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ASSISTIVE CLOTHING DESIGNS FOR MENTALLY RETARDED

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Abstract

Clothing has always been a kind of status symbol and expression of the individual personality. People wear clothing for functional as well as for social reasons. People of all ages and in all circumstances of life are aware of the importance of appearance in perception of self and in their relations with other people. However, for those whose surrounding environment is limited by age, condition of health, or physical and mental handicaps, dressing properly is a very difficult and impossible task. Therefore there is an urgent need to design clothing according to their special requirements. The aim of this study was to design and develop functional clothing for mentally retarded respondents. A questionnaire was developed for personal interview to assess clothing practices & problems of the disabled. The identified clothing requirements were incorporated in garment designs and finally constructed. After wear trial the designed and constructed garments were found to be highly acceptable.

Keywords: Mental Retardation; Functional Clothing; Donning; Doffing.

1. Introduction

Clothing is a complex but fascinating part of an individual's life[8]. Clothing is an eminent aspect of life as it plays a vital role in the coordination of human traits with their immediate environment. It is a silent language, a non-verbal system of communication; do more than just to indicate a person's sex, age, nationality, occupation and position in a social hierarchy [6]. They fulfill important psychological needs of conformity and self-confidence [4]. Clothing plays an important role not only for a normal individual but in the life of a disabled individual too. Disabled people belong to a special category, which require both genuine care and social sensitivity [9].

Disabled people have some basic needs that are universal to all human beings. Beyond the physiological needs they also need safety, recognition, self-esteem and self-activation. Provision of well designed, attractive and functional clothing can greatly increase their self-esteem, comfort and convenience [3]. Clothing is important for these people for two reasons; one being that functional clothing designed and constructed according to the physical handicaps reduces dependence on others for dressing and undressing. The other being that socially accepted clothing reduces perceptional deviance and promotes positive interaction to aid the social and personal adjustment of the individual [5]. Classification of disabled in India shows that nearly half total disabled are having seeing disabilities (48.5 per cent) followed by movement disabilities (27.5 per cent). Ten per cent of total disabled are mentally disabled [1].

Availability of functional clothing with self-help features that is designed and constructed in accordance with physical limitations reduces dependence on others for dressing and undressing [7]. Self-help garments not only promote self-dressing but also camouflages the deformity of the handicaps, improve their ability to perform physical activities and allow them to be self-sufficient [2].

Keeping in view the fact, the present study was undertaken to design suitable functional garments with self-help features for persons with physical limitations which caters to their specific clothing needs.

2. Methodology

Descriptive cum experimental research design was used to identify different physical deformities, clothing practices, problems and needs followed by designing, construction and assessment of self-help garments. The study was conducted on a sample size of 60 respondents including both male and female of age group 10-20 years, selected through purposive sampling technique taking care to include the ones having divergent handicaps and also those who could not dress themselves.

Mild, moderate, severe and profound mentally retarded children were included in the study. The sample was divided into five groups, based on associated disability and problems related to clothing.

Out of the total sample of 60 respondents, five respondents were retained (one from each associated disability) as experimental group to give representation to almost all types of disabilities. The case study method was used to get in- depth knowledge of the selected respondents regarding the problems faced by respondents while donning, doffing and performing various other activities.

The data was analyzed by frequency, percentage, weighted score, mean and rank methods. A total of 20 garment designs were sketched keeping in mind the suggestions given by their care takers, observations and physical deformity of the respondents. Four designs were sketched for each associated disability (orthopedically handicapped, visually impaired, autistic, cerebral palsy, speech disorder) comprising of both upper and lower garment for male and female

respondents. Care was also taken not to deviate too much from the accepted garments and their designs being used by each respondent.

Sketched designs were shown to a panel of 30 Judges. Five most preferred designs by the judges were selected for construction. Constructed functional clothing was subjected to wear trial and views of the respondents and their care takers were taken regarding acceptance of the specially designed garments. Suitability of each feature of a garment was taken on a three point rating of unsatisfactory, satisfactory and highly satisfactory [4]. Depending on the number of features in a garment these ratings were assigned scores and the total score obtained by each garment is converted into acceptability ratings.

3. Findings

From the present investigation it was found that maximum 40 per cent of the respondents were in the age group of 19 - 20 years with 70 per cent (42) males and 30 per cent (18) females.

3.1. Degree of Retardation

From the data collected it was found that out of 60 respondents, 66.6 per cent of the respondents had 20 to 34 I.Q. (severe), followed by 16.66 per cent who belonged to the range of 35 to 49 I.Q. (moderate), 13.33 per cent were from I.Q. less than 20 (profound) and only 3.3 per cent had I.Q in the range of 50-69 (mild).

3.2. Type of Associated Disability

It was reported that majority of respondents i.e. 50 respondents (83.3 per cent) had associated disability whereas 10 respondents (16.7 per cent) had no associated disability. The perusal of table revealed that 52 per cent of the respondents could not speak clearly followed by 16 per cent who suffered from orthopaedically problems and autism respectively. Other 12 per cent had visual problems, whereas 4 per cent suffered from cerebral palsy.

Table 1: Distribution of respondents on the basis of Associated Disability

S.No.	Variables	f	%
1.	Associated disability		
a.	Yes	50	83.3
b.	No	10	16.7
2.	Type of Associated Disability		N=50
a.	Visually Handicapped	6	12
b.	Cerebral Palsy	2	4
c.	Orthopedically handicapped	8	16
d.	Speech handicapped	26	52
e.	Autism	8	16

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3.3. Extent of Problem in the Existing Garment

It was observed from the data that the respondents encounter great difficulty in identification of right and wrong side (Rank I), followed by problem in identifying front and back (Rank II), differentiating the top and bottom (Rank III) while problem in differentiating armhole and neck hole ranked IV.

Problems related to upper garments were that maximum respondents faced difficulty in putting on and taking off the arm (0.93) and difficulty in putting over shoulder (0.9), followed by difficulty in slipping on and taking out from the head (0.63).

Table 2: Distribution of the respondents on the basis of extent of problem in the existing garment

S. No.	Variables	Always (2)	Sometimes (1)	Never (0)	Weighted Score	$\bar{X}$	Rank
1.	Identification of Side						
a.	Difficulty in differentiating the right and wrong side of the garment	20 (33.3)	34 (56.67)	6 (10)	74	1.23	I
b.	Difficulty in differentiating the front and back of the garment	20 (3.33)	22 (36.67)	18 (30)	62	1.03	II
c.	Difficulty in differentiating the armhole and neck hole of the garment	4 (6.67)	2 (3.33)	54 (90)	10	0.16	IV
d.	Difficulty in differentiating the top and bottom of the garment	4 (6.67)	8 (13.33)	48 (80)	16	0.26	III
2.	Problems related to Upper Garment						
a.	Difficulty in slipping on and taking out from the head	12 (20)	14 (23.33)	34 (56.67)	38	0.63	III
b.	Difficulty in putting on and taking off the arm	18 (30)	20 (33.33)	26 (43.33)	56	0.93	I
c.	Difficulty in putting over shoulder	14 (23.33)	26 (43.33)	20 (33.33)	54	0.90	II
3.	Problems related to Lower Garment						
a.	Difficulty in passing legs	6 (10)	14 (23.33)	40 (66.67)	26	0.43	IV
b.	Difficulty in aligning the upper and lower garment	38 (63.33)	10 (16.67)	12 (20)	86	1.43	II
c.	Difficulty in fastening the belt at waist	46 (76.67)	8 (13.33)	6 (10)	100	1.67	I
d.	Difficulty in operating fly front	28 (46.67)	14 (23.33)	18 (30)	70	1.17	III

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4.	Difficulty in Manipulating the Fasteners						
a.	Button with buttonhole						
i.	*Small*	16 (26.67)	32 (53.33)	12 (20)	64	1.07	III
ii.	*Large*	18 (30)	18 (30)	24 (40)	54	0.9	IV
b.	Press Button						
i.	*Small*	14 (23.33)	26 (43.33)	20 (33.33)	54	0.9	IV
ii.	*Large*	10 (16.67)	26 (43.33)	24 (40)	46	0.76	VII
c.	Button with loop	14 (23.33)	24 (40)	22 (36.67)	52	0.86	VI
d.	Hooks and Eye	28 (46.67)	28 (46.67)	4 (6.67)	84	1.4	II
e.	Zipper	4 (6.67)	12 (20)	44 (73.33)	20	0.33	IX
f.	String	60 (100)	-	-	120	2.0	I
g.	Velcro Tapes	6 (10)	10 (16.67)	44 (73.33)	22	0.36	VIII
h.	Elasticized Bands	2 (3.33)	12 (20)	46 (76.67)	16	0.26	X
i.	Elasticized Casing	2 (3.33)	12 (20)	46 (76.67)	16	0.26	X
5.	Difficulty in Operating the Openings						
a.	Centre Front Opening						
i.	*Full*	10 (16.67)	20 (33.33)	30 (50)	40	0.66	I
ii.	*Half*	6 (10)	14 (23.33)	40 (66.67)	26	0.43	II
b.	Centre Back Opening						
i.	*Full*	8 (13.33)	4 (6.67)	0	20	0.33	III
ii.	*Half*	8 (13.33)	4 (6.67)	0	20	0.33	III
c.	Shoulder Opening						
i.	*One Side*	-	-	-	-	-	-
ii.	*Both Side*	-	-	-	-	-	-
d.	Side Opening						
i.	*Full*	-	-	-	-	-	-

ii.	*Half*		2 (3.33)	2 (3.33)	2	0.03	IV

Figure in Parenthesis indicate percentage

Maximum respondents faced problem in fastening the belt at waist with the highest score of 1.67 (Rank I), followed by problem in aligning the upper and lower garment with a mean score of 1.43 (Rank II). Problem in operating fly front (1.17) and difficulty in passing legs (0.43) were the problems faced by the respondent related to their lower garment.

Manipulating fasteners was a tedious job for the respondents. All the respondents have problem in tying string (2.0). Difficulty in fastening large button and button hole and small press buttons had the same mean score of 0.9, followed by problem in fastening button with loops, large press buttons, velcro tapes and zipper. The respondents have least problem in manipulating garments with elasticized band and elasticized casing (0.2).

Operating full centre front opening was a difficult task (0.66), followed by difficulty in operating half centre front opening with a score index of 0.43. Respondents faced equal difficulty in operating full and half centre back opening with the same score index of 0.33. Difficulty in operating half side opening got the least score of 0.03. Garments with shoulder opening and full side opening are not worn by the respondents.

3.4. Satisfaction with the Existing Clothing

48.97 per cent of the respondents have dissatisfaction in their existing clothing due difficulty to put on and take off the garments, 40.81 per cent of the respondents were dissatisfied due to difficulty in manipulating fasteners whereas 5 per cent of the respondents think that design of the garments are not according to the requirement (Table 3).

Table 3: Distribution of respondents on the basis of satisfaction with the existing clothing

S.No.	Variables	f	%
1.	Respondents		
a.	Yes	12	20
b.	No	48	80
2.	Reasons for Dissatisfaction*		
a.	Designs are not according to the requirements	10	10.2
b.	Difficulty to put on and take off	48	48.97
c.	Designs are too complicated	-	-
d.	Improper placket opening	-	-
e.	Difficulty in manipulating fasteners	40	40.81
f.	Due to high price	-	-

* Multiple Responses

3.5. Willingness of Specially Designed Clothes with Self Help Features

The data revealed that 86.6 per cent of respondents expressed their willingness to adopt specially designed garments whereas 13.4 per cent of the respondents did not show their willingness for modified garments.

For Willingness of specially designed clothes, the data presented in table 4 revealed that to solve their dressing problem scored the maximum score of 2.43 followed by factors like to make the child self dependent with self help features and to provide more comfort with a score of 1.37 and 0.19 respectively.

Reasons for unwillingness of specially designed clothes were lack of knowledge about specially designed garments (Rank I), followed by factors like and garments will be costly and child may not accept Rank II and Rank III respectively.

Table 4: Distribution of respondents on the basis of reasons for willingness & unwillingness of specially designed clothes with self help features

S.No.	Variables	Weighted Score	$\bar{X}$	Rank
1.	Reasons for Willingness of specially designed clothes*			
a.	To solve dressing problem	180	2.43	I
b.	To provide more comfort	16	0.19	III
c.	To make the child self dependent with self help features	102	1.37	II
d.	To make child socially acceptable	-	-	-
e.	To enhance the personality	-	-	-
2.	Reasons for Unwillingness of specially designed clothes		N=8	
a.	Garments will be costly	10	1.25	II
b.	Lack of knowledge about specially designed garments	16	2	I
c.	It may make the child socially unacceptable	-	-	-
d.	It may lead to the development of inferiority complex in the child	-	-	-
e.	Child may not accept	2	0.25	III

 * Multiple Responses

3.6. Evaluation and Construction of Functional Garments

The weighted score of the 20 functional garments sketched for the mentally retarded respondents are shown in the Fig. 1. One garment design with maximum score from each category was selected for construction. Garment design 3,4,1, 2 and 4 scored maximum for respondents R1, R2, R3, R4 and R5 respectively is represented in Plate 1 (Appendix A). Thus, a total of 5 designs for mentally retarded (1 for each associated disability) respondents which scored the maximum were constructed.

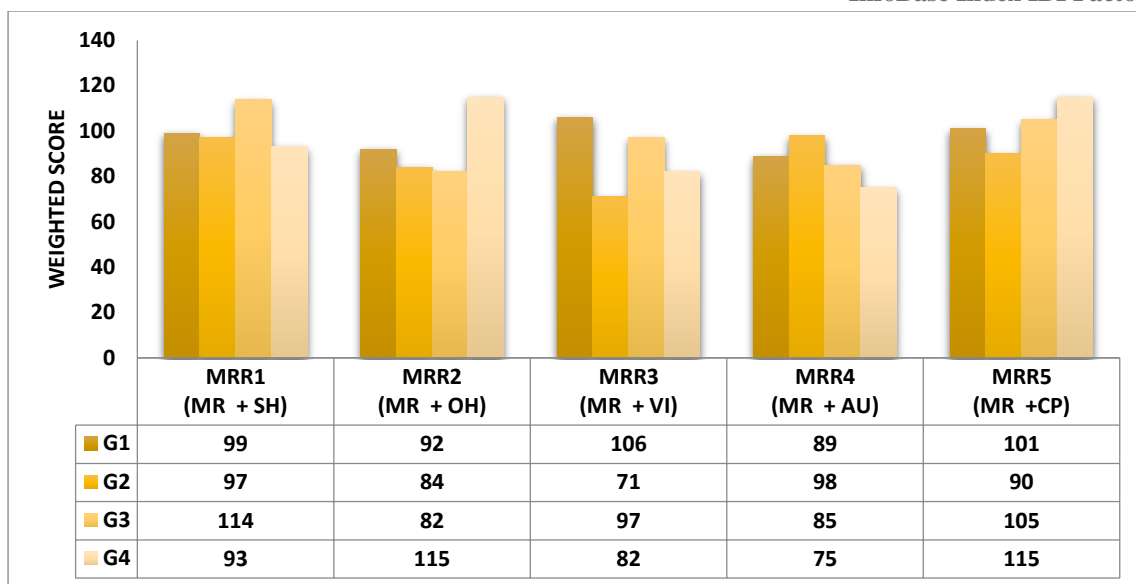|	MRR1 (MR + SH)	MRR2 (MR + OH)	MRR3 (MR + VI)	MRR4 (MR + AU)	MRR5 (MR +CP)
G1	99	92	106	89	101
G2	97	84	71	98	90
G3	114	82	97	85	105
G4	93	115	82	75	115

Figure 1: Evaluation of Sketched Designs for Mentally Retarded Respondents
MR: MENTAL RETARDATION; SH: SPEECH HANDICAPPED; OH: ORTHOPAEDICALLY HANDICAPPED; VI: VISUALLY IMPAIRED; AU: AUTISTIC; CP: CEREBRAL PALSY

3.7. Acceptability Assessment of Constructed Functional Garments

The respondents were given garments to wear for 10 days. A panel of 10 judges assessed the stitched functional garments. A suitability index was formed to assess the acceptability of the garments by the investigator. Each feature in the garment was scored and the total score was obtained through which the acceptability of the garments was assessed.

The functional garments constructed for majority of the mentally retarded respondents were highly acceptable. Garments MRR1G3 (80 scores), MRR2G4 (80 scores), MRR4G2 (75 scores) & MRR5G4 (80 scores) were highly acceptable whereas MRR3G1 (60 scores) was considered acceptable (Table 5 & Appendix B).

4. Conclusions

The present study gave an insight about the clothing practices and clothing problems with the existing garments for mentally retarded respondents. The problems, needs and preferences for special clothing features as perceived by respondents were also considered while designing of functional garments.

The constructed garments were assessed for ease in wearing, manipulation of fasteners, comfortablity, and time taken in donn and doff. The functional garments were highly appreciated and accepted among respondents, caretakers, and head of the special schools.

It can be concluded that the present study had helped in developing some useful functional dresses for the disabled persons which were easy to wear and were appropriate for the disability in such a way that they were helpful in donning and doffing, make them self-dependent up-to most extent and facilitates caretaker to dress their ward with very little effort.

Table 5: Assessment of Acceptability of Constructed Functional Garments for Mentally Retarded Respondents

Garment Code	Functional Features	Score for each feature	Total Score	Acceptability
MRR_1G_3	• Gathered neck • Raglan sleeves • Detachable yoke with plastic lining	20 30 30	80	Highly Acceptable
MRR_2G_4	• Elasticized waist • Permanently stitched fly front • 8''zipper opening on the outer seam	20 30 30	80	Highly Acceptable
MRR_3G_1	• 3/4th centre front opening with zipper • Large armhole	45 15	60	Acceptable
MRR_4G_2	• 3/4th opening in the centre with velcro as fastener • Elasticised waist	45 30	75	Highly Acceptable
MRR_5G_4	• Kimono sleeves • Front panel extends to the back and fastened with velcro at the waist • Lace & Button for identification	30 30 20	80	Highly Acceptable

Appendices
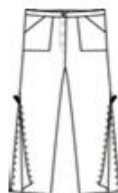
Appendix A
Selected Sketched Designs for Mentally Retarded Respondents

MRR₁G₃   MRR₂G₄   MRR₃G₁   MRR₄G₂   MRR₅G₄

Appendix B
Constructed Functional Garments for Mentally Retarded Respondents

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