% cotton for pant.

Functional aspects: vertical cut-lines and straight silhouette cause thinner look for the dwarf. Front opening is to suite big head.

Dwarfism case 5: Design (18): sleeveless t-shirt with a small opening in neckline with a button. Long pant with four pockets and a zipper at waist.

Fabrics: Single jersey 100% cotton for t-shirt, Gabardine 100% cotton for pant.

Functional aspects: vertical cut-lines and straight silhouette cause thinner look for the dwarf. Front opening is to suite big head.

Dwarfism case 5: Design (19): short sleeves t-shirt with a small opening in neckline with a button. Long pant with five pockets and a zipper at waist.

Fabrics: Linen for t-shirt, Denim 100%cotton for pant.

Functional aspects: Straight silhouette cause thinner look for the dwarf. Front opening is to suite big head.

Dwarfism case 5: Design (20): long sleeves collarless shirt, straight neckline with a small opening and a button. Long pant with five pockets and zipper at waist.

Fabrics: Linen for shirt, Denim 100%cotton for pant.

Functional aspects: Straight cut-lines and silhouette cause thinner look for the dwarf. Front opening is to suite big head.

Results:

For evaluating the designs, researcher designed and constructed a questionnaire includes 16 Items, each item was assessed on a 5-degree (1 totally disagree, 2 disagree, 3 neutral, 4 agree, 5 totally agree). The questionnaire was filled in by 10 specialists in Helwan University, Egypt.

Data were entered into an SPSS-PC computer file by the investigator. Reliability of data entry was verified. Analyses were conducted using the SPSS-PC statistical program package, Version 20. Descriptive analysis of the normalization scale was conducted. Measures of central tendency were evaluated for each item and the total scale score.

Reliability and Validity

The reliability of any measurement will necessarily depend upon the consistency of its use in relation to the individuals being assessed (Foxcroft et al, 2002) In support of this suggestion (Anastasia, 1990) maintains that the reliability is determined by a consistency of score gained from the same individuals who are duly to be re-examined using the same tests on variety of occasions. Alternatively, varied evaluative items used in different conditions

In reliability analysis, Cronbach's alpha is one of the popular approaches. Cronbach's alpha was used to examine the internal reliability of the total 16 questions. The Cronbach's alpha varies from 0 to 1 and a value of 0.6 or less indicates unsatisfactory internal consistency reliability. All 16 questions produced alpha coefficient of 0.905.

Empirical Data of Correlation Analysis

Having decided that the appraisal methods used have been found to be reliable means of assessing data, an appropriate correlation analyses has been embarked upon, a correlation analysis is done.

Correlation analyses between variables were conducted using Pearson correlations. A simple correlation was computed within each question with sum of all questions, the significance level for the correlation statistics in this study was set at $p < .01$.

The correlation analysis gives the results about the variables and consider if they tend to indicate variety or not. The results of the present research variables can be shown in (Table no. 1) where there is significant correlation ($p<0.001$) between each question and sum of all questions.

Pearson Correlation Analysis

Based on (Table no. 1), the correlation of each question is significant at 0.01 levels, two- tailed with sum of all questions. . As a result, question "10- The design is suitable for being a product dwarfs can buy when shopping" shown the strongest positive relationship with sum of all questions (r= 0.776), followed by question "6- Unity is achieved between design's purpose and fashionable look" (r= 0.774)

(Table no. 1) Pearson Correlation Analysis,

Question	R	Sig.
1- Motifs add aesthetic values for dwarf man of the age group (30-45 years old).	.737**	.000
2- The design achieved the functional values.	.749**	.000
3- The design is easy to wash and care	.589**	.000
4- Colors are suitable for dwarf man of the age group (30-45 years old)	.745**	.000
5- The design is suitable for dwarf man of the age group (30-45 years old).	.721**	.000
6- Unity is achieved between design's purpose and fashionable look	.774**	.000
7- Design's items do not show that it is a design for special needs people	.327**	.000
8- Prints are suitable for the design.	.743**	.000
9- Design's final look does not give the feeling that it is made for disabled bodies	.268**	.000
10- The design is suitable for being a product dwarfs can buy when shopping	.776**	.000
11- The design's items make it easy for dwarfs to get dress and un-dress	.700**	.000
12- The design succeeded in combining fashionable items with dwarfs' special needs.	.765**	.000
13- The design is different than what dwarfs usually find when shopping	.488**	.000
14- The design will not need to be readjusted to suit the cases' special needs	.449**	.000
15- You would like to see dwarfs wearing this design	.739**	.000
16- The dwarf's body proportions look better when wearing this design	.643**	.000

**Correlation is significant at the 0.01 level (2-tailed).

Coefficient Value	Strength of Association
0.1 < | r | < .3	Small correlation
0.3 < | r | < .5	Medium/moderate correlation
| r | > .5	Large/strong correlation

Descriptive Statistics "Data analysis"

Data were collected, automated and then analyzed using SPSS software through descriptive statistics (the mean and standard deviation). Significance is assessed at 5 % level of significance with p value was set at 0.05 less than this is considered as statistically significant difference.

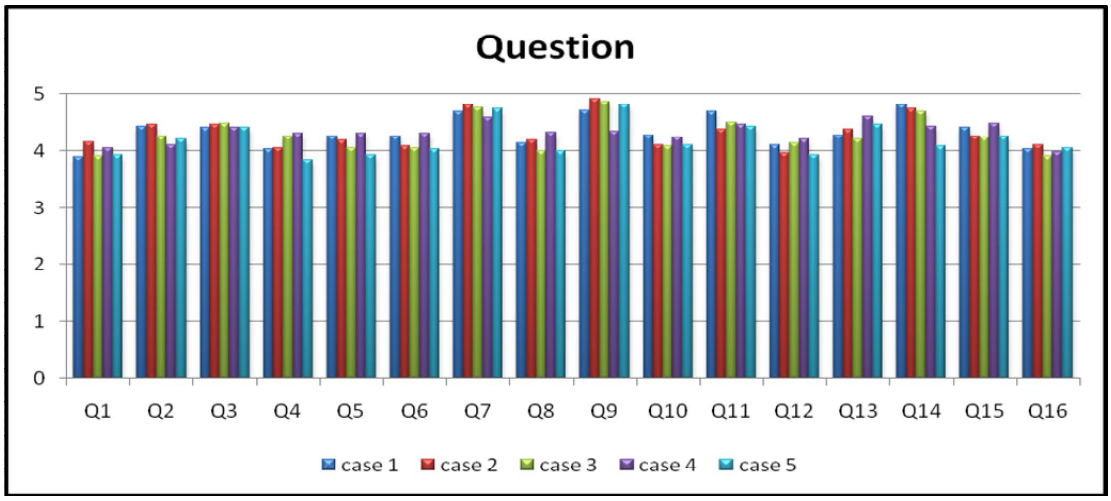
The mean is the sum of observation on the number of the observation. The standard deviation is the square root of the variance and is expressed in the unit of the original measures. The variance is a measure of variability around the mean within a data set.

(Table no. 2), (Graph no. 1), (Table no. 3) and (Graph no. 2) show the descriptive statistics of each question of five cases for 20 design the highest mean of case 1(4.33). Subsequently, it followed by case 2 and case 4 (4.32), then case 3 (4.27), the lowest mean case 5 which is 4.2.

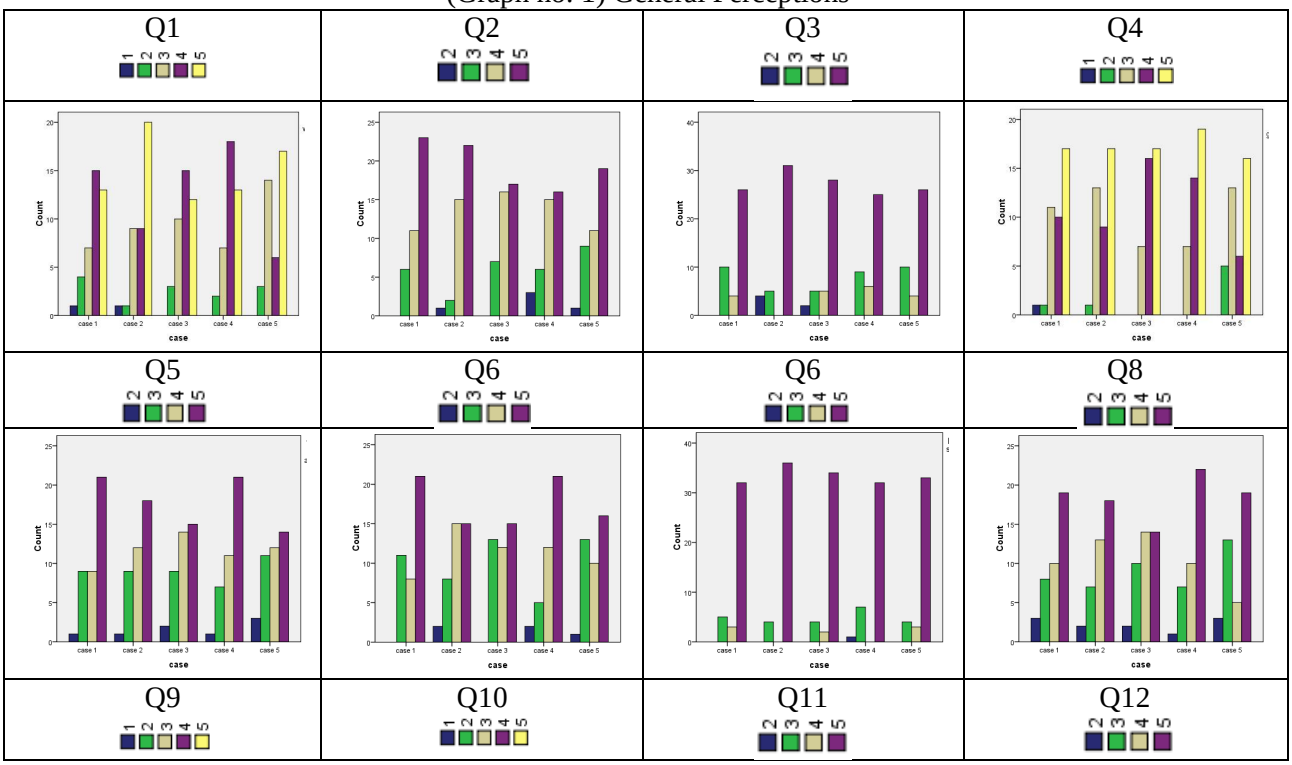
(Table no. 2) General Perceptions

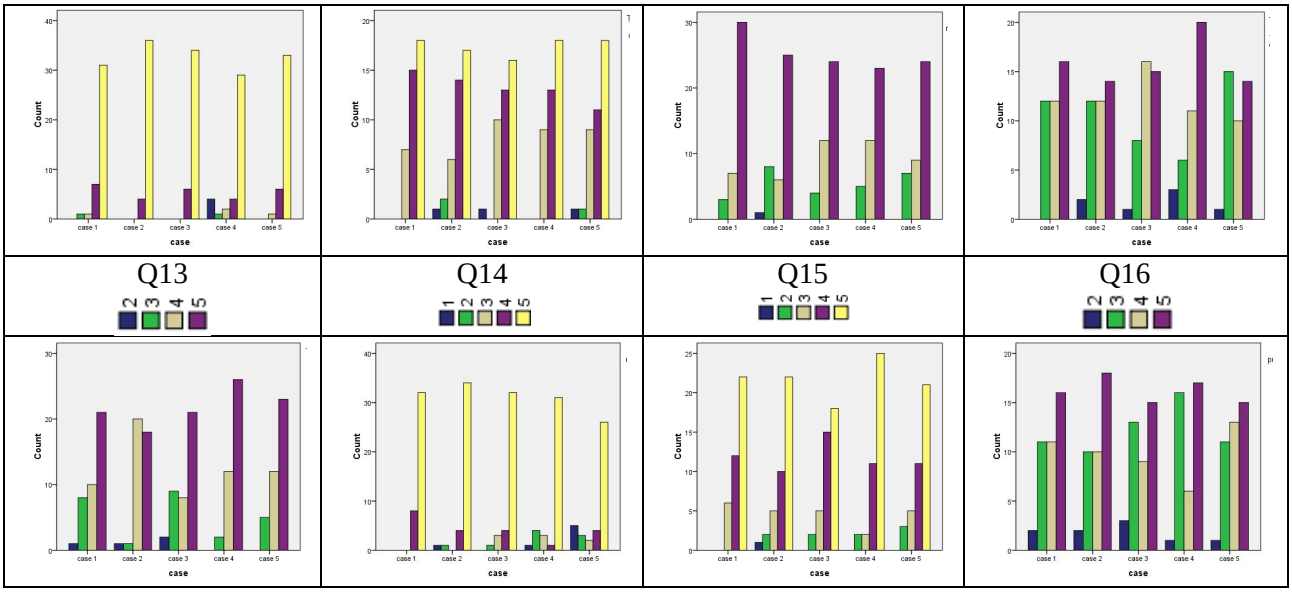
Question	case									
	case 1		case 2		case 3		case 4		case 5	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Q1	3.88	1.067	4.15	1.027	3.9	0.928	4.05	0.846	3.93	1.047
Q2	4.43	0.747	4.45	0.714	4.25	0.742	4.1	0.928	4.2	0.883
Q3	4.4	0.871	4.45	1.061	4.48	0.905	4.4	0.841	4.4	0.871

Q4	4.02	1.025	4.05	0.932	4.25	0.742	4.3	0.758	3.83	1.107
Q5	4.25	0.899	4.18	0.874	4.05	0.904	4.3	0.853	3.93	0.971
Q6	4.25	0.87	4.07	0.888	4.05	0.846	4.3	0.883	4.03	0.92
Q7	4.68	0.694	4.8	0.608	4.75	0.63	4.58	0.874	4.73	0.64
Q8	4.13	0.992	4.18	0.903	4	0.906	4.32	0.859	4	1.062
Q9	4.7	0.648	4.9	0.304	4.85	0.362	4.33	1.309	4.8	0.464
Q10	4.27	0.751	4.1	1.008	4.08	0.944	4.23	0.8	4.1	1.008
Q11	4.68	0.616	4.38	0.897	4.5	0.679	4.45	0.714	4.43	0.781
Q12	4.1	0.841	3.95	0.932	4.13	0.822	4.2	0.966	3.93	0.917
Q13	4.27	0.877	4.38	0.667	4.2	0.966	4.6	0.591	4.45	0.714
Q14	4.8	0.405	4.73	0.816	4.68	0.73	4.43	1.152	4.07	1.474
Q15	4.4	0.744	4.25	1.032	4.23	0.862	4.48	0.816	4.25	0.954
Q16	4.02	0.947	4.1	0.955	3.9	1.008	3.98	0.974	4.05	0.876
General Mean	4.33	0.81	4.32	0.85	4.27	0.81	4.32	0.89	4.20	0.92

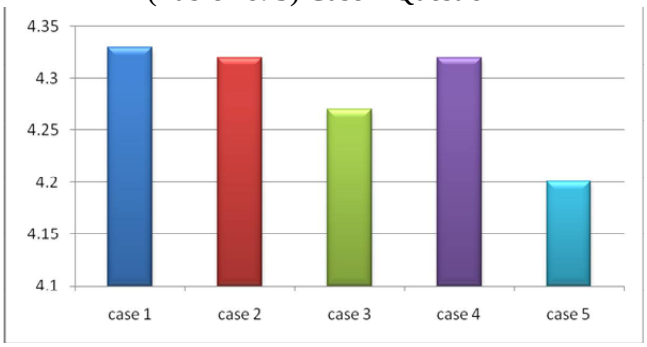


(Graph no. 1) General Perceptions





(Table no. 3) Case * Question



(Graph no. 2) General Mean

When more than two conditions or groups of an independent variable are compared, ANOVA is more appropriate to apply (Brace et al, 2003; Hinton et al, 2004). It is relevant to apply ANOVA to determine whether means that are obtained from more than two independent respondent groups are significantly different from each other (Brace et al, 2003; Hinton et al, 2004). In this research, ANOVA will be applied to test the scale mean differences when test variables possess more than two independent groups.

One-way between groups analysis will be used to conduct an investigation between 20 design for 5 cases.

ANOVAs were used to determine if statistically significant differences existed among 20 designs for 5 cases. There were statistically significant differences based on sum of all questions between 20 designs for 5 cases (Table no. 4), (Table no. 5) and (Graph no. 3)

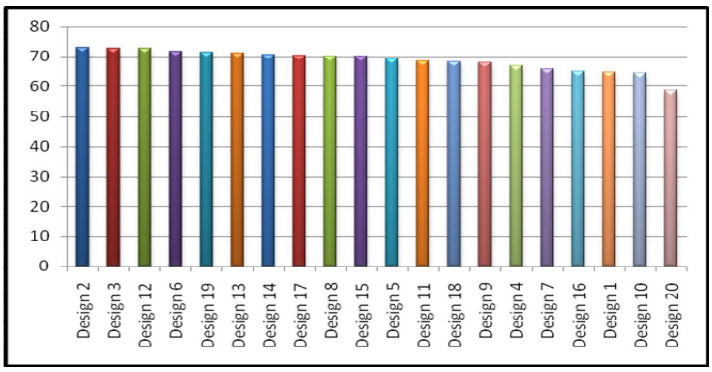
(Table no. 4) ANOVA, F= 1.668; p= 0.045

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2422.695	19	127.510	1.668	.045
Within Groups	13758.700	180	76.437		
Total	16181.395	199			

(Table no. 5) Descriptive statistics of all items.

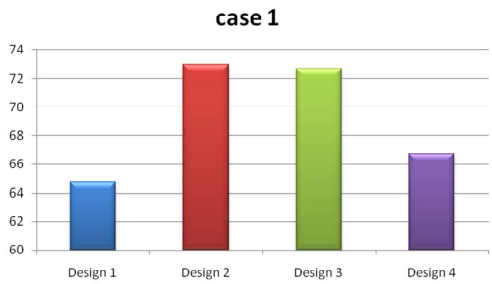
case	Design	Mean	Std. Deviation	rank
case 1	Design 1	64.70	5.539	4
	Design 2	73.00	5.735	1
	Design 3	72.70	6.865	2
	Design 4	66.70	7.959	3
	Total	69.28	7.334	
case 2	Design 5	69.20	7.829	3

case	Design	Mean	Std. Deviation	rank
	Design 6	71.50	7.517	1
	Design 7	65.70	14.750	4
	Design 8	70.00	8.472	2
	Total	69.10	9.930	
case 3	Design 9	67.80	8.804	3
	Design 10	64.30	7.631	4
	Design 11	68.40	9.058	2
	Design 12	72.60	7.382	1
	Total	68.28	8.470	
case 4	Design 13	70.90	7.923	1
	Design 14	70.40	8.058	2
	Design 15	69.90	10.493	3
	Design 16	64.90	10.535	4
	Total	69.02	9.297	
case 5	Design 17	70.30	8.994	2
	Design 18	68.00	9.707	3
	Design 19	71.40	8.044	1
	Design 20	58.70	9.310	4
	Total	67.10	10.051	



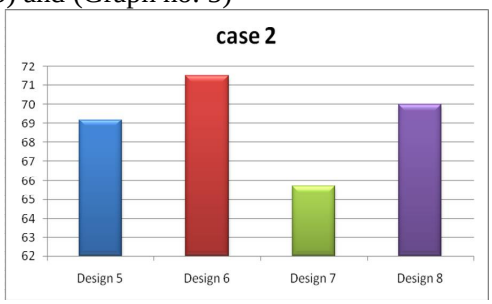
(Graph no. 3) Mean of sum of all questions* Design

For case 1 " Design 2"has the highest mean of 73.00. Subsequently, it followed by Design 3 and Design 4. However, Design 1 has the lowest mean which is 64.70. The Table 5 indicates that majority of the respondents agreed about Design 2. (Table no. 5) and (Graph no. 4)



(Graph no. 4) Case 1, (Design * Mean)

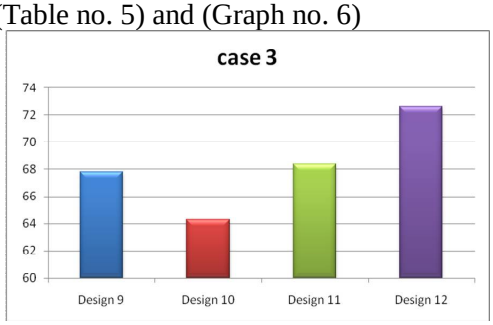
For case 2 " Design 6"has the highest mean of 71.50. Subsequently, it followed by Design 8 and Design 5. However, Design 7 has the lowest mean which is 65.70. The Table 5 indicates that majority of the respondents agreed about Design 6. (Table no. 5) and (Graph no. 5)



(Graph no. 5) Case 2, (Design * Mean)

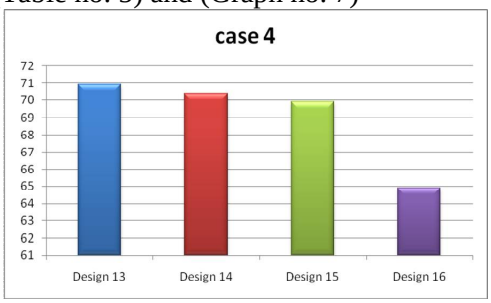
For case 3 " Design 12"has the highest mean of 72.60. Subsequently, it followed by Design 11 and Design 9. However, Design 10 has the lowest mean which is 64.30. The Table 5 indicates that majority of the respondents agreed about Design

12. (Table no. 5) and (Graph no. 6)



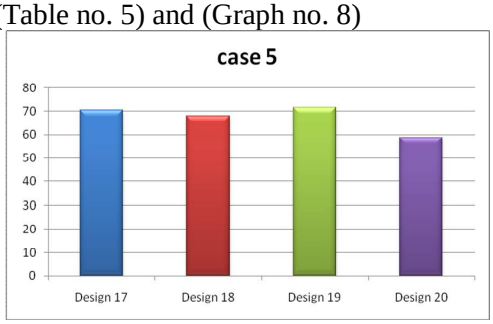
(Graph no. 6) Case 3, (Design * Mean)

For case 4 " Design 13"has the highest mean of 70.90. Subsequently, it followed by Design 14 and Design 15. However, Design 16 has the lowest mean which is 64.90. The Table 5 indicates that majority of the respondents agreed about Design 13. (Table no. 5) and (Graph no. 7)



(Graph no. 7) Case 4, (Design * Mean)

For case 5 " Design 19"has the highest mean of 71.40. Subsequently, it followed by Design 17 and Design 18. However, Design 20 has the lowest mean which is 58.70. The Table 5 indicates that majority of the respondents agreed about Design 19. (Table no. 5) and (Graph no. 8)



(Graph no. 8) Case 5, (Design * Mean)

Conclusion:

This research highlights only some concerns regarding the problems dwarfs' consumers experience when looking for fashionable clothes that suit their disabilities. The concerns presented here should, however, enable people who care for the clothing design for disabled consumers and clothing retailers, to adopt clear viewpoint towards the needs and problems of large group of clothing consumers concerning design, function, social identity, self-efficacy and shopping.

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Designing casual wear for male dwarfs

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Abstract:

Dwarfs have to face the inconvenience of shopping for their clothes and the inability of having fashionable clothes that suit their special needs. This research is designed to admit dwarfs' clothing special needs as disabled consumers and suggest items for clothing designs that suit male dwarfs and their special needs. All that will make it possible for male dwarfs to convey acceptable, fashionable look that they can find in stores. In-depth interviews were conducted with 10 male dwarfs of the age group 30-45 years old living in Cairo, Giza and Ismailia in Egypt. The researcher considered five main themes to understand their clothing problems: design, function, social identity, self-efficacy and shopping. The design project for the research is involving designs for male dwarfs, ages 30-45. Researcher suggests 20 designs for 5 dwarfism cases (4 designs per case). The statistic analysis shows that for case 1 " Design 2" has the highest mean of 73.00, for case 2 " Design 6" has the highest mean of 71.50, for case 3 " Design 12"has the highest mean of 72.60, for case 4 " Design 13" has the highest mean of 70.90 and for case 5 " Design 19" has the highest mean of 71.40.

Keywords:

Dwarfs
Clothing Design
Disabled Consumers

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