

CLOTHING PROBLEMS AND DISSATISFACTIONS
OF PHYSICALLY HANDICAPPED MEN

By

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CHAPTER I

INTRODUCTION

The physically handicapped are among the many minority groups in the United States today. These physically handicapped individuals, although a minority, are not small in number unfortunately. There are approximately 22 million individuals in the United States with physical disabilities. An additional 425,000 persons are added annually through accident and disease (22).

The traditional attitude toward the disabled in the United States has been one of charity. This negative attitude is many times responsible for the failuristic attitude on the part of the disabled person (24).

To those who work closely with the physically disabled there is strong clinical evidence that the term /self-worth/ is meaningful in its own right: Our rehabilitation centers and agencies are filled each day with persons who express in direct or hidden ways the feeling of being worthless (30, p. 35).

Rehabilitation has been a major step for these individuals. This increasingly large group, over the years, has been rehabilitated through therapy for physical restoration and through vocational training for educational advancement (6). The social self must also be rehabilitated, however, as life itself requires an interaction of individuals.

A major trend in rehabilitation is the emerging of the physically disabled person as a social being rather than as a solitary person facing the problem of physical incapacity. Since one views himself as

others perceive him, society's attitudes are a determinant influence. Only through a change in attitude can the disabled and non-disabled population view rehabilitation as a right and not a privilege (29).

Acceptance of an individual by society is influenced, in part, by the clothing he wears (17). According to Rusk,

. . . concerted effort in this field [fashions for the physically handicapped] will help overcome existing difficulties in the way of self-help, vocational rehabilitation and social adjustment for millions of handicapped people (36, p. 138).

Only since 1950 have major developments in clothing research occurred. Research studies have offered solutions to clothing problems experienced by the physically handicapped, with particular attention given to women and children with physical limitations.

Special clothing has been made available to physically handicapped individuals through mail-order outlets. The one mail-order outlet for men offers custom-tailored suits designed for men in wheelchairs. The relatively high price of this clothing is prohibitive to most physically disabled men, since at least 95 percent of all people who pass through state and federal rehabilitation programs would be considered poor under the standards which the federal government has established (23). Thus, the clothing problems of the majority of physically handicapped men seem to remain unsolved.

Purpose of the Study

The purpose of this exploratory study was to identify the clothing problems and clothing dissatisfactions encountered by the physically handicapped adult male.

Specific objectives were to:

1. Identify specific disabilities or limitations of a selected group of physically handicapped men.
2. Determine the amount of assistance required when dressing.
3. Identify the type of self-help devices required in dressing.
4. Identify criteria used for selecting and purchasing clothing.
5. Identify the methods used to acquire clothing.
6. Identify satisfactions and dissatisfactions or problems with clothing.
7. Identify alterations made to clothing and alterations desired.

Limitations of the Study

This study was limited to physically handicapped adult men (excluding the visually handicapped). The study was limited in the number of participants because of the difficulty in locating physically handicapped men.

Definition of Terms

Amputee -- A person who has had one or more limbs removed (25).

Brace -- Any kind of supportive device for the arms, hands, legs, feet, back, neck, or head, exclusive of temporary casts, slings, bandages, trusses, belts, or crutches excluding dental braces (38).

Catheter -- A hollow cylinder of Silva, India rubber or other material designed to be passed through the urethra into the bladder to drain urine (1).

Incontinence -- The condition of being incapable of controlling the excretory functions (25).

Paraplegic -- A person who is paralyzed in the lower half of his body, including both legs (25).

Physically Handicapped -- Disabled or limited in an anatomical nature which prevents or restricts normal activity or movement (25).

Prosthesis or prosthetic device -- An artificial replacement or substitute for a missing limb or other part of the body (20).

Quadriplegic -- A person who is paralyzed in the upper and lower portions of his body, including both legs and both arms. Conditions can range from total paralysis of hands, arms and shoulders through an almost normal use of arms but with limited or no use of fingers (31).

Rehabilitation -- The process of restoring a handicapped person to useful life through education and therapy (25).

CHAPTER II

REVIEW OF LITERATURE

At any given time in the United States, 30 million people are suffering from a temporary or permanent physical handicap (16). Nine percent of these are limited in their major activities (37). A major portion of adult disabilities result from accidental injury which include industrial injuries and vehicle-related injuries (18). A sizable number of these are part of the more than 28 million war veterans (23).

World War II left 2,000 living paraplegics, of whom 1,700 are alive today (16). Since the beginning of the Vietnam War almost a quarter of a million soldiers have sustained compensable service-connected disabilities. Nearly 10 percent (25,000) have 100 percent service-connected disabilities (10). The nature of combat in Vietnam and the types of wounds it has produced (multiple wounds) has resulted in a higher incidence of complicated disabilities (22).

Rehabilitation to some extent has been met by the government through financial aid for hospital care or treatment and through educational benefits. Rehabilitation of the social self, however, must come through individual effort. One means of accomplishing a person's re-entry into a social environment is through clothing. The appearance of a person to himself and to others is a matter of concern

to most individuals. In many instances clothing poses a special problem for physically handicapped individuals.

Clothing for the Physically Handicapped

Not until the 1950's was adequate attention given to the area of clothing for the physically handicapped. In the early part of the 1950's, "Activities for Daily Living," a rating scale, was developed (33). This scale measured the amount of independence achieved by the physically handicapped in self-care and helped to re-emphasize the problems encountered in dressing. In later studies conducted by the Institute of Rehabilitation Medicine (IRM) simple designs and a minimum number of garments in the wardrobes of the physically handicapped were suggested as desirable (33).

Developments toward more functional and fashionable clothing began under the Institute of Physical Medicine and Rehabilitation when Helen Cookman was asked to head a research project in 1955. In this three-year study the clothing problems of men, women, and children were investigated. Original designs which were developed and tested on patients at the Institute resulted in an illustrated publication, Functional Fashions for the Physically Handicapped (5, 23).

With a grant received from the Office of Vocational Rehabilitation, the Clothing Research and Development Foundation was established in 1961. This non-profit organization investigated the development of garment designs for the physically disabled and periodically held meetings for approval of various designs to be manufactured under the label "Functional Fashions" (23, 33).

Clothing for Handicapped Women

Problems relating specifically to the physically handicapped homemaker were also investigated during the 1950's. A study was conducted by the Institute of Home Economics in the Agricultural Research Service, an agency of the United States Department of Agriculture. Information was secured on eight types of garments worn by 70 physically disabled women between the ages of twenty-one and eighty-two. Recommended alterations and ideas were prepared by Scott (34) and published in a research report in 1959. Various design features were recommended according to the specific disability.

Special clothing was further investigated in 1962, when Behrens, head of Vocational Guidance and Rehabilitative Services (VGRS), was asked to design a dress for elderly hospital patients. Other designs followed and by 1963 seventeen garments had been designed (15). In January, 1964, the "Specially Designed Clothing" service became a part of the Department of the Vocational Guidance Rehabilitation Service, with Behrens as designer and director. A catalog was issued with measurement charts and price lists to promote mail-order sales (15).

Fashion-Able, a catalog house, was founded by ODell, who realized the problems of dressing when she became partially paralyzed as a result of an aneurysm. Thus, Fashion-Able developed as a specialty catalog house offering flexible, easy to put on, under and outer garments for disabled ambulatory women (2, 8, 15).

Findings of more recent research studies yield pertinent information concerning specific groups or individuals with physical handicaps. In 1967 Madsen (21) investigated specific clothing problems of women with rheumatoid arthritis. The 20 women in her study considered comfort,

attractiveness, and ease of dressing as first, second and third considerations, respectively. Clothing adaptations were made based on the preferences of these women and on earlier studies with the handicapped.

Another study of women's clothing preferences was conducted by Rice (27) who developed a detailed instruction pamphlet for pattern modification. The suggested modifications attempted to include self-help and comfort features. Finished modified garments were rated by ten judges and the women themselves for comfort, practicality, ease of getting on and off, and overall satisfaction.

Schuster (32) investigated clothing designs and style features preferred by elderly physically handicapped women living in nursing homes. Among the preferences indicated were shift dresses, one-piece dresses, jewel necklines, convertible collars, above-elbow sleeves, raglan sleeves, beltless dresses, zippers, center-front closures from neck to hem and action pleats in the back bodice.

Clothing for Handicapped Children

Clothing problems of physically handicapped children have been investigated in various research studies. In 1955 Cookman (5) studied specific clothing problems of children in addition to those of men and women. Recommendations for adapting children's clothing for ease of dressing and appearance were presented in several illustrated pages. Front openings and the use of pressure tape and large buttons for fastenings were recommended.

Zaccagnini (40) probed the various problems encountered by a child with cerebral palsy. Ease in manipulation was observed for various

types of fasteners, including pressure tape, oval clasps with rings, and snaps.

Reeves (26) conducted a study to compare durability and comfort of stretch and non-stretch fabrics in clothing designed for boys wearing leg braces who had limited finger coordination and shoulder deformity. Specific design features for self-help and adaptability were also investigated. Results of the study indicated the following as desirable design features: 1) woven stretch fabrics, 2) pull-over shirt design with raglan sleeves, 3) front openings with pressure tape fastening, 4) elastic waistbands, and 5) leg openings with zipper or pressure tape closings.

A major research study was conducted by the Disabled Living Foundation with assistance of a grant from the National Fund for Research into Crippling Diseases. The Clothing Panel of the Disabled Living Foundation has been in existence since November of 1963. Through this study a handbook, Clothing for the Handicapped Child, was written for those families with handicapped children (including mental and physical handicaps, excluding deafness and blindness). The book offers information on clothing selection and suitable considerations for specific handicaps. Many illustrations are included and names and addresses of makers and suppliers are listed also (9).

Clothing for Handicapped Men

The three-year research study conducted under the Institute of Physical Medicine and Rehabilitation resulted in some specific clothing designs for handicapped men. Cookman designed and patented trousers for men who wore artificial legs or braces (5, 23). This design aided

the brace wearer by facilitating dressing. Drop-seat trousers was another adaptation illustrated in the published results of this study. Closures and fastenings for slacks, shirts, outercoats, jackets, ties and underwear were also illustrated.

In the 1960's a registered nurse, Ruth Smith, experienced the problem of getting trouser legs over the artificial legs of wheelchair patients. She developed a pair of seatless trousers that opened as an apron, thus facilitating ease in dressing. Smith organized and established Solve Industries which specialized in clothes for the handicapped (35).

In 1964, Leinenweber, Incorporated, of Chicago, was established as the first custom tailoring firm selling to physically handicapped men by mail-order. Suits were designed for men in wheelchairs for both comfort and fit (19, 33). Prices for the separate clothing items listed in the catalog were as follows: Pants ranged from \$42.00 to \$78.00; coats from \$100.00 to \$198.00; vests from \$28.00 to \$50.00. For an entire suit, prices ranged from \$165.00 to \$300.00 (19). These prices may not be economically feasible to many physically handicapped men.

Clothing Adaptations

Besides serving a social purpose, clothing also serves a functional purpose. Dressing each day is, for some, an exciting beginning to the day and for others merely a habit. For still others, however, dressing is a task--a feat to be accomplished slowly, sometimes with pain, usually with frustration, and always with some degree of difficulty. For physically handicapped individuals dressing can be made much simpler

through care in selection for versatility, serviceability, and design and also through the use of adaptations made to the clothing worn.

In a conference at Utah State University in 1964, Ream, a paraplegic medical student at Stanford School of Medicine, suggested that research in the area of clothing and textiles be directed toward development of methods to alter ready-to-wear for specific handicaps.

Such clothing would have the advantages of being in style, being readily available, relatively inexpensive and specifically tailored to the individual's needs. There is no reason why a handicapped person need not be as well dressed as his non-handicapped neighbor (26, p. 3).

Many ready-to-wear items of clothing can be altered through the use of easier to manipulate fasteners or through various construction adaptations. If clothing is made from a commercial pattern, even more features can be incorporated for a better fitting garment. Specific adaptations are determined by the specific disability, although some general suggestions for design should be adhered to. Clothing that is comfortable to wear should 1) allow for body movement, 2) be sized to fit (comfortable), 3) help prevent accidents, 4) give protection and security, 5) have sturdy construction techniques and fabrics for wearability, 6) incorporate as many easy-care characteristics in fibers, fabrics, and finishes as possible, 7) have secure closures suited to the manual dexterity of each person, and 8) be easy to put on and remove (23, 27, 28, 34).

Adaptations to Women's Clothing

Garments for physically handicapped women, in general, should be loose dresses with front openings, ample skirt room and three-quarter length sleeves (21, 27). Gored skirts are safer and more comfortable

than pleated or gathered skirts. Medium-full skirts were preferred to pleated skirts in two studies (2, 34). In two studies, two-piece garments proved to be more functional than one-piece dresses (2, 5), although preference for one-piece dresses was indicated by participants in another study (34).

Disadvantages of one-piece dresses included ripped armholes and waistlines. To avoid these problems, the use of sleeves with underarm extensions to the waistline could be incorporated for more roominess. Both raglan or kimono sleeves with diamond or oval gussets at underarms add ease, give, and durability to the underarm area, thus solving some of the problems of rips and tears (2, 5, 6, 27). Gussets should be reinforced with double fabric (6, 27). Another technique used for set-in sleeves is an underarm open and shut feature visible only when the arm is raised or extended. For women on crutches, where there is excessive wear under the arm, clothes should fit closely to avoid bulkiness and wear (2, 5).

Many problems have been encountered in the waistline area. Use of adjustable waistbands is recommended for women who use leg braces or crutches by eliminating darts and easing fullness into a casing (27). To keep a blouse from "riding up" as a person reaches, hidden waistline pleats could be inserted which would open as arms are raised. The blouse could also be elasticized to the back skirt in order to secure it (26, 34).

Other features which would provide adequate room for movement in the bodice area are side vents which let the blouse adjust to hips without bulk, pleats in the back near the armhole, and action or release

pleats in the bodice side seam to add ease, as well as gathers which fall from the neckline (21, 27, 34).

To add room in the hip area, one could increase the amount of flare in the skirt or dress, add pleats or release darts, or add an elasticized waistband or shirring at the waistline (27, 34). Wrap around style skirts were found to be easy to adjust for a more comfortable fit (27).

Design features of garments which were found to aid in dressing included large, over the head styles and expandable neck openings (6, 26, 27). Shawl collars prevented turning of the collar into the neckline and the bias mandarin collars seemed easy to keep in place after pulling over the head (26, 34).

Adaptations to Male Clothing

The article of clothing which causes the most common clothing problem for men (and some women) is slacks or trousers. In 1955 Cookman (5) patented a design in men's slacks which incorporated a zipper placed in the outside side seam. This allowed ease in putting on and taking off the trousers, thus aiding the brace wearer considerably (5). This method incorporated a two-way heavy duty zipper with double cam locks so trouser legs could be opened all the way from the bottom up or from top down or half the distance each way, permitting insertion of foot and shoe and/or brace without removal of trousers (5). An adaptation of this method is the installation of a 12 or 14 inch double camlock zipper or a pressure tape strip on the inside seam for some brace wearers (5, 26).

According to Boettke (3), 50 percent of the mothers of physically handicapped children indicated that assistive devices wore out or damaged clothing, with braces causing the greatest damage. Since males have a higher proportionate use of one or more aids than females at all ages (under 65), this could be a significant problem (38). To prevent this wear on fabric, inside knee lining of strong fabric should be used, or reinforcement should be made with iron-on mending fabric (5, 27). Studies have shown that woven fabrics withstand abrasion better than knits (2, 23, 32, 34). Appropriately finished inside seams protect against fraying which would interfere with latches (34).

Adequate leg width allowance should also be made in slacks (5, 26, 27, 28). This width may be added in the form of action pleats in the seams for knee comfort (34). Since tapered slacks tend to bind through the crotch and knees, trousers which are designed with a long back and short front rise are recommended. These slacks relieve the strain through the crotch and over the knees, giving better fit and, for the wheelchair person, a smoother lap (2, 19, 26, 34).

Another feature desirable for brace wearers is an elastic waistband to fit over braces and pelvic bands (26). Adjustable waist tabs improve fit of trousers if braces are not worn consistently (20). Released darts or pleats on each side of the side front allow more room and comfort when sitting (5, 34). Hems rather than cuffs are recommended for trousers (26, 34). Half-hitch pockets prove easier to reach and get into while sitting than pockets inserted along the side seams of slacks (5).

Waistlength jackets or jackets which are no longer than the hipbone are recommended for men or women in wheelchairs to eliminate the

bulkiness of a long coat (2, 5). If difficulty is experienced in getting into a heavy outer jacket, a new zipper opening could be created running from the bottom of the sleeve on the underarm seam to the armhole and down the coat side seam to the hem. Capes are also recommended as excellent wraps (5).

Recommendations for underwear include mid-length boxer shorts (instead of jockey style) to prevent binding and for ease of dressing. Shorts with contour or seamless seat for those in wheelchairs provide increased comfort. Undershirts or t-shirts should have large neck openings, and, if a person is extremely limited in mobility of his upper extremities, t-shirts can be opened down the front with pressure tape closures (20).

Adaptations to Accessory Clothing Items

Accessory items such as belts, gloves, ties and shoes can also present varied problems to the physically handicapped person. Some belts can be partially sewn to the back waistline so that grasping is made easier--usually in women's dresses (21, 34). If the belt were too stiff, the backing could be replaced by grosgrain ribbon. Buckles on belts could be replaced with pressure tape for easier fastening (21), although stretch belts with clip buckles provide ease of fastening. Suspenders attached to slacks often eliminate the need for a belt altogether (20).

Gloves or mittens could be more easily managed if a loop of round or narrow elastic were sewn to the edge of the outside seam of the glove. The loops could then be placed over the hand as a bracelet (5).

Ties can be clip-on, snap-on, four-in-hand, or bow tie. Some men prefer regular ties, and pre-tie them, leaving them loose enough to slip over the head and tighten (5). One mother solved the problem for her son who had lost his right arm in Vietnam by knotting regular ties, cutting out the back section (portion under the collar) and replacing it with narrow elastic. For the bow ties, she would fasten one end of a piece of elastic to the bow and put a hook at the other end of the elastic, to hook onto a loop under the bow (2).

Shoes can present varied problems to persons with physical limitations. Slip-on shoes seem easier to manage for persons who cannot tie shoe laces. Regular tie shoes may also be adapted to slip-on with elastic shoe laces which are permanently tied at a comfortable tension. Shoes with hooks instead of eyelets can be laced by a person able to bend easily. Zippers can be adapted to regular lace shoes by a shoe repairman in order to facilitate ease of dressing. Other closures which may be used, depending upon the manual dexterity of the handicapped person, include the one-buckle clip closure or a pressure tape closure (20).

Adaptation of Closures and Fasteners

Secure closures or fasteners for garments should be suited to the manual dexterity of each person (34). This ease of manipulation should be determined by the size, type, and location of the fastener (23).

According to the study by McGuire (24), the easiest fastener to manage was the zipper, preferred by 70 percent of her sample. Zippers, which are available in various sizes, could be adapted by applying pull tabs for easier grasp (21, 23, 34). Front or side zipper openings

were found to make dressing easier for women. Men's trouser's could also be adapted with zippers in the legs for brace wearers (5).

Buttons can present varied problems to handicapped persons. Garments can usually be changed or adapted in some way to facilitate this closure. A veteran with no right arm found fastening small buttons on shirts very difficult. In this particular instance the buttons were removed and pressure tape sewn on. Buttons were then re-sewn on top of the buttonholes to keep the original appearance (2). This alteration can be made on women's and children's garments as well (5, 26). If garments are made from a commercial pattern, buttons selected should be round, large (not less than five-eighths inch in diameter) with a rim and should not be sewn on too tightly (34). A shank button was found to be easiest to grasp (23). Buttons can also be adapted for the cuff of a shirt or blouse. Two buttons can be sewn together on an elastic thread and slipped through the buttonholes on each side of the cuff, thus eliminating the need to unbutton the cuff when dressing and undressing. The cuff can also be adapted for weak fingers by using a pressure tape patch (5, 21).

Pressure tape (such as Velcro) can also replace regular button closures in the center front seam, side skirt waistband, and trouser legs. A common problem with the use of pressure tape is in laundering the garment. Effectiveness as a fastener is lessened if lint is caught in the tiny nylon mesh. To avoid this, the pressure tape should be closed during laundering (23).

Snap fasteners are secure and quick to unfasten, but require strength (34). Large and sturdy hooks and eyes and magnetic fasteners are recommended for those with a coordination problem. A flip fastener

(overshoe type) is easy to manipulate for those with hand and finger disablements (23, 34).

Fabric and Seam Reinforcement

Incorporating action and comfort features into a garment is pointless if seams are not strong and fabric is not durable and of good quality. Seams in ready-to-wear garments can be strengthened by restitching at any point of strain with the stitch length maintained at 15 to 18 stitches per inch (23, 24, 27). Fabrics chosen should generally be closely woven, comfortable next to the skin, absorbent, and easy-care with wrinkle-resistant or permanent press finishes (6, 23). Rough materials and fabrics with static electricity tendencies that could irritate sensitive skin should be avoided (20).

Summary

The physically handicapped population as a group will, according to present projections, become a relatively large group as a result of increased population and more advanced medical technology. Society's responsibility in the rehabilitation of these people should be viewed as an opportunity to allow each individual to reach his maximum potential. Clothing research is a means of helping the physically disabled person reach this optimal independence.

Individual and organizational efforts in determining these problems have contributed greatly to self-help in dressing for physically handicapped women and children. Fewer research studies have explored the clothing problems encountered by physically handicapped men. This physically handicapped population, as a collective group, have varied

problems with clothing. Exploratory research to find the myriad clothing problems encountered is essential.

CHAPTER III

METHOD AND PROCEDURES

The study was conducted to investigate the various clothing problems encountered by physically handicapped adult men (excluding the visually handicapped). A review of the literature revealed no recent research studies concerning the clothing problems of this particular group.

Instrument

A tentative questionnaire was developed to obtain information from physically handicapped males. References used in the development of the questionnaire included Creekmore (7), Madsen (21), McGuire (24), Rice (27), and Zaccagnini (40). A university faculty member and a graduate student who were conducting clothing research related to physically handicapped individuals evaluated the questionnaire for clarity, relevance and appropriateness. The questionnaire was then pretested by two physically handicapped men and revised according to the suggestions and comments made.

Sample

Acquiring a sample group for this particular study proved to be difficult. This difficulty in locating individuals who would be willing to participate was compounded by the reluctance of individuals to

disclose any names. In some cases, disclosure of names by agencies was not only considered unethical but was unlawful. In these instances, questionnaires were delivered to contacts who forwarded them to the individual to insure anonymity of participants.

Several means of acquiring participants were tried. First an announcement requesting volunteers was placed in the News Brief section of the Stillwater Newspress for a six-day period. This idea was prompted from a thesis by Rice (27) wherein the sample group consisted of those responding to an announcement placed in the local paper. However, no response was received from this announcement. Timing may have been disadvantageous since the announcement was printed over a three-day weekend and any persons trying to call could not, as offices in the department were closed. Therefore, other means of acquiring participants were investigated.

A number of organizations, on and off the Oklahoma State University campus offered assistance in contacting participants. The director of the Stillwater Sheltered Workshop was helpful in contacting persons. Through her efforts questionnaires were sent to Goodwill Industries in Tulsa, Oklahoma. Arrangements were made through the Oklahoma State University Rehabilitation Services for additional questionnaires to be distributed. Questionnaires were also sent, after consent from the social services director, to Oklahoma State University School of Technical Training in Okmulgee, Oklahoma.

One student on campus made it possible for questionnaires to be distributed in Muskogee, Oklahoma. These questionnaires were taken to a physical therapist at Veteran's Hospital in Muskogee, Oklahoma; to a physical therapist at Muskogee General Hospital; and to the owner of an

orthopedic brace shop in Muskogee, Oklahoma. A letter was received from the physical therapist in Muskogee, offering assistance in contacting others. He was able to contact two other physical therapists through the Eastern District of the Oklahoma Physical Therapy Association. These individuals also volunteered to distribute questionnaire forms to those willing to participate. Various other personal contacts were made with individuals who supplied names and addresses of prospective participants.

The final sample consisted of the 31 physically handicapped men who returned questionnaire forms. Participants were not required to sign the questionnaires; thus specific locations of participants are unknown. The postmarks indicated that information was received from various cities in Oklahoma and from other states including Kansas, New York and South Dakota.

Procedure

After development of the questionnaire and location of prospective participants for this research study, questionnaires were distributed. A total of 15 questionnaires were distributed to physically handicapped individuals. Another 73 were given to persons working in rehabilitation to distribute to any physically handicapped individuals who were interested in participating. There seemed to be favorable interest in the research project from those working in rehabilitation. Those persons contacted on the Oklahoma State University campus were enthusiastic and offered any assistance that would help in the distribution of questionnaires to participants and to those working in rehabilitation

services. All questionnaires received from participants were analyzed to identify the prevalent clothing problems of the sample group.

CHAPTER IV

FINDINGS AND ANALYSIS

A total of 31 persons responded to the questionnaire, representing a 35 percent return of all distributed questionnaires. The characteristics of this sample group are noted in Table I according to specific physical limitations. Categories are not exclusive, since some respondents checked more than one category indicating multiple disabilities. The number following each category represents the number of times mentioned. Because of the small sample size, percentages were not used. ✓

Amputation was mentioned a total of nine times by seven respondents. This number represents five leg amputees and two respondents with multiple amputations, one having one arm and both legs amputated and another with one hand and one leg amputated. Paralysis was mentioned a total of 46 times. Nine indicated paralysis of one arm, eleven respondents indicated paralysis of one hand, thirteen indicated paralysis of one leg, one indicated paralysis of both legs, eleven indicated paralysis of one foot and one indicated paralysis of both feet. Paralysis, as a category, included partial and complete forms. It is not known, unless specified by the respondent, whether one or both limbs were involved.

Two persons mentioned limited use of one arm while thirteen had limited use of both arms. Fifteen respondents had limited use of both legs and one respondent had no use of his legs. One respondent stated

specifically that he was quadriplegic. Lack of control of hand movements was mentioned eleven times by respondents. Four indicated that incontinence was a problem. "A slight lack of coordination" was reported by one respondent.

TABLE I
PHYSICAL CHARACTERISTICS OF 31 RESPONDENTS

Specific Physical Limitations	Total Number of Times Indicated
<u>Amputation</u>	
Arm	1
Hand	1
Leg	6
Both Legs	1
Foot	0
<u>Paralysis</u>	
Arm	9
Hand	11
Leg	13
Both Legs	1
Foot	11
Both Feet	1
Limited use of arms	13
Limited use of legs	15
Lack of control of hand movements	11
Incontinence	4
<u>Other</u>	
Limited use of arm	2
Quadriplegic	1
No use of legs	1
Slight lack of coordination	1

A summary of the amount and type of help required in dressing is presented in Table II. The largest number, 14, never required help in dressing. Eight responded that they occasionally required help while dressing and nine others required assistance at all times when dressing. When questioned concerning self-help devices used while dressing, 25 respondents indicated that they used none while six used a device of some kind. The devices listed included button hooks, used by five respondents, and a shoe horn, mentioned by one respondent.

TABLE II
ASSISTANCE REQUIRED IN DRESSING OF 31 RESPONDENTS

Assistance Required in Dressing	Number
Do you require help in dressing?	
Never	14
Occasionally	8
At all times	9
Self-help Devices Used When Dressing	
Do you use any self-help devices when dressing?	
Yes	6
No	25
Devices Used While Dressing	
Button hooks	5
Shoe horn	1

The types of appliances or devices used by respondents and related clothing problems encountered are presented in Table III. Respondents indicated use of one or more appliances or devices due to their specific physical limitations. Six respondents used braces. No specific type of brace was indicated by most respondents. One listed a chair-back brace and another respondent indicated a long back brace. Five respondents used crutches as an aid in walking. Four also used a cane and one used a walker. Another respondent indicated use of a tri-walker. Some type of prosthetic device was used by five respondents and sixteen used a wheelchair for mobility. One respondent indicated use of a leg bag attached to a catheter. Only three respondents needed no appliances or devices for their specific disabilities.

Sixteen respondents indicated that they had no clothing problems as a result of their appliances. Some appliances or aids such as canes, walkers and possibly crutches, since not in direct contact with clothing, might not cause problems with clothing. Clothing problems caused by the use of appliances or devices were identified by fifteen respondents, approximately one-half of the sample group. Specific problem areas included sides or knees of slacks, underarm seams, pockets and the hems of pants. Openings, seams at hips, and the seat of slacks were each mentioned one time as being specific problem areas. One respondent indicated the back shoulder area as a point of stress and wear. The waistband area caused problems to two respondents.

TABLE III
 APPLIANCES AND DEVICES USED AND RELATED CLOTHING
 PROBLEMS OF 28 RESPONDENTS^a

Appliances Used by 28 Respondents	Number
Wheelchair	16
Braces	6
Crutches	5
Prostheses	5
Cane	4
<u>Others</u>	
Back brace	1
Chairback brace	1
Catheter-leg bag	1
Tri-walker	1
Walker	1
<hr/>	
Clothing Problems Caused by Appliances or Devices	
<hr/>	
Do appliances or devices used cause any clothing problems?	
Yes	15
No	16
<hr/>	
Specific Problem Areas	
<hr/>	
Sides or knees of slacks	9
Underarm seams	6
Pockets	6
Hem of pants	3
Waistband	2
Openings	1
Seams at hips	1
Seat of slacks	1
Back shoulder area	1

^{a/} Three respondents used no appliance or device.

Respondents were asked to check the specific clothing problems that they encountered. Specific problems checked by respondents are listed in Table IV. The problem encountered most often was "Improper Fit" which was checked a total of 16 times. "Lack of Durability" and "Closures difficult to manipulate" were each checked 12 times. Ten respondents checked "Clothing difficult to get on and remove" and "Suitable clothing not available." Nine respondents indicated that fabric had a tendency to "ride up" on appliance and nine also indicated that designs were not adaptable to their handicap. "Inconvenient location of fasteners" was checked by five respondents and four indicated "Lack of fashion" as a clothing dissatisfaction.

TABLE IV
SPECIFIC CLOTHING PROBLEMS
OF RESPONDENTS

Clothing Problems	Number of Times Noted by Respondents
Improper Fit	16
Closures difficult to manipulate	12
Lack of Durability	12
Clothing difficult to get on and remove	10
Suitable clothing not available	10
Fabric rides up	9
Design not adaptable	9
Higher cost	7
Inconvenient location of fasteners	5
Lack of fashion	4

Responses of participants indicated a wide variety of disabilities and combinations of disabilities. The diversity of clothing problems of this group of respondents is a result of the diversity of physical handicaps of those included in this study.

Information regarding clothing problems of the respondents may be found in Table V and Appendix B. When the questionnaires were received from respondents, clothing problems were categorized according to specific clothing articles (see Appendix B). The number of times these clothing problems occurred relative to each specific clothing article is presented in Table V. Each column was then totaled to determine which article of clothing caused the most problems. To facilitate discussion of the clothing problems, each article of clothing will be discussed individually using information from Appendix B and from Table V.

The garment presenting problems to the greatest number of respondents was slacks, noted by 23 respondents. The most common problem with slacks was fit. Pants seemed "too tight" in most cases. Respondents expressed the desire to have pants look appropriate and preferred not to buy slacks too large in order to accommodate the fitting problem. One respondent did, however, solve his fitting problem by buying slacks larger so there would be more room in the waist, crotch and legs. The other respondents who expressed dissatisfaction with the fit of slacks had various degrees of paralysis. Six of these respondents used a wheelchair and two used braces. Two respondents with paralysis of the legs indicated "tightness" as a problem. One specifically complained of tightness around the waist and another complained of tightness around the leg caused by lack of ease for leg urinal and brace. This

fitting problem caused bruising and epidimitis and other skin irritations in addition to problems with appearance and comfort. Two respondents indicated that there was either too much material in front when sitting in a wheelchair or too little material in the back which caused fitting problems with a resulting lack of comfort and neat appearance. One respondent indicated that his legs were very small and the pant legs were too large. Another problem was rips in the crotch area caused by a chairback brace.

TABLE V

CLOTHING PROBLEMS PRESENTING THE GREATEST DIFFICULTY
IN RELATION TO SPECIFIC CLOTHING ARTICLE

CLOTHING PROBLEM	TOTAL	ARTICLES OF CLOTHING													
		Slacks	Suit	Shirt	Shoes	Jacket	Ties	Over- coat	Socks	Under- wear	Shorts	T-shirts	Sleep- wear	Sports- coat	Belts
Fit	31	9	7	3	2	1		3	1	1	2		1	1	
Closures and fasteners difficult to manipulate	26	3	4	9	5	3		2							
Ease of dressing	21	2	1		2	1	6	1	2		4	1	1		1
Durability	13	2	2	1	3			1	1	1	1	1			
Cost	13	2		1	2	1	1			1	1	1			
Availability	6	1	2	1	2										
Lack of fashion	5	2	1	1	1										
Inconvenient location of fasteners	5	1		2		1									1
Care	3	1	1											1	
TOTAL		23	18	18	17	7	7	7	4	3	8	3	2	2	2

Closures or fasteners on slacks caused no problems to amputees. Five respondents with paralysis had problems with closures being difficult to manipulate or inconveniently located. Snap closures caused problems to two respondents and zippers caused problems to another. These three respondents lacked control of hand movements. A suggestion offered by one respondent was to avoid heavy snaps and substitute hooks or friction tape.

Difficulty in dressing was mentioned as a problem for two leg amputees. A solution mentioned by one respondent was to buy slacks larger to facilitate dressing. Cost, durability, and lack of fashion were mentioned two times each in relation to slacks. One respondent expressed dissatisfaction with slacks that were offered for sale in retail stores mentioning specifically that double knit slacks were cut either slim or baggy, neither of which was suitable for him. He expressed the idea that slacks seemed to be "cheaply made" and were not durable, even in the high priced name brands.

Other problems mentioned at least once by respondents were inconvenient location of closures, care and availability of suitable clothes. One respondent expressed general dissatisfaction with slacks being uncomfortable while sitting in a wheelchair. He suggested that elimination of the back pockets could remedy this problem for him.

Suits and sport coats caused problems for 21 respondents. The main problem seemed to be that of fit which eight respondents mentioned. A general complaint was a lack of proper proportion. If the sleeves were the right length, the coat was too large, whereas if the body of the coat fit, the sleeves were too short. One amputee mentioned that fit was poor over his prosthesis in the shoulder area. Another respondent

with limited use of arms, legs and hands suggested that fitting problems could be alleviated if optional sizes for suit pants and suit coat were offered at the retail level.

Two respondents also mentioned durability as a problem with suit and sport coats. One indicated that sleeves tended to "pill" and wear where crutches rubbed and another mentioned rips in the suit coat, caused by his chairback brace.

Suit coats also caused problems for people using the wheelchair. Two respondents mentioned that the suit or sport coat was too long and either seemed to get caught in the wheels or dragged on the wheels and became dirty and wet. One respondent offered the suggestion of wearing an "Eisenhower" jacket which would eliminate the problem. Recommendations of other researchers for the wheelchair user include wearing of shorter coats to prevent bulkiness when sitting. This particular style might eliminate the need for custom-made jackets.

Difficulty with suit and sport coat closures was mentioned by two respondents. One respondent (a quadriplegic) had difficulty putting on suit slacks while seated.

Problems with shirts were mentioned a total of 17 times by respondents. Ten had trouble buttoning the shirts. Two respondents were arm or hand amputees and seven had limited use of arms or lack of control of hand movements. Suggestions from respondents for alleviating this problem included use of pressure tape, snaps or elastic instead of buttons. One suggestion was the use of large, heavy zippers with a pull for easier grasp. One respondent, however, mentioned that he had learned to use his left hand to take care of all his needs.

Three respondents indicated dissatisfaction with the fit of shirts. One mentioned specifically that the neck seemed too small. Lack of fashion, cost, availability and durability were also mentioned as problems. One respondent expressed dissatisfaction with fit and durability of shirts he had purchased. He expressed regret that even the more expensive shirts seemed to wear out quickly, some getting as few as two or three wearings before showing signs of wear. Preference for shirts constructed of denim or other heavy or sturdy material was expressed since these lasted for years before becoming worn.

Jackets and windbreakers will be discussed in combination with overcoats and topcoats since problems with these clothing articles were similar. Jackets and overcoats were each mentioned by seven respondents as problem clothing. The greatest problem was that of closures being difficult to manipulate. One arm amputee, two respondents with limited use of arms and one respondent with lack of control of hand movements mentioned this as a problem. The arm amputee suggested use of more snaps and buttons rather than zippers, whereas the respondent with a lack of control of hand movements indicated a preference for large, heavier zippers with pull loops which would make grasping easier.

Fit was mentioned by four respondents as a problem with jackets and overcoats. "Too much bulk" in the shoulder area was mentioned by three respondents (one arm amputee who used a prosthesis, another with limited use of arms and legs, and another with limited use of legs). One merely objected to restriction of arm movements caused by overcoats. All used a wheelchair which may have contributed somewhat to this problem.

Ease of dressing was noted as a problem for one quadriplegic. Durability was mentioned by another respondent, probably arising due to the rubbing of crutches in the underarm area.

Underwear also presented problems to some respondents. Four respondents indicated that shorts were difficult to get on. One stated that he needed something that he could grasp to aid in dressing. T-shirts presented difficulty in dressing for one respondent with paralysis of the arms. Durability was indicated by three respondents as a problem. All respondents who mentioned durability as a problem wore leg prostheses which probably contributed to underwear wearing out at points of stress. Improper fit resulted in lack of comfort for two respondents. Both mentioned tightness or binding which indicated a lack of sufficient ease in underwear.

Two respondents, both with limited use of arms and legs and lack of control of hand movements mentioned problems with sleepwear. Both used wheelchairs. One had trouble putting sleepwear on and removing it whereas the other thought his sleepwear was uncomfortable and binding.

Socks presented problems to four respondents. Difficulty in getting them on was a problem to two wheelchair respondents with limited use of legs. Another respondent stated that the elastic in socks was too tight, sometimes causing circulation problems. One respondent, a leg amputee, had the problem of socks wearing out on his foot prosthesis.

Shoes also presented various problems. Two respondents (one leg amputee and another with limited use of his legs) had difficulty putting shoes on. Four respondents with some paralysis had difficulty

with fastening or tying. One suggestion offered by a respondent to help solve the problem was to wear a low heeled half-boot type shoe with no fastenings or shoes with buckles instead of shoe string fastenings. Putting shoes on was solved by one respondent by using a long handled shoe horn.

Three respondents (leg amputees) mentioned durability as a major problem with shoes. All mentioned different rates of wear for each shoe and one mentioned deep cuts caused by a prosthesis.

One leg amputee who had problems with durability and availability mentioned that although he did not use an artificial leg, he hated to pay a high price for a pair of shoes and then have to throw one away. He also mentioned that shoe companies no longer sell only one shoe and that the new dress shoes had thin, crisp soles which wore out quickly.

Some accessory items which caused problems to respondents include ties and belts. Ties caused problems to seven respondents. As would be expected, all mentioned difficulty in manipulating or tying the tie. The only suggestion offered was to avoid ties completely. No mention was made of pre-tying or using elastic on pre-tied ties to solve this problem.

Belts were also mentioned as problems to two respondents. One mentioned that his belt helped break the seal on his appliance. No further explanation was given but the appliance indicated would be a brace of some type. Another respondent with limited use of arms mentioned that belts were difficult to fasten.

A listing of the clothing problems posing the greatest difficulty to respondents is presented in Table VI. Improper fit was mentioned more times than any other problem. Closures or fasteners presented

problems to 26 respondents and ease of dressing was indicated by 21 respondents as a major problem. These seemed to be the major problems of this sample group. These figures can be compared to the information in Table IV in relation to general clothing problems of respondents. Improper fit was mentioned as the major problem in both instances.

TABLE VI
CLOTHING PROBLEMS OF GREATEST DIFFICULTY
AS INDICATED BY RESPONDENTS

Clothing Problem of Greatest Difficulty	Number of Times Indicated by Respondents
Improper fit	31
Closures or fasteners difficult to manipulate	26
Ease of dressing	21
Durability	13
Cost	12
Availability	6
Lack of fashion	5
Inconvenient location of closures or fastenings	5
Care	3

Frequency and type of alterations made to ready-to-wear clothing of respondents is presented in Table VII. The specific clothing article altered and the person making these changes are also given.

Twenty-one respondents indicated that their ready-to-wear clothing was not altered. Nine respondents, however, indicated that their ready-to-wear clothing was adapted or altered in some way to accommodate their specific handicap.

The clothing articles most often altered were suits and shirts which were indicated by three respondents. Slacks was mentioned by four respondents and work pants or levis was mentioned two times. Overcoats and shoes were also designated as being altered.

Specific alterations made to clothing included reinforcement of fabric, use of pressure tape closures, and the use of special or adapted fasteners. Size alterations were indicated by three respondents. The overcoat was adapted by opening the back seam (possibly for ease of dressing). The shoe adaptation was made to hold the shoe on by means of a strap.

The persons responsible for making the adaptations included the wife, indicated by three respondents, and mother, tailor or seamstress, each designated by two respondents as making the alteration. The maid was noted once as making needed alterations.

TABLE VII
ALTERATIONS TO READY-TO-WEAR CLOTHING
OF RESPONDENTS

Frequency of Alterations	Number
Is any of your ready-to-wear clothing adapted or changed to accommodate your handicap?	
Yes	9
No	21
Articles of Clothing Altered	
Slacks	4
Dress shirts	3
Suits	3
Workpants, Levis	2
Sport shirts	1
Shoes	1
Overcoats, topcoats	1
Alterations Made to Ready-to-Wear	
Fabric reinforced	1
Velcro replaces closure	1
Special fasteners used	1
<u>Others</u>	
Size alterations	3
Pull in zipper	1
Coat back seam opened	1
Strap added to shoe	1
Person Making Adaptation	
Wife	3
Mother	2
Tailor or seamstress	2
<u>Others</u>	
Maid	1
Shoe repairman	1

Respondents were asked to indicate articles of clothing which were custom made as opposed to ready-to-wear clothing (see Table VIII). Only three respondents indicated that they had any of their clothing custom made. Articles which were custom made included suits, shirts, slacks, t-shirts, robes, sport coat and ties. Twenty-seven respondents had no clothing custom made and one respondent did not mark either choice.

Only 12 respondents indicated that they would have more clothing custom made if a seamstress or tailor could be employed. Two participants omitted this question. The majority of respondents indicated that they would prefer not to have any clothing articles specially made for them. Those who desired to have clothing custom made listed slacks and Levis, shirts, and suits. Other clothing articles itemized one time each included sport coat, overcoat, and jacket.

TABLE VIII
CUSTOM-MADE ARTICLES OF CLOTHING

Clothing Articles Specially Made for Handicapped Person	Number
Is any of your clothing made by a seamstress, tailor, friend or relative?	
Yes	3
No	27
Types of Clothing Articles Made	
Suits	2
Shirts	1
Slacks	1
T-shirts	1
Robes	1
Sport coat	1
Ties	1
Desirability of Having Clothing Articles Made	
Would you have more of your clothes made if a seamstress (or tailor) could be employed to adapt patterns to your specific disability?	
Yes	12
No	17
Clothing Articles Respondents Desired to Have Made	
Slacks and Levis	10
Shirts	5
Suits	3
Sport coat	1
Overcoat	1
Jacket	1

The criteria used to select ready-to-wear clothing are presented in Table IX. Participants were asked to indicate level of importance for each criterion. Comfortable fit was indicated by 25 respondents as being very important. The next most important criterion in the selection of clothing was appearance as related to neatness. Ease of getting on and off was noted by 18 respondents and 17 respondents mentioned clothing being comfortably warm or cool. The amount of care required and functionalism were also considered very important by approximately half of the respondents.

Moderately important areas of consideration included price, color, fabric, versatility, texture, and fashionable appearance. Most criteria were considered either moderately or very important in the selection of ready-to-wear clothing. One respondent wrote in durability as being a major criterion in his clothing selection.

TABLE IX
 SELECTION CRITERIA FOR READY-TO-WEAR
 CLOTHING OF RESPONDENTS^a

CRITERIA FOR SELECTION	Level of Importance		
	Very important	Moderately important	Less important
Fit	25	5	1
Appearance (neat)	19	9	1
Ease of getting on-off	18	9	3
Comfortably warm-cool	17	12	2
Care required	16	11	2
Functional	15	10	2
Appearance (fashionable)	12	13	4
Fabric	11	13	4
Price	9	17	2
Versatility	7	13	4
Texture	6	13	5
Color	5	16	3
<u>Others</u>			
Durability	1	0	0

^{a/} All categories were not checked by all 31 respondents.

Participants were asked to select from their present wardrobe those items of apparel most liked and least liked. The two major apparel items chosen were shirts and slacks. Three characteristics of

shirts more often mentioned were fit, comfort in fabric, and care (see Table X). The two characteristics mentioned most often in least liked shirts were also fit and care.

TABLE X
 FEATURES OF MOST AND LEAST LIKED SHIRTS
 IN PRESENT WARDROBE OF RESPONDENTS

Features of Shirt Most Liked	Number
Fit	24
Comfortable fabric	24
Washes easily	22
Style	20
Color	20
Color (versatile)	19
Well-made	19
Easy to get on-off	15
<hr/>	
Features of Shirt Least Liked	
Fit	13
Too much care	11
Soils easily	8
Style	8
Color	8
Does not suit activities	7
Not versatile	6
Poor construction	5
Frays	5
Faded	4
Dirt does not come out easily	4
Needs mending	1

Participants were also asked to describe the particular shirt and point out various details that were liked or disliked. Comments were analyzed for similarity in likes and dislikes. Six respondents expressed a preference for slip-over style shirts although one respondent mentioned his dislike for this particular style. This particular person had limited use of his upper arms and shoulders which may have caused his dislike for this style. Three participants expressed a preference for western style shirts. Each of the following characteristics in shirts was expressed by two respondents: long tails, soft fabric, and snaps to replace button closures. Another respondent also noted dislike of short tails on shirts. One mentioned that knit shirts tended to snag easily on his appliance.

Participants were also asked to select most and least liked slacks in their own wardrobes (see Table XI). The two characteristics most often mentioned for a specific pair of slacks were fit and comfortable fabric. Fit was again most often mentioned as the problem in least liked slacks.

TABLE XI
 FEATURES OF MOST AND LEAST LIKED SLACKS
 IN PRESENT WARDROBE OF RESPONDENTS

Features of Slacks Most Liked	Number
Fit	24
Comfortable fabric	24
Color (versatile)	21
Well-made	21
Easy to get on-off	21
Style	19
Washes easily	18
Color	13
<hr/>	
Features of Slacks Least Liked	
Fit	16
Too much care	9
Frays	8
Poor construction	8
Style	7
Does not suit activities	7
Color	6
Lost shape	6
Not versatile	5
Worn out	5
Soils easily	5
Needs mending	4
Faded	4
Dirt does not come out easily	3
Must be dry cleaned	3

Participants were asked to describe a particular pair of slacks and point out various details that were liked or disliked. Comments were analyzed for similarity in likes and dislikes. Some may have been mere personal preferences and were not influenced by a physical

handicap. Some respondents had similar style or fabric preferences. Jeans were preferred by three respondents and flared legs were preferred by two others. Two respondents also mentioned a dislike for double knit fabric, stating that the fabric tended to cling, thus accentuating the outline of brace or device worn. Four other respondents also expressed a dislike for double knit fabric although not mentioning why they disliked the fabric. Five other respondents, however, who described a pair of slacks which were most liked, indicated that the slacks were made of double knit material. Fabrics mentioned in most liked slacks included denim, 100 percent wool, and a cotton-polyester blend. Fabrics mentioned in least liked slacks include these same fabrics. Color preferences were most often indicated. Three respondents when describing most liked slacks indicated red and blue (each indicated three times) and brown and gray (each indicated four times). Those respondents describing least liked slacks mentioned blue (three respondents), brown (two respondents), gray (one respondent) and green (one respondent). One respondent also mentioned that he disliked multi-colored slacks.

The means of clothing acquisition by respondents is presented in Table XII. Most clothing was bought ready-to-wear. Twenty-nine respondents acquired most of their clothing in this manner. The two other methods of clothing acquisition included mail-order and gifts, noted four and six times, respectively.

The handicapped person was responsible for most of the shopping for clothes as indicated by 24 respondents. The wife was indicated by nine respondents, the mother three times and friend or relative once. Twenty-nine respondents did not know of any mail-order company offering special clothing for the physically handicapped. One respondent knew

of the existence of such a company but could not recall the specific name and had not ordered anything from it. One respondent omitted the question.

TABLE XII
CLOTHING ACQUISITION OF RESPONDENTS

Method of Acquiring Clothing	Number
How is most of your clothing acquired?	
Purchased at retail store	29
Received as gifts	6
Mail-ordered	4
Made at home	0
Made by tailor or seamstress	0
Person Who Shops for Clothing	
Who shops for <u>most</u> of your ready-to-wear clothing?	
Self	24
Wife	9
Mother	3
Friend or relative	1
Familiarity with Mail-order Companies	
Are you familiar with any mail-order company which offers special clothing for the physically handicapped?	
Yes	1
No	29

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of the study was to identify the clothing problems and clothing dissatisfactions encountered by the physically handicapped adult male. Data were collected through use of a questionnaire distributed to physically handicapped individuals. Because of the difficulty in locating physically handicapped individuals, physical therapists and other persons working in rehabilitation were given questionnaires to distribute to those individuals willing to participate in the study.

The sample was composed of 31 respondents with a variety of physical disabilities. Data were analyzed according to various clothing problems.

Findings from this exploratory study indicated a wide variety of clothing problems and dissatisfactions that still exist for physically handicapped men. The major clothing articles causing problems to respondents were slacks, shirts, suits and shoes. The major clothing problems included improper fit, difficulty in manipulating closures and fasteners and lack of ease in dressing.

Very few participants had alterations or adaptations to any clothing they possessed. Contrary to this researcher's expectations, less than half of the respondents indicated that they would have any of their clothing custom-made if this were possible.

Most participants acquired their clothing at retail clothing stores and made the purchases themselves. Only one respondent was aware that companies existed which offered specially designed clothing for the physically handicapped. He could not recall the name of this company nor had he ordered any clothing from this source. The major considerations for the selection of ready-to-wear clothing as expressed by the 31 respondents were fit, neat appearance, comfort, ease of getting on and off, care required and functionalism.

The majority of participants expressed a definite interest in their appearance. Improper fit was indicated as the most prevalent clothing problem and, in many instances, resulted in dissatisfaction with appearance, durability and comfort to the respondent.

Many problems stemmed directly from the physical disability itself, although others were a result of the appliances or devices used. Since the handicap and appliance cannot, in most cases, be changed, the clothing must be adapted in some way to accommodate the handicap. Specific adaptations can and should be incorporated which would aid in dressing or in the fit or comfort of clothing. All problems cannot be solved by one design, however. Personal preferences, appliances used and mobility of the physically handicapped person are major considerations.

The following conclusions can be drawn from this study:

1. The majority of physically handicapped individuals have multiple disabilities.
2. The majority of physically handicapped men use one or more appliances as a result of their physical disability.
3. Major clothing problems for those with paralysis or limited use of limbs include fit or ease allowed in garment, closures

and fasteners which are difficult to manipulate and difficulty in getting clothes on and off.

4. Two major clothing problems for amputees are lack of proper fit (insufficient ease to accommodate appliance) and a lack of durability.

Relatively few general clothing recommendations can be made for such a small and diverse sample group. Physical handicaps of each person must be analyzed carefully to solve individual clothing problems. Clothing recommendations suggested by the respondents in this study which may be beneficial to physically handicapped individuals include the following:

1. Overhead style shirts offer ease in dressing. This style used fewer fasteners and was comfortable.
2. Clothing should be selected which does not bind or inhibit movement. Several fitting problems stemmed from lack of sufficient ease to allow movement without excessive wear to clothing. For paralyzed persons, lack of circulation to paralyzed limbs can lead to more serious complications.
3. Snaps and buttons may be convenient for some arm or hand amputees.
4. Zippers and pressure may be suitable for those with paralysis of arms or hands or for those with lack of control of hand movements.
5. Use of durable fabric or a reinforced fabric is recommended for those wearing a prosthesis, brace, or other appliance causing excessive wear.

Recommendations for further research include the following:

1. Interview selected individuals to acquire greater insight into the clothing problems encountered by the physically handicapped.
2. Investigate the clothing problems encountered by blind men, women or children.
3. Investigate clothing problems of persons disabled by dwarfism.
4. Replicate this study with a larger sample of physically handicapped men to determine whether more specific recommendations could be made for a particular handicap.

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APPENDIX A

COVER LETTER AND QUESTIONNAIRE

Dear Sir:

I am a student in the Clothing, Textiles and Merchandising Department at Oklahoma State University and am interested in clothing problems and clothing dissatisfactions of the physically handicapped.

Our department is conducting several studies in an effort to find ways to assist the physically handicapped with their clothing problems. Your assistance in determining these problems will be most helpful.

Please fill out and return the attached questionnaire as soon as possible. You need not sign the questionnaire. All information will remain completely confidential. Enclosed is a self-addressed envelope for your convenience.

Your time and effort will be greatly appreciated.

Sincerely,

Sherron Williams

The purpose of this questionnaire is to pinpoint clothing problems or dissatisfactions that you may be having, as well as any clothing preferences. Please respond to all questions by placing an "x" in the appropriate columns.

1. What are your specific physical limitations? (Check all that apply)

Limited use of arms Lack of control of hand
 Limited use of legs movements
 Incontinence

Amputee:

arm
 hand
 leg
 foot

Paralysis:

arm
 hand
 leg
 foot

Other (Please specify) _____.

2. How often do you require help in dressing?

Never Occasionally At all times

3. Do you use any self-help devices in dressing?

Yes No

If yes, list the devices that you use.

4. Which of the following do you wear or use?

Braces Prosthesis
 Crutches Wheelchair
 Cane None

Other (Please specify) _____.

5. Do your clothes rip out at seams and points of strain, or tear because of the use of braces, crutches, a wheelchair or other device?

Yes No

If yes, check problem areas:

Sides or knees of slacks Pockets
 Underarm seams Openings
 Hem of pants Other (Please specify)

_____.

6. Check all of the following clothing problems or dissatisfactions that you experience due to your physical disability.

- Fabric "rides up" on appliance
- Clothing difficult to put on and remove
- Suitable clothes not readily available
- High cost of specially designed clothing
- Improper fit
- Design of garment not adaptable to handicap
- Lack of durability (wearing quality)
- Lack of fashion in clothes
- Inconvenient location of closures or fastenings
- Closures or fastenings difficult to manipulate
- Other (Please specify) _____.

7. Check all articles of clothing which create problems or dissatisfactions as a result of your physical disability.

- | | |
|--|---|
| <input type="checkbox"/> Dress shirts | <input type="checkbox"/> Underwear |
| <input type="checkbox"/> Sport shirts | <input type="checkbox"/> shorts |
| <input type="checkbox"/> Suits | <input type="checkbox"/> t-shirts |
| <input type="checkbox"/> Slacks or trousers | <input type="checkbox"/> Ties |
| <input type="checkbox"/> Work pants, Levis | <input type="checkbox"/> Belts |
| <input type="checkbox"/> Overcoats, topcoats | <input type="checkbox"/> Socks |
| <input type="checkbox"/> Jackets, windbreakers | <input type="checkbox"/> Shoes |
| <input type="checkbox"/> Sleepwear | <input type="checkbox"/> Other (Please specify) |
- _____.

8. List below each article that you checked in Number 7 (above). Explain briefly your particular problem or dissatisfaction in the space provided.

<u>Clothing Article</u>	<u>Problem</u>
a. _____	a. _____ _____
b. _____	b. _____ _____
c. _____	c. _____ _____
d. _____	d. _____ _____

(If others, list on back and explain problem)

9. List, again, the articles of clothing you checked in Number 7 (above) in the following blank spaces. Draw a line from each article listed to the problem or dissatisfaction that presents the greatest difficulty to you.

<u>Clothing Article</u>	<u>Problem of Greatest Difficulty</u>
_____	Availability
_____	Care
_____	Closures or fastenings difficult to manipulate
_____	Cost
_____	Durability
_____	Ease of dressing
_____	Fit
_____	Inconvenient location of closures or fastenings
_____	Lack of fashion

10. Do you have any suggestions for changing or altering clothing that would make dressing and undressing easier for you?
 Yes No

If yes, list the particular garment(s) and explain briefly the suggested change(s).

<u>Garment(s)</u>	<u>Suggested Change(s)</u>
a. _____	a. _____
b. _____	b. _____
c. _____	c. _____

11. Is any of your ready-to-wear clothing adapted or changed to accommodate your handicap?
 Yes No

a. If yes, check all clothing articles which are altered.

- | | |
|---|---|
| <input type="checkbox"/> Dress shirts | <input type="checkbox"/> Overcoats, topcoats |
| <input type="checkbox"/> Sport shirts | <input type="checkbox"/> Jackets, windbreakers |
| <input type="checkbox"/> Suits | <input type="checkbox"/> Ties |
| <input type="checkbox"/> Slacks or trousers | <input type="checkbox"/> Other (Please specify) |
| <input type="checkbox"/> Work pants, Levis | _____. |

b. If yes, what changes are made?

<input type="checkbox"/> Seams reinforced	<input type="checkbox"/> Special fasteners used
<input type="checkbox"/> Fabric reinforced	<input type="checkbox"/> Other (Please specify)
<input type="checkbox"/> Pressure tape replaces closure	_____.

c. Who makes these adaptations?

<input type="checkbox"/> Wife	<input type="checkbox"/> Tailor or seamstress
<input type="checkbox"/> Mother	<input type="checkbox"/> Other (Please specify)
<input type="checkbox"/> Friend or relative	_____.

12. Is any of your clothing made by a seamstress, tailor, friend, or relative?

Yes No

If yes, list below the types of clothing items which are made.

13. Would you have more of your clothes made if a seamstress or tailor could be employed to adapt patterns to your specific disability?

Yes No

List below any garments or articles of clothing you would have made.

14. Check in the appropriate column the importance of each item to you in the selection of your clothing.

	Very important	Moderately important	Less important
Appearance (fashionable)	_____	_____	_____
Appearance (neatness)	_____	_____	_____
Care required	_____	_____	_____
Comfortable fit	_____	_____	_____
Comfortably warm or cool	_____	_____	_____
Color	_____	_____	_____
Ease of getting on and off	_____	_____	_____
Fabric	_____	_____	_____
Functional	_____	_____	_____
Price	_____	_____	_____
Texture	_____	_____	_____
Versatility	_____	_____	_____
Others? (Please list below)	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

15. Select a shirt in your wardrobe that you like better than others. Check all features that you especially like about this shirt.

<input type="checkbox"/> Style	<input type="checkbox"/> Washes easily
<input type="checkbox"/> Color becoming	<input type="checkbox"/> Fabric is comfortable
<input type="checkbox"/> Fits well	<input type="checkbox"/> Well-made
<input type="checkbox"/> Color goes with several slacks	<input type="checkbox"/> Easy to get on or off

Describe this shirt in as much detail as possible. Include style, fabric, fiber content, color, etc.)

16. Select a shirt in your wardrobe that you do not like or that you seldom wear. Check all features that you dislike about this shirt.

<input type="checkbox"/> Style	<input type="checkbox"/> Fabric frays
<input type="checkbox"/> Color unbecoming	<input type="checkbox"/> Requires too much care
<input type="checkbox"/> Fits poorly	<input type="checkbox"/> Needs mending
<input type="checkbox"/> Dirt does not come out	<input type="checkbox"/> Poor construction
<input type="checkbox"/> Discolored by fading	<input type="checkbox"/> Does not suit activities
<input type="checkbox"/> Soils easily	<input type="checkbox"/> Does not go with slacks

Describe this shirt in as much detail as possible. Include style, fabric, fiber content, color, etc.

17. Select a pair of slacks in your wardrobe that you like better than others. Check all features that you especially like about this pair of slacks.

<input type="checkbox"/> Style	<input type="checkbox"/> Washes easily
<input type="checkbox"/> Color becoming	<input type="checkbox"/> Fabric is comfortable
<input type="checkbox"/> Fit well	<input type="checkbox"/> Well-made
<input type="checkbox"/> Color goes with several shirts	<input type="checkbox"/> Easy to get on or off

Describe this pair of slacks in as much detail as possible. Include style, fabric, fiber content, color, etc.

18. Select a pair of slacks in your wardrobe that you do not like or that you seldom wear. Check all features that you dislike about this pair of slacks.

<input type="checkbox"/> Style	<input type="checkbox"/> Fabric frays
<input type="checkbox"/> Color unbecoming	<input type="checkbox"/> Requires too much care
<input type="checkbox"/> Fit poorly	<input type="checkbox"/> Needs mending
<input type="checkbox"/> Dirt does not come out	<input type="checkbox"/> Poor construction
<input type="checkbox"/> Discolored by fading	<input type="checkbox"/> Must be dry-cleaned
<input type="checkbox"/> Soils easily	<input type="checkbox"/> Lost shape
<input type="checkbox"/> No shirts to wear with them	<input type="checkbox"/> Worn out
<input type="checkbox"/> Do not suit activities	

Describe this pair of slacks in as much detail as possible. Include style, fabric, fiber content, color, etc.

19. How is most of your clothing acquired?

<input type="checkbox"/> Purchased at retail store	<input type="checkbox"/> Made at home
<input type="checkbox"/> Mail-ordered	<input type="checkbox"/> Made by tailor or seamstress
<input type="checkbox"/> Received as gifts	
<input type="checkbox"/> Other (Please specify) _____	

20. Are you familiar with any mail-order companies which offer special clothing for the physically handicapped?

Yes No

If yes, name the company with which you are familiar.

Have you ever ordered clothing from such a company?

Yes No

21. Who shops for most of your ready-to-wear clothing?

<input type="checkbox"/> Self	<input type="checkbox"/> Friend or relative
<input type="checkbox"/> Wife	<input type="checkbox"/> Other (Please specify) _____
<input type="checkbox"/> Mother	

Our purpose is to try to find ways to help provide more suitable clothing for persons with handicaps. Any comments that you would like to make regarding clothing problems would be welcomed. Please use the back of this page for comments.

APPENDIX B

SUMMARY OF RESPONSES ON ALL ARTICLES OF CLOTHING

CLOTHING PROBLEMS WITH SLACKS OR TROUSERS, WORKPANTS AND LEVIS OF RESPONDENTS

Specific Disability	Clothing Problem	Appliance Used	Suggestions of Respondents
<u>Amputee</u>			
Leg	Difficult to get on	Crutches, Cane	
Leg	Excessive wear above and below knee (cuts into fabric)	Prosthesis	Reinforce or stronger fabric around knee
Leg	Too snug in knee area. Fabric rides up appliance noticeably	Wheelchair Prosthesis	
Leg; limited use of leg	Difficult to get on	Crutches Prosthesis Wheelchair	Larger size trousers for ease of dressing
Legs and arm	Fit at hips without buying them too large to look good	Crutches Prosthesis Wheelchair	Button or snap fastening at top rather than hook
<u>Paralysis</u>			
Limited use of legs	Pants legs too big (legs are smaller than average)	Wheelchair	Make leg smaller around in circumference
Limited use of legs	Too tight around waist; not enough slack in crotch area	Wheelchair	
Limited use of legs	Pant legs too tight for leg urinal and brace; too short waisted	Wheelchair Braces	
Limited use of legs	Rip in crotch area	Chairback brace	
Limited use of arm and leg	Brace cuts into slacks	Long back brace Cane	

PROBLEMS WITH SLACKS (Continued)

Specific Disability	Clothing Problem	Appliance Used	Suggestions of Respondents
<u>Paralysis</u> (continued)			
Limited use of arms and legs	Rise too long in front "bunch up in front"	Wheelchair	
Limited use of arms and legs	Closures difficult to manipulate; inconvenient location	Wheelchair	
Limited use of arms and legs (quadriplegic)	Pants too short in back; slide down in back; wrinkle under legs making it uncomfortable sitting	Wheelchair Braces	Make back longer
Limited use of arms and legs; lack of control of hand movements	Snap closures	Cane Walker	Avoid heavy snaps substitute hook
Same as above	Closures and fasteners are difficult to use	Wheelchair	Use friction tape
Same as above	Zippers difficult	Braces	
Same as above	Proportions incorrect; wear out quickly	Braces	
Limited use of arms and legs; lack of control of hand movements; No use of legs	Snaps	Wheelchair	
Limited use of arms and legs; lack of control of hand movements; incontinence	Comfort when sitting	Wheelchair	Eliminate back pockets

CLOTHING PROBLEMS WITH SHIRTS OF RESPONDENTS

Specific Disability	Clothing Problem	Appliance Used	Suggestions of Respondents
<u>Amputee</u>			
Hand and leg	Closures difficult to manipulate	Prosthesis	Velcro shirt fastenings with practice, buttons present little problem
Arm and legs	Cannot button sleeve on arm opposite artificial arm; also shirt wears out quickly on prosthesis	Prosthesis Crutches Wheelchair	Velcro fastenings on sleeves; snap fasteners elsewhere
<u>Paralysis</u>			
Limited use of arm	Difficulty in fastening	None	
Limited use of legs	Rips in arm pits	Chairback brace	
Limited use of legs (paralysis waist down)	Ride up	Braces Wheelchair	
Limited use of arm and leg	Buttoning left sleeve	Long back brace Cane	
Limited use of arm and hand	Sleeves too long	None	Shorten sleeves
Limited use of arms and legs; lack of control hand movements	Proportions are wrong (neck too small)	Braces	Velcro neck closures
Limited use of arms and no use of legs	Buttons difficult to manipulate	Wheelchair	Put elastic band in sleeve cuff
Limited use of arms and legs; lack of control of hand movements	Buttons difficult to manipulate	Walker	Large, heavier zippers; zipper with pull

PROBLEMS WITH SHIRTS (Continued)

Specific Disability	Clothing Problem	Appliance Used	Suggestions of Respondents
<u>Paralysis</u> (continued)			
Limited use of arms and legs; lack of control of hand movements	Buttoning shirt front	Braces	
Same as above	Buttoning shirt front	Braces Tri-walker	
Same as above	Buttoning shirt front	Wheelchair	
Same as above	Manipulating fasteners	Wheelchair	Use friction tape
Limited use of arms and legs; lack of control of hand movements; incontinence	Fit of non-stretch shirts	Wheelchair	

CLOTHING PROBLEMS WITH SUITS OF RESPONDENTS

Specific Disability	Clothing Problem	Appliance Used	Suggestions of Respondents
<u>Amputee</u>			
Leg	Sleeves pill and wear where crutches rub	Crutches	
Arm and both legs	Fit over prosthesis; especially shoulders	Crutches Prosthesis Wheelchair	
<u>Paralysis</u>			
Limited use of legs	Rips in suit coat	Chairback brace	
Limited use of legs	Jacket is too long; gets in wheels of my chair	Wheelchair	
No use of legs	Tails too long; hang out; drag on wheels getting dirty and wet	Wheelchair	Wear "Ike" jacket; more suitable
Limited use of arms; no use of legs	Cuffs difficult to manipulate	Wheelchair	
Limited use of arms	Sleeve too long	None	Shorten sleeve
Limited use of arm and and leg	Leg not big enough	Long back brace Cane	
Limited use of arms and legs	Coat too big	Wheelchair	
Limited use of arms and legs (quadriplegic)	Difficult to put on while sitting	Wheelchair Braces	

PROBLEMS WITH SUITS (Continued)

Specific Disability	Clothing Problem	Appliance Used	Suggestions of Respondents
<u>Paralysis</u> (continued)			
Limited use of arms and legs; lack of control of hand movements	Buttons difficult to manipulate	Cane Walker	Velcro for closings
Same as above	Need different size of each	Braces	Optional pant sizes

CLOTHING PROBLEMS WITH OVERCOATS, TOPCOATS, JACKETS, AND WINDBREAKERS OF RESPONDENTS

Specific Disability	Clothing Problem	Appliance Used	Suggestions of Respondents
<u>Amputee</u>			
Leg	Sleeve pills where crutches rub	Crutches	
Arm and both legs	Fit over shoulder poor; too much bulk; fastening difficult	Crutches Prosthesis Wheelchair	Use more snaps and buttons rather than zippers
<u>Paralysis</u>			
Limited use of legs	Rides up above shoulder	Braces Wheelchair	"Ike" jacket style more suitable
Limited use of arms; legs	Bulk of fabric in back	Wheelchair	
Same as above	Closures and fasteners difficult to manipulate; inconvenient location of fasteners	Wheelchair	
Limited use of arms; No use of legs	Closures and fasteners difficult to manipulate	Wheelchair	
Limited use of arms and legs (quadriplegic)	Hard to put on while sitting	Wheelchair Braces	
Limited use of arms and legs; lack of control of hand movements	Zipper too small; pull too small to grasp	Cane Walker	Large, heavier zippers; zipper pull with loop
Paralysis of hand, leg, foot, lack of control of hand movements; incontinence	Hard to put on and keep from riding up leg (restricts arm movement)	Braces Crutches Wheelchair	

PROBLEMS WITH SOCKS OF RESPONDENTS

Specific Disability	Clothing Problem	Appliance Used	Suggestions of Respondents
<u>Amputee</u>			
Leg	Wear out on foot prosthesis	Prosthesis	
<u>Paralysis</u>			
Legs	Elastic too tight; interferes with circulation	Braces Wheelchair	
No use of legs Limited use of arms	Difficult to put on	Wheelchair	
Limited use of arms and legs; lack of control of hand movements; incontinence	Difficult to put on	Wheelchair	

PROBLEMS WITH SHOES OF RESPONDENTS

Specific Disability	Clothing Problem	Appliance Used	Suggestions of Respondents
<u>Amputee</u>			
Leg	Soles wear too fast	Crutches	
Leg; hand	Disproportionate wear on non-prosthesis shoe	Prosthesis	
Leg	Deep cuts and different rates of wear	Prosthesis	
Leg	Difficult to put on	Crutches Prosthesis Wheelchair	Easy pull-on type with low heels (half-boot); type with no fastenings
<u>Paralysis</u>			
Limited use of legs	Rip in side; fastenings difficult to manipulate	Chairback brace	Different type fastenings
Limited use of legs	Difficult to fit	Cane	
Limited use of arms and legs	Dropped shoe (foot)	Wheelchair	Strap added to hold shoe (and foot) up
Limited use of arms and legs	Size smaller than most mfg. make; no style	Braces	
Same as above	Tying shoes	Braces	
Same as above	Difficult putting on	Wheelchair	
Limited use of arms and legs; lack of control of hand movements	Tying	Cane Walker	Substitute buckle fastenings
Same as above	Tying	Wheelchair	

PROBLEMS WITH BELTS AND TIES OF RESPONDENTS

Specific Disability	Clothing Problem	Appliance Used	Suggestions of Respondents
BELTS			
<u>Paralysis</u>			
Limited use of arms; no use of legs	Difficult to fasten	Wheelchair	
Paralysis of hand, leg, foot; lack of control of hand movements; incontinence	Break seal on appliance	Brace Crutches Wheelchair	
TIES			
<u>Paralysis</u>			
Limited use of arm	Ease of dressing; difficult to manipulate	None	
Limited use of arms; no use of legs	Difficult to tie	Wheelchair	
Limited use of arms and legs; lack of control of hand movements	Difficult to tie	Cane Walker	
Same as above	Difficult to tie	Wheelchair	
Same as above	Difficult to tie	Wheelchair	
Limited use of arms and legs; lack of control of movements; incontinence	Difficult to tie	Wheelchair	

PROBLEMS WITH SLEEPWEAR AND UNDERWEAR OF RESPONDENTS

Specific Disability	Clothing Problems	Appliance Used	Suggestions of Respondents
SLEEPWEAR			
<u>Amputee</u>			
Leg; limited use of leg	Difficult to put on	Crutches Prosthesis Wheelchair	
<u>Paralysis</u>			
Limited use of arms and legs; lack of control hand movements; incontinence	Uncomfortable (binding)	Wheelchair	
UNDERWEAR-GENERAL			
<u>Amputee</u>			
Hand; leg	Wear out at points of stress	Prosthesis	
<u>Paralysis</u>			
Limited use of arms and legs; lack of control of hand movements; incontinence	Uncomfortable (binding)	Wheelchair	

PROBLEMS WITH UNDERWEAR (Continued)

Specific Disability	Clothing Problems	Appliance Used	Suggestions of Respondents
UNDERWEAR-SHORTS			
<u>Amputee</u>			
Leg	Difficult to put on	Crutches Prosthesis Wheelchair	
Leg	Waistbelt wears underwear	Prosthesis	
<u>Paralysis</u>			
Limited use of legs	Too tight around waist when sitting; pulls up back of shorts	Wheelchair	
Limited use of arms and legs	Difficult to put on and remove	Wheelchair	
Limited use of arms and no use of legs	Difficult to put on and remove; nothing to grasp	Wheelchair	
Limited use of arms and legs; lack of control hand movements; incontinence	Difficult to put on and remove	Wheelchair	
UNDERWEAR-T-SHIRTS			
<u>Amputee</u>			
Hand; leg	Durability	Prosthesis	
<u>Paralysis</u>			
Limited use of arm	Ease of dressing	None	

VITA

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Candidate for the Degree of
Master of Science

Thesis: CLOTHING PROBLEMS AND DISSATISFACTIONS OF PHYSICALLY
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