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APPEARANCE OR FUNCTION: FACTORS RELATED TO THE
LIKEABILITY OF HANDICAPPED INDIVIDUALS

THESIS

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By

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Descriptions of obesity, cerebral palsy, and scoliosis were rank-ordered (from one to twenty) and rated on a five-point scale by 75 college students. The descriptions were of two types: with the appearance of an individual on five levels of severity of a disorder and with the appearance and level of functioning of an individual on five levels of severity of a disorder. The ranking data indicated males rank-ordered descriptions of obese individuals different from cerebral palsy ($p < 0.01$) and scoliosis ($p < 0.05$). The ratings of the descriptions were analyzed in two studies with $2 \times 2 \times 2 \times 5$ ANOVA's. Three-way interactions of the level of severity, complexity of description, and type of disorder rated were discussed in terms of likeability of handicapped individuals.

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APPEARANCE OR FUNCTION: FACTORS RELATED TO
THE LIKEABILITY OF HANDICAPPED INDIVIDUALS

In recent years there has been a surge of interest in the study of disabled individuals. In part, an increased interest in these individuals has been due to the technological advances in medicine. With the rise of modern techniques, members of the medical profession have been able to save the lives of a number of disabled children who otherwise might not have survived their disability. As the number of disabled individuals increases, there is a heightening of awareness of the need to understand the disabled children in their social adjustment.

Individuals with handicaps have typically been differentiated from individuals with a mental or physical disability in the following way. The term handicap is often used to refer to those who are at a disadvantage in their environments. In contrast, the term disability is often used to refer to individuals with a disorder which can be measured or observed, although the disability need not be manifested (Mitchell, 1977). In this paper, the terms handicap and disabled will be used interchangeably

to refer to individuals with a disorder which can be measured or observed.

Previous studies indicate that handicapped children often suffer in their social status (Center & Center, 1963; Force, 1956) and handicapped people often have difficulty in establishing adequate social relationships and breaking through social barriers (Davis, 1961). More specifically experimental studies have relatively consistently found that disabled children are not liked as well as able-bodied children are liked (Richardson, et al, 1961; Richardson, 1970).

Although previous studies indicate that disabled, relative to non-disabled, children are often less well liked by their peers, few studies have attempted to examine differences in severity of disability and the effect this has had upon the extent to which disabled individuals are liked by others. Also, no studies could be found which specifically explored the cause of the relative lack of popularity among handicapped individuals. Apparently studies which explore both the degree to which a handicap is present and the reason handicapped children are not liked would be desirable for a number of reasons.

For example, if more were known about the social effects of severity of handicap, this would have implications for cosmetic surgery or other corrective procedures.

Friendship Preferences and the Handicapped Child

There has been evidence that people with handicaps become unpopular very early in life. A study by Richardson (1970) examined the following questions: How early in life does a consistent value toward disability become manifest in children? Does this value remain stable at different age levels, or does it change with age? Are there sex differences in the development of this value, and what do the results suggest about the processes of learning values in childhood?

Participants in this study and their parents were selected from a wealthy metropolitan suburb on the north-east coast of the United States. The method employed pictures used in previous studies by the author; the pictures were a set of six for each sex; the pictures in each set were identical except for the presence or absence of visible physical handicaps. These series of pictures depicting children with different handicaps were then shown to the participants.

The results indicated that, with the exception of kindergarten, for every set of male and female subjects the child without a handicap was liked more than any of the handicapped children. Taking the average ranking across all age levels, the obese were least liked by both male and female children. Children with leg braces and crutches and children in wheelchairs were more liked by the subjects with increasing age, while the children with missing hands and the children with facial disfigurements were less liked. Shifts in preferences toward those held at older ages occurred earlier for girls than for boys in all the handicap preferences except obesity.

The only age at which the non-handicapped was not the most liked is in children aged 5 to 6 years. The experimenter attributed this to the kindergarteners' lack of ability to understand the instructions. The direction of shift was toward the values of the parents, and by the age of eighteen the values of fathers and sons and of mothers and daughters were almost identical. It was suggested that earlier exposure of children to people with a wider variety of appearance in terms of handicap would alleviate anxiety over perceived strangeness.

A study by Weinberg (1978) substantiated earlier findings by Richardson. Weinberg (1978) investigated whether 3 to 5 year olds had an understanding of their disability and whether their attitudes toward a disabled child differed from those toward an able-bodied child. The participants were 25 able-bodied 3-year-olds, 53 able-bodied 4-year-olds, and 23 able-bodied 5-year-olds from middle class families. The children were attending two day-care centers located in the north central section of this country.

Children were shown pictures of either same sex, able-bodied children sitting in a regular chair (able-bodied condition) or the same child sitting in a wheelchair (disabled condition). The total number of pictures was four. Participants were then asked a series of questions to assess their attitudes toward the pictures.

The results showed that knowledge about the disability increased dramatically with age for both able-bodied and disabled children. Another study was then conducted in an attempt to replicate these findings. Another group of able-bodied children was asked to choose between playing with an able-bodied child and a disabled child. The

results of this second experiment indicated that 64% of 3-year-olds, 71% of 4-year-olds, 90% of 5-year-olds chose the able-bodied child to play with in a forced choice. Both sexes significantly preferred the able-bodied child to the disabled and the comprehension of this type of disability began to start at about age 4. The findings suggested that attitudes of the very young children toward disability are very flexible.

Whether or not one has a disability seemed to be of more influence in ratings of likeability than one's race. Richardson and Royce (1968) examined the effects of handicap and skin color on interpersonal relationships. The results suggested that the cue of physical handicap was so powerful that it masked the influence of skin color even though evidence indicated that for some of the subjects tested, color influenced their choice of friends. However, in a southern city with serious race relations problems, color was taken more into account in their judgements when making preference choices based on handicap and race. Handicap as a cue was still salient, but color for these girls was also influential.

In another study (Richardson and Emerson, 1970) the relative salience of skin color and physical disability in establishing children's preference for other children was studied. This study was done in a southern city in which there were segregated schools and where there was widespread evidence of racial discrimination and prejudice. This study expected the test pictures to be more salient and that it would be less likely that the pictorial cues of physical disability would have sufficient power to mask the effects of color.

The participants of this study were 199 Negro girls in two schools in a southern city (one school was a "model" school and the other school was an average segregated school). The ages ranged from 8 to 13 years of age with 67% of the girls between the ages of 10 and 12.

The pictures were similar to a previous study (Richardson, 1970); all were females and there was a set of white girls and a set of black girls. The results indicated that the least liked picture was the one of the obese child. The most liked was the one without the handicap in the model school, but in the other average segregated school, the child with crutches and a leg brace

was the most liked. In the average segregated school, there was a striking shift in rank order for the most liked child. When the picture of the child with the leg brace was shown as white, it was ranked as number one. When shown as a black child in another set, the same picture was given a preference rank of five, a drop in liking of four rank positions. This was also true for the second most liked picture, that of the amputee; there was a drop in ranking from white to black. This suggested that the negro girls were expressing a preference for white girls over black girls.

Richardson, Ronald, and Kleck (1974) examined the friendship and preference choice of children who had an opportunity to get to know each other over an extended period of time in a situation where there were equal numbers of children with and without handicaps. It was hypothesized that 1). both visibly and nonvisibly handicapped children would have lower sociometric status than non-handicapped children both within and outside their primary social groups, 2). nonvisibly handicapped children would hold an intermediate sociometric position between visibly handicapped and non-handicapped children

both within and outside their primary social group, 3). visibly handicapped children would have lower sociometric status outside than inside their primary groups, 4). non-visibly handicapped children would have lower sociometric status inside than outside their primary social groups.

The subjects were 193 boys aged 8 to 13. One hundred and eight of the boys were nondisabled. The disabled group was divided into nonvisible disability (52) and visible handicaps (33). Primary social groups, or in-bunk groups, were groups which shared a cabin, planned and shared in common activities (spent 24 hours per day together) and were made up of half nondisabled and half disabled children of about the same age. Out-bunk groups were defined as children who did not share a bunk, but attended the same camp session and saw each other on the camp grounds. Separate sociometric scores were obtained on each child from his in-bunk group and his out-bunk group. Photographs of the face only of each boy were used to identify the nominations for the questions of the sociometric scale.

The results indicated that both visibly and non-visibly handicapped children had lower sociometric status

than did non-handicapped children. Outside their bunk groups, boys with visible handicaps received a higher proportion of generally negative responses. Within their bunk groups, the boys with visible handicaps were not significantly different from the non-handicapped boys in the number of generally positive or negative choices they received. There were no significant differences between the boys with non-visible handicaps and those without handicaps on any of the social status comparisons. However, out-of-cabin (out-bunk) choices indicated the non-visibly handicapped received more negative scores.

Seven visibly handicapped boys who received negative scores were evaluated separately. The one characteristic which applied to all seven boys was incompetent, or disturbed social behavior. This suggested that behavior was important in peer evaluation and that visibly handicapped children were not negatively evaluated on the basis of physical characteristics alone.

This study suggested that the evaluation of how well a handicapped child got along with peers must take into account the degree of visibility, the type of handicap, and his level of skill in interpersonal relations. Further

study is needed to clarify the relationship between interpersonal skill, intrapersonal evaluation, and physical appearance.

Thus, these studies, taken collectively, indicated that whether an individual had a handicap or not was a powerful factor influencing the extent to which that individual was liked by others. Indeed, the literature indicated that whether or not an individual had a handicap or not was a more important determinant of one's popularity than was sex or race. A major limitation of these studies, however, was that they did not suggest why persons with handicaps were less well liked. Some possible variables which might have been determinants of why handicapped individuals are not well liked was considered next.

Physical Attractiveness and Interpersonal Relations

While the literature indicated that handicapped children were not as well liked by others as are non-handicapped children, the reason handicapped children tended to be less preferred was not clear. One possible reason these individuals might not have been as well liked was because of their appearance. Previous studies in the social psychology literature found that people who are

unattractive tend to be less well liked than are individuals who are more attractive.

Dion (1972) examined a common assumption that adults display differential treatment toward attractive and unattractive children in circumstances in which their behavior is identical, and an attempt to integrate this assumption to the socialization was made.

Dion's design was a 2 x 2 x 2 x 2 (attractiveness of child X severity of the transgression X sex of the child X type of transgression). Subjects were 243 females of an undergraduate college. Behavioral descriptions of transgressions were accompanied by a black-and-white photograph of either a male or female child who was either attractive or unattractive. After reading the description of the behavior and viewing the photograph, the subject was asked to predict the child's motives and future behavior and rate the child on a 16 item personality inventory: six trait dimensions were good-bad, aggressive-unaggressive, pleasant-unpleasant, kind-cruel, honest-dishonest, nice-awful and a seventh dimension was a manipulation check, attractive-unattractive.

The results supported the hypothesis that adults' evaluations of a child who commits a serious transgression differ as a function of the child's physical attractiveness. Adult evaluators were less likely to attribute a chronic, antisocial behavioral disposition to attractive than to unattractive children. Thus, a general stereotype that physically attractive people, adults or children, are assumed to possess more socially desirable personalities than less attractive persons was supported.

In another study, Dion, Berscheid, and Walster (1972) examined an assumption that a relationship exists between personal attractiveness and personality traits commonly assumed to be socially desirable. A total of 30 male and 20 female undergraduate students was selected. The participants recorded their responses to three stimulus pictures: unattractive, moderately attractive, and extremely attractive individuals. Each stimulus person was rated on 27 different personality traits (altruistic, conventional, self-assertive, exciting, stable, emotional, dependent, safe, interesting, genuine, sensitive, outgoing, sexual, sincere, warm sociable, competitive, obvious, kind, modest, strong, serious, sexually warm, simple, poised,

bold and sophisticated). In another booklet they rated the individuals on how happy they were as parents and as spouses, how happy their professional and social lives were, and how successful they were in their occupation.

The results indicated that the attractive individuals were rated as happier in all areas except parenting and total happiness. The attractive individuals were judged to be more socially desirable than unattractive individuals. Attractive-stimulus persons were judged as being more likely to secure prestigious jobs than those of less attractive persons, as well as experiencing happier marriages and enjoying more fulfilling social and occupational lives. Attractive-stimulus persons were judged to be more likely to marry and less likely to stay single.

The results suggested that a physical attractiveness stereotype exists and that its content is perfectly compatible with the "What is beautiful is good" thesis of the study. Not only were physically attractive persons assumed to possess more socially desirable personalities than those of less attractiveness, but it was also presumed that their lives would be happier and more successful.

To summarize the findings so far, it appears that children or adults who have physical handicaps tend to be less preferred among their peers than non-handicapped children. In general, most of these studies seemed to be assuming that differences in preferences of handicapped children are due to the presence of a physical disorder. These studies in the social psychological literature indicate that individuals who are physically unattractive are not as well liked as individuals who are more attractive. Since many handicapped individuals tend to be unattractive, it may be that a major reason these individuals are not liked as much as non-handicapped individuals is due to their physical appearance. However, there may be other factors such as ability to function and novelty.

Description of the Disorders

The groups used in this study, cerebral palsy, scoliosis, and obesity, were chosen for several reasons. First, cerebral palsy and scoliosis represent different degrees of visibility of handicap. In addition, they represent different rankings of preference in a hierarchy

of preference toward handicapped individuals (Tringo, 1970). Obesity was chosen to control for novelty.

Cerebral palsy, according to the thirteenth edition of the Merck Manual (1977), is a "loose descriptive term applied to a number of non-progressive motor disorders resulting from gestational or perinatal CNS damage and characterized by an impairment of voluntary movement." (p.1454). Typically, the disorder is present at birth, and it may result from disorders in utero, birth trauma, neonatal asphyxia, neonatal jaundice, or severe systemic disease during early infancy. Cerebral palsy may be as benign as mild spasticity manifested as a limp during certain activities such as running, or it may involve two or more limb extremities. Such limbs which are affected are usually underdeveloped and they exhibit increased deep tendon reflexes and muscular hypertonicity, weakness and a tendency toward contractures. Athetoid cerebral palsy, which involves basal ganglia damage, is manifested as slow involuntary movements of the extremities; these individuals also have speech problems in some cases.

Scoliosis is an appreciable curvature of the spine. If untreated, severe scoliosis could progress to a

hunchback condition. It is believed to be hereditary and it is usually detected in prepubescence or early adolescence, occurring most frequently in female children.

Scoliosis is less visible in its early stages, but treatment modalities such as brace wearing, surgery or even curtailment of athletic activities could make it a more visible disorder. Different levels of severity, as diagnosed by a medical physician, would include mild scoliosis requiring little more medical intervention than physical therapy, scoliosis requiring the wearing of a back brace and the most severe scoliosis requiring back surgery and recuperation. Scoliosis is considered a treatable disorder, thus, it does not necessarily extend through the child's entire life if adequate treatment is provided in the early stages.

Obesity is defined by government agencies as being 10% above the average range of weight for one's height and weight. Another definition of obesity is being 20% above the average range of weight. Depending upon which criterion used, 10% or 20%, as much as 25 to 33 percent of the American population is obese (Bray, 1979). Thus,

obesity is a common condition which is readily visible in this society.

Attitudes toward obesity vary. In middle childhood, ages six to ten years, children prefer what Sheldon would describe as the mesomorph body-build (Lerner & Korn, 1972; Sheldon, 1940). The mesomorph individual is one of solid structure of bone and muscle with broad shoulders and strong legs and an overall athletic appearance. Children described the mesomorphs as strongest, neatest, best-looking and healthiest. Other researchers have found preferences for the mesomorph's physique increases with age (Staffieri, 1967, 1972). In the young adult range, however, "thin is in." Bruch (1969) found that the emphasis on thinness in our society encourages many adolescents to be thinner than their optimal weight.

Obesity is not popular in our society despite its prevalence. With the more obese individual, such as one with as much as 40-50% above the average weight range, not only is one's appearance effected, but also one's ability to function. One's ability to function is especially impaired in the grossly obese, those who weigh 50-100% more than the average range of weight. Observers report

that more obese individuals participate in fewer activities and are generally less active than an individual whose weight is in the range average for his height and age.

Summary

In general, most studies seem to indicate that children and adults with a handicap are not preferred when compared to non-handicapped individuals. Further, one's handicap is of more importance than one's age, sex, or racial background in likeability scales. However, studies have not looked at the functional level of the handicapped population. Studies varying the extent of the disability and the degree of function seem to be desirable in order to examine further the nature of the relationship between handicapped and interpersonal relations.

Hypothesis

The purpose of this study was to attempt to identify what aspects of a handicap seemed to be most influential in effecting the likeability of handicapped individuals. More specifically, the goal of this study was to examine whether the extent to which a handicapped individual is

liked is a function of their appearance, the loss of ability to function due to the handicap, or the novelty of the handicap itself.

Method

Subjects

Participants consisted of 35 males and 40 females between the ages of 18 and 41 who were enrolled in introductory psychology classes being taught at North Texas State University. In exchange for participating in this study, students received experimental credit. The participants were divided into two groups on which separate studies were done. In study 1, there were 18 males and 20 females, and in study 2 there were 17 males and 20 females.

Instruments

Participants were administered two questionnaires. The first questionnaire was a demographic measure designed to obtain descriptive information about the participants of this study. The demographic questionnaire obtained information about participants' sex, socioeconomic status of parents, number of years in school, grade-point average, number of siblings, and health of other family members,

and the participants' hobbies. A final question on this inventory consisted of a question with a five point response format asking participants to rate the extent to which they liked handicapped individuals. (See Appendix A).

The second questionnaire, the Dawson-Black Inventory (D-B Inventory), was composed of three parts and each part had two subscales. The first subscale of Part I of the D-B Scale of Handicap Severity, subscale B, consisted of a series of five phrases. Each succeeding phrase described a more severe form of obesity and some of the limitations in that individual's ability to function as a result of the disorder. The first in this series of five phrases described the physical appearance and functional capability of an individual with a mild case of obesity. The second phrase also described the physical appearance and capacity to function of an individual with a slightly more severe case of obesity, and the third phrase described an individual who was even more obese with an increased limitation to function as a result of the obesity.

Subscale A was similar to subscale B above; however, subscale A simply described the physical appearance of

people varying in the extent to which they were obese, and it omitted a description of individuals' capacity to function as a result of the obesity. Subscale A (appearance alone) was administered to the participants prior to Subscale B (appearance and function).

Part II was similar in format to subscale A and B in Part I. The D-B Part II subscale B consisted of a series of five phrases describing scoliosis; each phrase was a brief description of the physical appearance and functional capability of an individual with scoliosis. The descriptions were arranged so that each succeeding description portrayed an individual with a more severe form of scoliosis as well as in increased inability to function as a result of the handicap. Subscale A of Part II was similar to Subscale A of Part I except that the person's physical appearance described omitting a description of the individuals' capacity to function.

Finally, subscale B of Part III consisted of a series of five degrees of cerebral palsy. Each item in the scale was a brief description of the physical appearance and functional capability of an individual who varied in degree of cerebral palsy. The descriptions

were arranged so that each succeeding description portrayed an individual who was increasingly suffering from cerebral palsy and had a decreased ability to function. Subscale A of Part III was similar to subscale B except that the person's physical appearance was described, omitting a description of the individuals' capacity to function.

Items for Part I (obesity) and Part II (scoliosis) of the D-B Inventory, both subscales A and B, were mixed randomly to comprise Form S of the questionnaire. Similarly, items for Part I (obesity) and Part III (cerebral palsy) of the D-B Inventory, both subscale A and B, were randomly mixed to comprise Form C of the questionnaire. (See Appendix C and D). For each item of the questionnaire, participants were asked to rate the extent to which they liked that individual using a five point response format ranging from "not at all" to "extremely." The participants were also asked to rank each item of the questionnaire from one (least liked) to 20 (most liked). The D-B Scale of Handicap Severity and the questionnaires derived from it were designed specifically for this study.

Procedure

Participants for this part of the study were recruited in the following way. The investigator first visited introductory psychology classes being taught at North Texas State University. Participants were told that volunteers were being sought to participate in a study. A time and place where the questionnaires would be administered were then announced. Those who were interested in participating were asked to attend.

Participants were tested in groups of 10 to 20 in a classroom designed to seat approximately 30 people. After all students had arrived, the questionnaires were distributed. Students were given either questionnaire Form S or Form C on a random basis; everyone was given the demographic questionnaire. Students who responded to Form C of the questionnaire comprised study 1, and students who responded to Form S of the questionnaire comprised study 2. Students were told the following:

Hello, my name is Pat Dawson-Black. I am a psychology graduate student at North Texas State University and I am doing research on my masters thesis. I am studying attitudes toward individuals with various physical characteristics. I would like you to help me by filling out the questionnaires I have

passed out to you. The instructions for each of the questionnaires are self-explanatory. Please read the instructions for each questionnaire and follow the instructions given. If you have any questions, please raise your hand and I will come over to answer your questions. Thank you for your participation.

A summary of the measures which were administered to the groups is presented in Figure 1. (See Appendix B for questionnaire instructions.)

Figure 1

Study 2	Study 1
*Overall Rating of Liking of Handicaps	*Overall Rating of Liking of Handicaps
Rating of Obesity (Part I, Subscale A, Appearance)	Rating of Obesity (Part I, Subscale A, Appearance)
Rating of Obesity (Part I, Subscale B, Appearance and Function)	Rating of Obesity (Part I, Subscale B, Appearance and Function)
Rating of Scoliosis (Part II, Subscale A, Appearance)	Rating of Cerebral Palsy (Part III, Subscale A, Appearance)
Rating of Scoliosis (Part II, Subscale B, Appearance and Function)	Rating of Cerebral Palsy (Part III, Subscale B, Appearance and Function)

*The maximum score which could be obtained on any subscale is 25 points since each item was rated using a five point response format and there were five items. In contrast, overall ratings of handicap consisted of one item on the demographic questionnaire. That one item was rated using a five point scale. To make ratings on this item comparable to the other subscale scores, each individual's rating on this item was multiplied by five.

Results

The data of this study were composed of subjects' rankings and ratings of twenty descriptions of obese and either cerebral palsy or scoliosis disorders at five levels of severity. A 2 X 2 X 2 X 5 unequal n's ANOVA with repeated measures on the last three factors was used to analyze the rating data in the present study. The factors were sex (male versus female), type of disorder (obesity versus other), complexity of description (appearance versus appearance plus function), and levels of severity (or items).

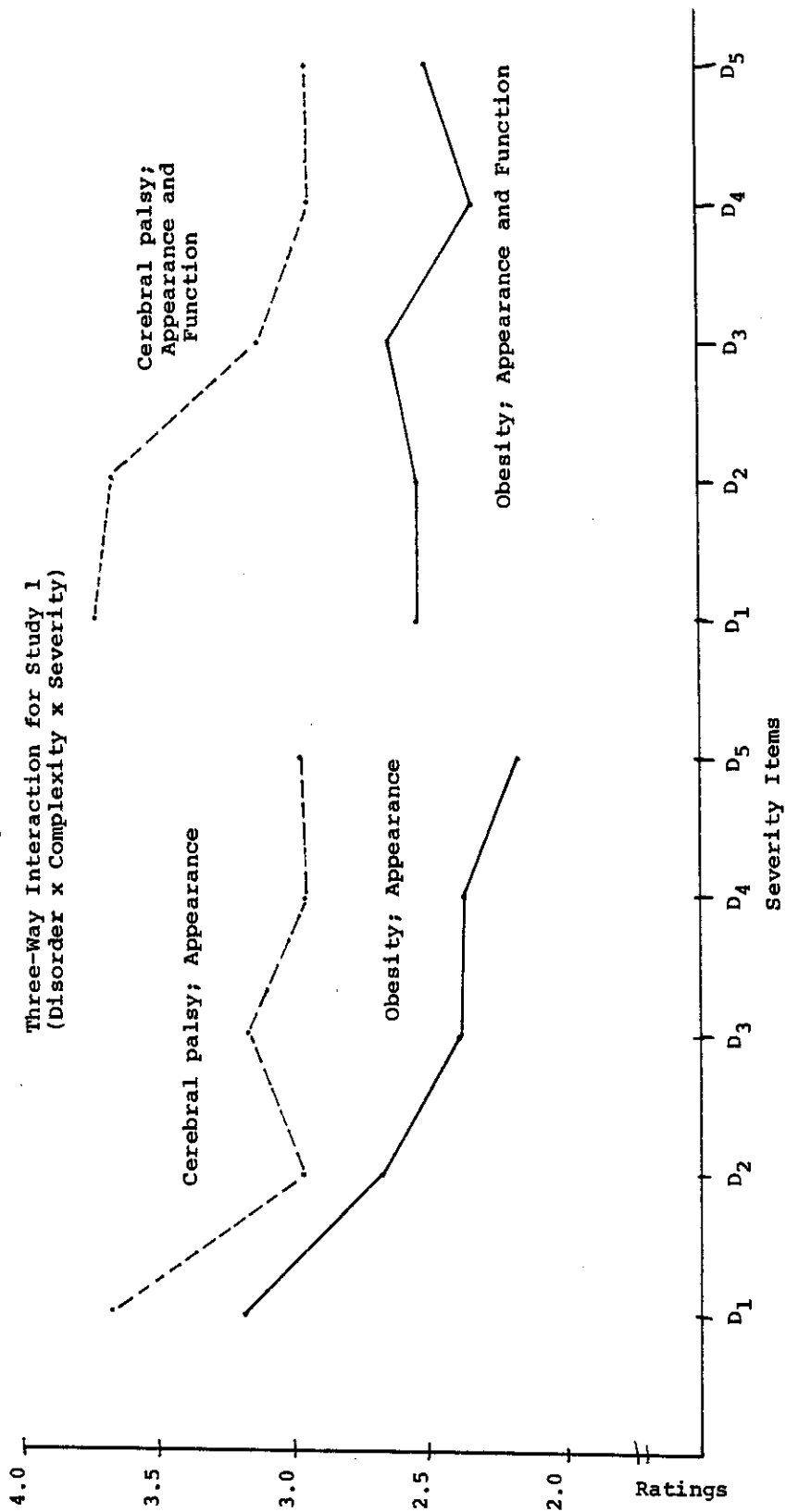
The present investigation involved two studies. Study 1 addressed male and female subjects whose ratings involved cerebral palsy and obesity descriptions. Study 2 addressed male and female subjects whose ratings involved scoliosis and obesity descriptions. The results of these ANOVA's are presented in Tables 1 and 3, respectively. The variable of the sex of the respondents was not significant either alone or in interaction with other variables for either Study 1 or Study 2. This is consistent with expectations, since no sex differences were predicted.

Study 1. The results of the ANOVA for Study 1 (see Appendix E. Table 1 and Figure 2) give significant main effects for disorder ($F(1,35) = 22.34, p < 0.01$) and for severity ($F(4,140) = 16.06, p < 0.01$) and significant interactions between complexity and severity ($F(4,140) = 2.70, p < 0.05$) and among disorder, complexity and severity ($F(4,140) = 7.12, p < 0.01$).

The results of post hoc analysis on the three-way interaction appear in Table 2 (see Appendix F). The between cell comparisons reported in Table 2 are subdivided with respect to tests of simple effects. The first section of this table involves the hierarchical ordering of items along the dimension of severity and whether this ordering of descriptions elicits parallel and significant differences with regard to subjects' ratings of descriptions on the dimension of liking. The results portrayed in Figure 2 show that subjects' liking of handicapped persons generally decreased on the descriptions portraying a more severe disturbance of obese persons or of cerebral palsied persons, and this general decrease occurred regardless of whether subjects received a description involving appearance alone or appearance plus

Figure 2

Three-Way Interaction for Study 1
(Disorder x Complexity x Severity)



functioning. However, in only two of the conditions did subjects show a systematic decline in liking as severity of description increased. Specifically, in rating the obese person based on appearance alone and in rating the cerebral palsied person based on appearance plus function, subjects showed a systematic lowering of a liking impression as severity increased. Also, subjects made fewer significant discriminations between items when ratings were based on appearance only of cerebral palsied persons and appearance plus functioning of obese persons.

The second portion of Table 2 (see Appendix F) addresses whether subjects discriminated at each level of severity between the description of appearance alone and the description of appearance plus functioning. With regard to the descriptions of obese persons, subjects significantly discriminated among three of the five levels of severity. Of the three levels at which significant differences occurred, only one difference was in the expected direction. Specifically only at the first level did subjects react with greater liking when they had appearance only relative to appearance plus function. The discriminations of subjects on the liking dimension

was even lower with respect to cerebral palsied persons. In this condition, subjects' ratings varied significantly on only one of the five severity levels with respect to differences between receiving a description of appearance of the cerebral palsied person alone or along with an added description of their functioning. The level at which a significant difference occurred, the second level, was not in the expected direction. Subjects had a better liking for the cerebral palsied person when given a description of appearance and functioning rather than appearance alone for this level of severity.

Thus, within each disorder, the level of complexity of descriptions at each degree of severity seemed not to be an effective experimental manipulation. Considering the results within this section and the prior section, the manipulation of severity seems more effective when only appearance is given for obese persons and when appearance plus functioning is given for cerebral palsied persons.

The third portion of Table 2 (see Appendix F) addresses whether subjects' liking of obese and cerebral palsied persons varies at each level of severity when

given a description of appearance alone and when given a description of the appearance plus functioning. At each level of severity subjects expressed a greater liking for a cerebral palsied person than for an obese person regardless of whether the description they were given involved only appearance or appearance plus functioning.

Study 2. In study 2, descriptions of scoliosis and obese individuals were rated on a five-point-scale by the participants. The results of the ANOVA gave significant main effects for disorder ($F(1,35) = 37.94, p < 0.01$), for complexity ($F(1,35) = 7.21, p < 0.05$), for severity ($F(4,140) = 13.39, p < 0.01$) and significant interactions between disorder and severity ($F(4,140) = 4.31, p < 0.01$), between complexity and severity ($F(4,140) = 20.82, p < 0.01$), and among disorder, complexity and severity ($F(4,140) = 20.56, p < 0.01$). (see Table 3, Appendix G and Figure 3).

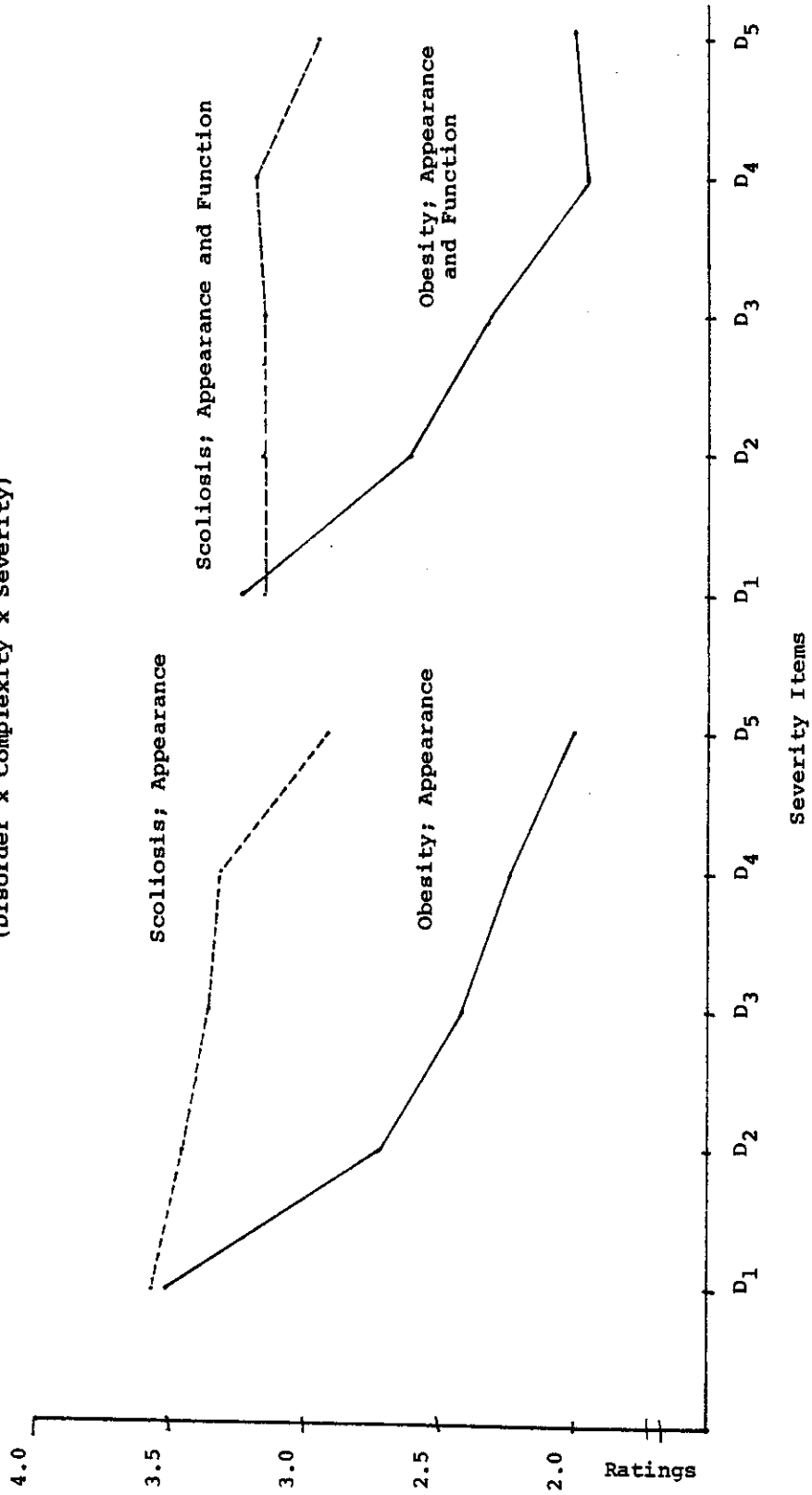
The results of post hoc analysis on the three-way interaction appear in Table 4 (see Appendix H). The between cell comparisons reported in Table 4 (See Appendix H) are subdivided with respect to tests of simple effects. The first section of this table involves the hierarchical ordering of items along the dimension of severity and

whether this ordering of descriptions elicits parallel and significant differences with regard to subjects' ratings of descriptions on the dimension of liking.

The results portrayed in Figure 3 indicate that subjects' liking of handicapped persons generally decreased as the descriptions portrayed a more severe disturbance of obesity and of scoliosis. This general decrease occurred for the descriptions of obese individuals regardless of whether subjects received a description including appearance alone or appearance plus functioning. However, for the descriptions of scoliotic individuals, there is less of a systematic decrease in subjects' liking the descriptions involving appearance plus functioning, than the decrease in subjects liking the descriptions involving appearance alone. Also, subjects made fewer significant discriminations between items when they rated their impressions of liking descriptions of scoliotic individuals than when they rated their impressions of liking obese individuals. Likewise, there was only one significant discrimination among the items describing the appearance and function of scoliosis, between level four and level five of severity.

Figure 3

Three-Way Interaction for Study 2
(Disorder x Complexity x Severity)



The second portion of Table 4 (see Appendix H) addresses whether subjects discriminated at each level of severity between the description of appearance alone and the description of appearance plus functioning. With regard to obese persons, subjects significantly discriminated between two of the five levels of severity. At both the first and fourth level where the significant differences occurred, subjects reacted with greater liking when they rated appearance only relative to appearance plus functioning. These differences were in the expected direction. The discriminations of subjects on the liking dimension with respect to scoliotic persons were similar. In this condition, subjects' ratings varied significantly on only two of the five severity levels with respect to differences between receiving a description of appearance of the scoliotic individual alone or with an added description of their functioning. At the first and second levels of severity at which significant differences occurred in the expected direction, subjects had a better liking for the description of appearance alone of the scoliotic individual than for the description of appearance plus functioning. Thus, within each disorder, the level

of complexity of descriptions at each degree of severity seems not to be an effective experimental manipulation.

Considering the results within this section and the previous section, the manipulation of severity seems to be more effective when only appearance is given in the descriptions. The manipulation of severity seems to be effective for the obese individual's descriptions at both levels of complexity, with appearance alone and with appearance plus functioning. The manipulation of severity was less effective for the scoliosis appearance plus functioning descriptions.

The third portion of Table 4 (see Appendix H) addresses whether subjects discriminated in their liking between obese and scoliotic individuals at each level of severity when given a description of appearance alone and when given a description of appearance plus functioning. At the first level of severity, there was no significant difference between obese and scoliotic individuals in the subjects' ratings. At all the other levels of severity, levels two through five, there was a significantly greater liking for a scoliotic person than for an obese person

regardless of whether the descriptions given to the subjects involved only appearance or appearance and functioning.

Rank-Ordering Data. In addition to rating the descriptions on a five-point-scale, the participants also rank-ordered the descriptions from one to twenty. This ranking data was analyzed by a procedure described by Steel (1959) which is similar to the Kruskal-Wallis H statistic. By both ranking and rating the descriptions of the questionnaires, the participants were forced to discriminate among the descriptions of the obese or handicapped individuals. While rating alone may have encouraged participants to remain more neutral, having the participants rank the descriptions from most liked to least liked (twenty rankings) helped determine whether the extent to which a handicapped individual is liked covaries with their appearance or their loss of ability to function due to the handicap.

With the ranking data there was a significant difference between the mean ranking of the obese description and the other disorder descriptions, either cerebral palsy ($p < 0.01$) or scoliosis ($p < 0.05$) with the male respondents

(see Table 5, Appendix I). However, among the female respondents there was no significant difference in their mean rankings of the obese descriptions and the disorder descriptions. For the male respondents the obese descriptions were ranked lower than both the cerebral palsy and scoliosis descriptions.

Another goal of this study was to examine whether the extent to which a handicapped individual is liked is a function of the novelty of the handicap itself. This was to be determined by a question in the demographic questionnaire which asked: "Do you personally know someone who is handicapped or obese?" This question received an overwhelming response of "yes" with only 5 out of 75 responding "no". Likewise, participants were asked to rate their "overall liking" of handicapped individuals on a scale of one to five. The mean ratings of the "overall liking" were compared by t-tests between the two sexes of the respondents and the two studies (cerebral palsy and scoliosis). None of the F values indicated significant differences; thus, the mean overall liking ratings among the groups of participants did not differ significantly from each other (see Table 6, Appendix J). In summary,

the demographic questionnaire did not differentiate adequately among the participants who might through previous exposure be biased concerning the disorders described in the questionnaires.

Discussion

A difference in the rating and ranking of the disorder descriptions by the male and female respondents was not anticipated. A sex difference in the rating data was not found as a main effect or interaction. However, a difference between the male rankings and female rankings of the disorder descriptions was found to be significant. This difference may be due to the nature of the ranking task.

The ranking task entailed imaging the twenty descriptions in the questionnaires and discriminating them based on the "visual" clues in the image. In the analysis of the ranking data, males ranked the obese descriptions significantly lower on a 20 item scale from least liked to most liked than both the cerebral palsy and the scoliosis descriptions. Female respondents did not rank the groups significantly differently. This sex difference may be a reflection of the reliance on visual

cues to make discriminations by males. For example, males reportedly do better on the picture completion subtest of the Wechsler Adult Intelligence Scale than do females (Zimmerman and Woo-Sam, 1973). Males apparently evaluate their environment more critically with vision than do females. This same effect may be what is responsible for the difference in the mean rankings by the male and female respondents. Males may be judging more on the visual clues of the "imaging task" of ranking the descriptions and evaluating the individuals described more on the basis of appearance than function. The experimenter noticed that during the administration of the questionnaires, several women reported to the experimenter that they felt they could not rank individuals as described in the questionnaire "without really knowing them." The experimenter did not get such a response from the male participants.

Likewise, there was not a significant difference between the rankings of descriptions of appearance and descriptions of appearance and function of obesity, cerebral palsy and scoliosis. This was found with both the male and female respondents. Here again, visual

"imaging" demanded by the ranking task may be so predominant that the degree of functioning does not make an impact on the respondents.

As the introduction mentioned, several studies (Richardson, 1970; Richardson, et al, 1974; Weinberg, 1978) indicate that handicapped children and adults are not preferred when compared to non-handicapped individuals. The present study suggests that the handicapped individual was rated and ranked as likeable more frequently than an obese individual. This may be a reflection of the general unpopularity of obesity in our society (Bruch, 1969; Staffieri, 1967, 1972). Obesity may be viewed as a voluntary condition; thus, a disability due to obesity may not be viewed as sympathetically as a disability due to another disorder. Using standardized drawings rather than written descriptions for the ratings may help overcome a cultural bias in future research.

The question of the extent to which the appearance of a handicapped person affects others liking him/her was answered in this study by the powerful influence of severity. In general, according to the results of the present study, the more obviously severe the disorder

became the less frequently subjects rated the descriptions as "likeable". There were two exceptions to this general trend; the obesity descriptions involving appearance plus functioning of study 1, and the scoliosis descriptions involving appearance and functioning of study 2, both had only one level of severity which was rated significantly lower. However, the overall trend of the more severe the disorder, the less liked, could be explained by the findings of Dion, Berscheid, and Walster (1972) that there is a relationship between personal attractiveness and assumptions about personality traits deemed desirable.

To further explore whether a handicapped individual's likeability was due solely to the physical appearance or to the impairment of functioning, levels of functioning were included with the appearance descriptions. In study 1, the addition of level of functioning to appearance of cerebral palsied individuals resulted in a significant difference in only one level of severity, the second level, in which the addition of functioning to appearance increased the subjects' ratings of the descriptions. In study 2, the addition of level of functioning to appearance of scoliotic individuals resulted in

significantly lower ratings for the first two levels of severity. Thus, the addition of the functioning description to the appearance description does not appear to be an effective discriminator for the subjects' ratings of the descriptions.

In conclusion, appearance seems to be a more influential factor in the likeability of a handicapped individual than level of functioning in and of itself. The level of impairment of functioning may become more important when the disorder is less visible and the impairment then distinguishes an individual as handicapped. A cultural bias against obesity may have been responsible for handicapped descriptions being rated as more likeable than the obese descriptions.

Summary

The goal of this study was to examine whether the extent to which a handicapped individual is liked is a function of his or her appearance alone, or the loss of ability to function due to the handicap, or the novelty of the handicap itself. For the more visible disability, cerebral palsy, the ratings of "likeability" increased somewhat when a description of their ability to function

was included in the appearance description in the less severe degrees of affliction. For the less visible disorder, scoliosis, the inclusion of the ability to function along with the appearance tended to decrease their ratings of "likeability". In this case, a less visible disorder may not be considered a social handicap until impairment in ability to function becomes apparent. However, for the more visible handicaps a more explicit description of what they can and cannot do may improve others' acceptance of them.

Overall, being handicapped may be less of a social disadvantage than is obesity, especially in the extreme degrees of affliction and impairment of functioning due to the disorder or obesity. However, whether this effect was due to the novelty of the disorder relative to obesity was not clearly answered by this study. Also, the degree of disability is more important in how handicapped individuals are perceived as "likeable" than which particular disability they may have.

Results in this study may help in counseling handicapped young people. For example, emphasizing to them what they are able to do and what level of functioning

they can possibly attain may help them be received more easily by their peers and they may enjoy an improved self-esteem as a result.

For example, adolescent girls with scoliosis sometimes refuse to wear corrective back braces because it makes them more conspicuous. A therapist with this group may get more compliance with the medical treatment if, rather than denying to the girls that their disorder is any more serious than wearing braces, information as to what these girls can do while wearing the back brace is given to the adolescents. For such as adolescent, knowing they will one day have a straight back may not help them feel better about themselves as much as assurance that the back brace does not interfere with most normal adolescent activities to a great extent. Having a handicap in and of itself does not necessarily doom a child to unpopularity, according to the results of the present study.

On the other hand, with a more visible handicap, a counselor may help such a handicapped young person be more easily accepted in a job or school setting by other peers. Coaching such a young person in presenting his abilities and functioning level in interviews or application and

resumes for jobs or schools, for example, may improve her/his reception, according to the results of the present study. This seems especially important for the more severe levels of affliction of the more visibly disabled individual.

One of the weaknesses of this study was in not determining successfully which of the participants of this study had had extensive contact with handicapped individuals. This will become more important in this type of research as more and more handicapped individuals enter the work field and as more of the population become familiarly acquainted with handicapped individuals. There may be a time when few people do not personally know someone who is handicapped. Another problem with this study was that the written descriptions of the disorders may have favored a cultural bias against obese individuals in the ratings they received rather than "appearance" alone or "appearance and function". Standardizing drawings or pictures for use in this kind of research may make results or studies nationwide more interpretable. Future research could determine whether the novelty of the handicapped individuals effects their acceptance by job peers.

Another pertinent issue related to this subject which bears further investigation is the relationship between self-esteem and self-perception of the handicapped young person and such a young person's acceptance into a peer group.

Appendix A

BACKGROUND INFORMATION QUESTIONNAIRE

1. Age
2. Sex
3. Number of siblings
4. Classification
5. Grade-point-average
6. Plans upon graduation from school
7. Hobbies
8. Father's occupation
9. Father's educational level
10. Mother's occupation
11. Mother's educational level
12. General health of siblings and other immediate family members (Major medical illnesses or hospitalizations by immediate family members).
13. On a five point scale, from "not at all" to "extremely," rate how well you like handicapped individuals.

1	2	3	4	5
not at all				extremely

14. Do you personally know someone who is obese or
crippled?

Yes _____

No _____

Appendix B

INSTRUCTIONS: Please read carefully.

The following pages contain some descriptions of people with different characteristics. We would like you to first read each of these statements. After you have read each statement, we would like you to identify the statement describing the individual which you think or feel you would like least. Then, using the answer sheet labeled "A" place a "1" in the blank space next to the number of this item. Next, identify the item you think or feel would be a description of a person you would like second least and place a "2" in the blank space next to the number of this item. Continue ranking the items in this way until you have ranked all of the statements. Thus, since there are 20 items, when you are done you will have ranked all of the items from 1 to 20; the item you rank 20 will be the description of the person you would like the most.

After you have ranked all the items, we would like you to take the answer sheet labeled "B" and using the scale described below, rate each item on the extent to which you think that item is a description of a person whom you would like.

1. I would dislike this person a lot.
2. I would dislike this person to some extent.

3. I would feel neutral toward this person, neither liking nor disliking this person.
4. I would like this person to some extent.
5. I would like this person a lot.

Be sure to rate all the items. Also, there are no right or wrong answers. We are simply interested in your opinion, and all answers will remain anonymous. So, feel free to indicate your honest opinion. If you have any questions, please feel free to ask me. Thank you.

Appendix C

QUESTIONNAIRE: FORM C

PART I

1. This person, according to US government standards, is 125 pounds over-weight and is so flabby around the stomach that when a belt is worn, the flab hangs over the front, sides and rear of the belt and covers it. There is enough excess fat under the chin that one cannot identify where the chin ends and the neck begins; there is enough fat on the arms that an outline of the elbow cannot be seen; there is enough fat on the legs that an outline of both the knee joints or ankles cannot be seen.
2. This individual, according to US government guidelines, is 75 pounds over-weight and is so flabby around the stomach that when a belt is worn, the flab hangs over the front and sides of the belt and covers it. There is also enough excess fat under the chin that one cannot identify where the chin ends and the neck begins. In addition, there is enough fat on the arms that an outline of the elbow cannot be seen.
3. This person's head is tilted to the point that the person's head touches the shoulder. The fingers are crooked. One leg and one arm are clearly shorter and thinner than the other leg and arm. The legs and arms have spastic, jerky and flailing motions. The person's entire arm has constant tremors and the head shakes.
4. This individual, according to US government guidelines, is 50 pounds over-weight and is so flabby around the stomach that when a belt is worn, the flab hangs over the front of the belt and covers it. There is also enough excess fat under the chin that one cannot identify where the chin ends and the neck begins.
5. This person's head is tilted to one side to the extent that the head touches the shoulder and the fingers are crooked. The legs and arms have spastic, jerky and flailing motions. Also one leg and one arm are clearly shorter and thinner than the other leg and arm.

6. This person's head is tilted to one side to the point that the person's head touches the shoulder and the finger are crooked. One leg and one arm are clearly shorter and thinner than the other leg and arm. The legs and arms have spastic, jerky and flailing motions. Also the hands have a constant tremor.
7. This person's head is tilted to one side to the extent that the head touches the shoulder. In addition, the person's fingers are crooked and one leg is slightly shorter than the other. The legs and arms have uncontrollable movements.
8. This person, according to US government standards, is 100 pounds over-weight and is so flabby around the stomach that when a belt is worn, the flab hangs over the front, sides and rear of the belt and covers it. There is also enough excess fat under the chin that one cannot identify where the chin ends and the neck begins. There is enough fat on the arms that an outline of the elbow cannot be seen. Also, there is enough fat on the legs that an outline of the knee joints cannot be seen.
9. This individual, according to US government standards, is 25 pounds over-weight. This person is flabby around the stomach but there is no noticeable excess flab hanging from the chin, arms, and thighs.
10. This person's head is tilted to one side and almost touches the shoulder. In addition, the person's fingers are crooked. All other parts of this person's body appear to be normal.

QUESTIONNAIRE: FORM C

PART II

11. This person's head is tilted to one side to the extent that the head touches the shoulder and the fingers are crooked. The legs and arms have spastic, jerky and flailing motions. Also one leg and one arm are clearly shorter and thinner than the other leg and arm. Person has some difficulty controlling movements of the hands and has a limp. Person wears braces on legs. Person must have special accomodation to travel and go to work. Individual has some difficulty writing.
12. This person according to US government standards, is 100 pounds over-weight and is so flabby around the stomach that when a belt is worn, the flab hangs over the front, sides and rear of the belt and covers it. There is also enough excess fat under the chin and one cannot identify where the chin ends and the neck begins. There is enough fat on the arms that an outline of the elbow cannot be seen. Also, there is enough fat on the legs that an outline of the knee joints cannot be seen. Due to the fat, this person cannot bend over to the point of being able to touch the toes or tie the shoes. In addition, this person cannot turn the head from side to side or rotate the head up and down due to the excess fat under the chin and on the neck. Because of the fat on the arms, this person cannot cross the arms across the chest and because of the fat on the legs, this person cannot cross the legs.
13. This person's head is tilted to the point that the person's head touches the shoulder. The fingers are crooked. One leg and one arm are clearly shorter and thinner than the other leg and arm. The legs and arms have spastic, jerky and flailing motions. The person's entire arm has constant tremors and the head shakes. Person is confined to a wheelchair with little use of hands and no control of head or mouth movements. Individual cannot control drooling. Hands move in writhe-like movements uncontrollably. Person is able to communicate in a special code but cannot speak. Person is able to live independently but relies upon community resources for support.

14. This person's head is tilted to one side and almost touches the shoulder. In addition, the person's fingers are crooked. All other parts of this person's body appear to be normal. The person has a mild limp evident only when running which makes the individual look awkward. Excluding this, the person is competent and able to participate in social activities and is able to support self in any career of his/her choice.
15. This individual, according to US government standards, is 25 pounds over-weight. This person is flabby around the stomach but there is no noticeable excess flab hanging from the chin, arms, and thighs. Due to excess fat, this individual cannot bend over to the point of being able to touch the toes or tie the shoes.
16. This individual, according to US government guidelines, is 50 pounds over-weight and is so flabby around the stomach that when a belt is worn, the flab hangs over the front of the belt and covers it. There is also enough excess fat under the chin that one cannot identify where the chin ends and the neck begins. Due to excess fat, this person cannot bend over to the point of being able to touch the toes or tie the shoes. In addition, this person cannot turn the head from side to side or rotate the head up and down due to the excess fat.
17. This person's head is tilted to one side to the point that the person's head touches the shoulder and the fingers are crooked. One leg and one arm are clearly shorter and thinner than the other leg and arm. The legs and arms have spastic, jerky and flailing motions. Also the hands have a constant tremor. Person has little control of hands and legs and is confined to a wheelchair. Person has uncontrolled jerky head movements. Individual drools because mouth movements are difficult to control. Others have difficulty understanding his/her speech but friends and family are able to communicate with speech to the person. Person drools because mouth movements are difficult to control. Individual can write with the use of a special typewriter.

18. This person's head is tilted to one side to the extent that the head touches the shoulder. In addition, the person's fingers are crooked and one leg is slightly shorter than the other. The legs and arms have uncontrollable movements. The person has a mild limp requiring the use of a cane when walking. The individual cannot run with any ease. The person can use public transportation or vehicle with special adjustments. The individual is able to work and support self.
19. This person, according to US government standards, is 125 pounds over-weight and is so flabby around the stomach that when a belt is worn, the flab hangs over the front, sides and rear of the belt and covers it. There is enough excess fat under the chin that one cannot identify where the chin ends and the neck begins; there is enough fat on the legs that an outline of both the knee joints or angles cannot be seen. There is enough fat on the arms that an outline of the elbow cannot be seen. Due to the fat, this person cannot bend over to the point of being able to touch the toes or tie the shoes. In addition, this person cannot turn the head from side to side or rotate the head up and down due to the excess fat under the chin and on the neck. Because of the fat on the legs, this person cannot cross the legs, and because of the fat on the ankles, this person cannot walk well.
20. This individual, according to US government guidelines, is 75 pounds over-weight and is so flabby around the stomach that when a belt is worn, the flab hangs over the front and sides of the belt and covers it. There is also enough excess fat under the chin that one cannot identify where the chin ends and the neck begins. In addition, there is enough fat on the arms that an outline of the elbow cannot be seen. Due to the fat, this person cannot bend over to the point of being able to touch the toes or tie the shoes. In addition, this person cannot turn the head from side to side or rotate the head up and down due to the excess fat under the chin and on the neck. Because of the fat on the arms, this person cannot cross the arms across the chest.

Appendix D

QUESTIONNAIRE: FORM S

PART I

1. This person has a considerable inward curvature of the spine which can easily be seen by other people and one shoulder is higher than the other.
2. This individual, according to US government guidelines, is 50 pounds over-weight and is so flabby around the stomach that when a belt is worn, the flab hangs over the front of the belt and covers it. There is also enough excess fat under the chin that one cannot identify where the chin ends and the neck begins.
3. This individual, according to US government guidelines, is 75 pounds over-weight and is so flabby around the stomach that when a belt is worn, the flab hangs over the front and sides of the belt and covers it. There is also enough excess fat under the chin that one cannot identify where the chin ends and the neck begins. In addition, there is enough fat on the arms that an outline of the elbow cannot be seen.
4. This person has such an inward curvature of the spine that this individual looks stooped over and short and the buttocks protrude. In addition, one shoulder and one hip is higher than the other.
5. This person, according to US government standards, is 125 pounds over-weight and is so flabby around the stomach that when a belt is worn, the flab hangs over the front, sides and rear of the belt and covers it. There is enough excess fat under the chin that one cannot identify where the chin ends and the neck begins; there is enough fat on the arms that an outline of the elbow cannot be seen; there is enough fat on the legs that an outline of both the knee joints or ankles cannot be seen.
6. This person has a considerable inward curvature of the spine which can easily be seen by other people. In addition, one shoulder, and one hip is higher than the other.

7. This individual, according to US government standards, is 25 pounds over-weight. This person is flabby around the stomach but there is no noticeable excess flab hanging from the chin, arms, and thighs.
8. This person has a considerable inward curvature of the spine which can easily be seen by other people.
9. This person, according to US government standards, is 100 pounds over-weight and is so flabby around the stomach that when a belt is worn, the flab hangs over the front, sides and rear of the belt and covers it. There is also enough excess fat under the chin that one cannot identify where the chin ends and the neck begins. There is enough fat on the arms that an outline of the elbow cannot be seen. Also, there is enough fat on the legs that an outline of the knee joints cannot be seen.
10. This person has such an inward curvature of the spine that the individual looks stooped over and short and the buttocks protrude. In addition, one shoulder is so high it touches the side of the face and one hip is so much higher than the other it makes it look as though one leg is much shorter than the other.

QUESTIONNAIRE: FORM S

PART II

11. This individual, according to US government guidelines, is 75 pounds over-weight and is so flabby around the stomach that when a belt is worn, the flab hangs over the front and sides of the belt and covers it. There is also enough excess fat under the chin that one cannot identify where the chin ends and the neck begins. In addition, there is enough fat on the arms that an outline of the elbow cannot be seen. Due to the fat, this person cannot bend over to the point of being able to touch the toes or tie the shoes. In addition, this person cannot turn the head from side to side or rotate the head up and down due to the excess fat under the chin and on the neck. Because of the fat on the arms, this person cannot cross the arms across the chest.
12. This person has such an inward curvature of the spine that this individual looks stooped over and short and the buttocks protrude. In addition, one shoulder and one hip is higher than the other. Due to the curvature in the spine, this person has difficulty sitting up straight. If this individual sits for a long period of time, the back begins to hurt. In addition, if this person carries a very heavy package for a long period of time, the individual will experience pain in the back, shoulder and hips. This person is not able to run at all and when the person walks, the individual becomes tired very quickly.
13. This individual, according to US government guidelines, is 50 pounds over-weight and is so flabby around the stomach that when a belt is worn, the flab hangs over the front of the belt and covers it. Due to excess fat, this person cannot bend over to the point of being able to touch the toes or tie the shoes. In addition, this person cannot turn the head from side to side or rotate the head up and down due to the excess fat.
14. This individual, according to US government standards, is 25 pounds over-weight. This person is flabby around the stomach but there is no noticeable excess flab hanging from the chin, arms and thighs.

Due to excess fat, this individual cannot bend over to the point of being able to touch the toes or tie the shoes.

15. This person has a considerable inward curvature of the spine which can easily be seen by other people and one shoulder is higher than the other. Due to the curvature in the spine, this person has difficulty sitting up straight and if this individual sits for long periods of time, the back begins to hurt. In addition, if this person carries a very heavy package, the individual will have pain in the back and shoulder.
16. This person has such an inward curvature of the spine that the individual looks stooped over and short and the buttocks protrude. In addition, one shoulder is so high it touches the side of the face and one hip is so much higher than the other it makes it look as though one leg is much shorter than the other. Due to the curvature in the spine, this person has difficulty sitting up straight, and if this individual sits for a long period of time without wearing a backbrace, the back begins to hurt. In addition, this person is not capable of carrying anything. Also, this person is able to walk very short distances and must use a wheelchair most of the time.
17. This person, according to US government standards, is 125 pounds overweight and is so flabby around the stomach that when a belt is worn, the flab hangs over the front, sides and rear of the belt and covers it. There is enough excess fat under the chin that one cannot identify where the chin ends and the neck begins; there is enough fat on the arms that an outline of the elbow cannot be seen; there is enough fat on the legs that an outline of both the knee joints or ankles cannot be seen. Due to the fat, this person cannot bend over to the point of being able to touch the toes or tie the shoes. In addition, this person cannot turn the head from side to side or rotate the head up and down due to the excess fat under the chin and on the neck. Because of the fat on the legs, this person cannot cross the legs, and because of the fat on the ankles, this person cannot walk well.

18. This person, according to US government standards, is 100 pounds over-weight and is so flabby around the stomach that when a belt is worn, the flab hangs over the front, sides and rear of the belt and covers it. There is also enough excess fat under the chin that one cannot identify where the chin ends and the neck begins. There is enough fat on the arms that an outline of the elbow cannot be seen. Also, there is enough fat on the legs that an outline of the knee joints cannot be seen. Due to the fat, this person cannot bend over to the point of being able to touch the toes or tie the shoes. In addition, this person cannot turn the head from side to side or rotate the head up and down due to the excess fat under the chin and on the neck. Because of the fat on the arms, this person cannot cross the arms across the chest and because of the fat on the legs, this person cannot cross the legs.
19. This person has a considerable inward curvature of the spine which can easily be seen by other people. In addition, one shoulder, and one hip is higher than the other. Due to the curvature in the spine, this person has difficulty sitting up straight and if this individual sits for long periods of time, the back begins to hurt. In addition, if this person carries a very heavy package for a long period of time, the individual will experience pain in the back and shoulder.
20. This person has a considerable inward curvature of the spine which can easily be seen by other people. Due to the curvature of the spine, this person has difficulty sitting up straight and if this individual sits for a long period of time, the back begins to hurt.

Appendix E

Table 1

Summary Table of a 2 x 2 x 2 x 5 ANOVA for Sex of Subject
with Repeated Measures for Disorder, Complexity,
and Severity on Subjects' Ratings
of Liking - Study 1

<u>Source</u>	<u>F</u>
Sex (A)	
(Male or Female)	0.83
Disorder (B)	
(obesity or cerebral palsy)	22.34**
Complexity (C)	
(appearance or appearance and function)	2.46
Severity (D)	16.06**
Sex x Disorder (A x B)	0.03
Sex x Complexity (A x C)	0.54
Sex x Severity (A x D)	0.45
Disorder x Complexity (B x C)	1.25
Disorder x Severity (B x D)	1.28
Complexity x Severity (C x D)	2.70*
Sex x Disorder x Complexity (A x B x C)	0.23
Sex x Disorder x Severity (A x B x D)	0.95
Sex x Complexity x Severity (A x C x D)	0.97

**p < 0.01

*p < 0.05

Table 1 Continued

<u>Source</u>	<u>F</u>
Disorder x Complexity x Severity (B x C x D)	7.12**
Sex x Disorder x Complexity x Severity (A x B x C x D)	1.25

**p < 0.01

*p < 0.05

Appendix F

Table 2

Post-Hoc Analysis of Three-Way Interaction of
Study 1

Interaction-Severity	F (4, 140)
B ₁ C ₁ D ₁ /B ₁ C ₁ D ₂	9.5**
B ₁ C ₁ D ₁ /B ₁ C ₁ D ₃	23.2**
B ₁ C ₁ D ₁ /B ₁ C ₁ D ₄	23.2**
B ₁ C ₁ D ₁ /B ₁ C ₁ D ₅	36.6**
B ₁ C ₁ D ₁ /B ₁ C ₁ D ₂	2.98*
B ₁ C ₁ D ₂ /B ₁ C ₁ D ₄	2.98*
B ₁ C ₁ D ₂ /B ₁ C ₁ D ₅	8.78**
B ₁ C ₁ D ₃ /B ₁ C ₁ D ₄	0.0
B ₁ C ₁ D ₃ /B ₁ C ₁ D ₅	1.53
B ₁ C ₁ D ₄ /B ₁ C ₁ D ₅	1.53
B ₁ C ₂ D ₁ /B ₁ C ₂ D ₂	0.0
B ₁ C ₂ D ₁ /B ₁ C ₂ D ₃	0.381
B ₁ C ₂ D ₁ /B ₁ C ₂ D ₄	1.37
B ₁ C ₂ D ₁ /B ₁ C ₂ D ₅	0.034
B ₁ C ₂ D ₂ /B ₁ C ₂ D ₃	0.381
B ₁ C ₂ D ₂ /B ₁ C ₂ D ₄	1.37
*p < 0.05	
**p < 0.01	

Table 2 Continued

Interaction-Severity	F (4, 140)
$B_1C_2D_2/B_1C_2D_5$	0.034
$B_1C_2D_3/B_1C_2D_4$	3.20*
$B_1C_2D_3/B_1C_2D_5$	0.644
$B_1C_2D_4/B_1C_2D_5$	0.976
$B_2C_1D_1/B_2C_1D_2$	14.18**
$B_2C_1D_1/B_2C_1D_3$	6.10**
$B_2C_1D_1/B_2C_1D_4$	14.18**
$B_2C_1D_1/B_2C_1D_5$	12.82**
$B_2C_1D_2/B_2C_1D_3$	1.68
$B_2C_1D_2/B_2C_1D_4$	0.0
$B_2C_1D_2/B_2C_1D_5$	0.034
$B_2C_1D_3/B_2C_1D_4$	1.68
$B_2C_1D_3/B_2C_1D_5$	1.3
$B_2C_1D_4/B_2C_1D_5$	0.034
$B_2C_2D_1/B_2C_2D_2$	0.137
$B_2C_2D_1/B_2C_2D_3$	13.70**
$B_2C_2D_1/B_2C_2D_4$	23.70**
$B_2C_2D_1/B_2C_2D_5$	22.00**

*p < 0.05

**p < 0.01

Table 2 Continued

Interaction-Severity	F (4, 140)
$B_2C_2D_2/B_2C_2D_3$	11.11**
$B_2C_2D_2/B_2C_2D_4$	20.31**
$B_2C_2D_2/B_2C_2D_5$	18.68**
$B_2C_2D_3/B_2C_2D_4$	1.37
$B_2C_2D_3/B_2C_2D_5$	0.976
$B_2C_2D_4/B_2C_2D_5$	0.034
Interaction-Complexity	F (4, 140)
$B_1C_1D_1/B_1C_2D_1$	13.72**
$B_1C_1D_2/B_1C_2D_2$	0.382
$B_1C_1D_3/B_1C_2D_3$	2.98*
$B_1C_1D_4/B_1C_2D_4$	0.0038
$B_1C_1D_5/B_1C_2D_5$	4.67**
$B_2C_1D_1/B_2C_2D_1$	1.24
$B_2C_1D_2/B_2C_2D_2$	20.32**
$B_2C_1D_3/B_2C_2D_3$	0.015
$B_2C_1D_4/B_2C_2D_4$	0.0
$B_2C_1D_5/B_2C_2D_5$	0.0

*p < 0.05

**p < 0.01

Table 2 Continued

Interaction-Disorder	<u>F</u> (4, 140)
B ₁ C ₁ D ₁ /B ₂ C ₁ D ₁	6.10**
B ₁ C ₁ D ₂ /B ₂ C ₁ D ₂	3.21 *
B ₁ C ₁ D ₃ /B ₂ C ₁ D ₃	23.19**
B ₁ C ₁ D ₄ /B ₂ C ₁ D ₄	12.38**
B ₁ C ₁ D ₅ /B ₂ C ₁ D ₅	24.40**
B ₁ C ₂ D ₁ /B ₂ C ₂ D ₁	53.08**
B ₁ C ₂ D ₂ /B ₂ C ₂ D ₂	47.80**
B ₁ C ₂ D ₃ /B ₂ C ₂ D ₃	8.78**
B ₁ C ₂ D ₄ /B ₂ C ₂ D ₄	12.82**
B ₁ C ₂ D ₅ /B ₂ C ₂ D ₅	7.72**

*p < 0.01

**p < 0.05

B₁ = obesityC₁ = appearance onlyB₂ = cerebral palsyC₂ = appearance and functionD₁ = mildly severe; level oneD₂ = slightly severe; level twoD₃ = moderately severe; level threeD₄ = somewhat severe; level fourD₅ = very severe; level five

Appendix G

Table 3

Summary Table of a 2 x 2 x 2 x 5 ANOVA for Sex of Subject
with Repeated Measures for Disorder, Complexity,
and Severity on Subjects' Ratings
of Liking - Study 2

<u>Source</u>	<u>F</u>
Sex (A)	
(Male or Female)	1.59
Disorder (B)	
(obesity or scoliosis)	37.94**
Complexity (C)	
(appearance or appearance and function)	7.21*
Severity (D)	13.39**
Sex x Disorder (A x B)	0.47
Sex x Complexity (A x C)	0.00
Sex x Severity (A x D)	0.82
Disorder x Complexity (B x C)	0.07
Disorder x Severity (B x D)	4.31**
Complexity x Severity (C x D)	20.82**

*p < 0.05

**p < 0.01

Table 3 Continued

<u>Source</u>	<u>F</u>
Sex x Disorder x Complexity (A x B x C)	0.02
Sex x Disorder x Severity (A x B x C)	1.26
Sex x Complexity x Severity (A x C x D)	0.28
Disorder x Complexity x Severity (B x C x D)	20.56**
Sex x Disorder x Complexity x Severity (A x B x C x D)	1.44

*p < 0.01

**p < 0.05

Appendix H

Table 4

Post Hoc Analysis of Three-Way Interaction of Study 2

Interaction-Severity	F (4, 140)
B ₁ C ₁ D ₁ /B ₁ C ₁ D ₂	24.18**
B ₁ C ₁ D ₁ /B ₁ C ₁ D ₃	46.36**
B ₁ C ₁ D ₁ /B ₁ C ₁ D ₄	64.11**
B ₁ C ₁ D ₁ /B ₁ C ₁ D ₅	90.63**
B ₁ C ₁ D ₂ /B ₁ C ₁ D ₃	3.58**
B ₁ C ₁ D ₂ /B ₁ C ₁ D ₄	9.54**
B ₁ C ₁ D ₂ /B ₁ C ₁ D ₅	21.18**
B ₁ C ₁ D ₃ /B ₁ C ₁ D ₄	1.435
B ₁ C ₁ D ₃ /B ₁ C ₁ D ₅	7.35**
B ₁ C ₁ D ₄ /B ₁ C ₁ D ₅	2.289
B ₁ C ₂ D ₁ /B ₁ C ₂ D ₂	15.28**
B ₁ C ₂ D ₁ /B ₁ C ₂ D ₃	33.64**
B ₁ C ₂ D ₁ /B ₁ C ₂ D ₄	66.14**
B ₁ C ₂ D ₁ /B ₁ C ₂ D ₅	61.12**
B ₁ C ₂ D ₂ /B ₁ C ₂ D ₃	3.577**
B ₁ C ₂ D ₂ /B ₁ C ₂ D ₄	17.84**

*p < 0.05

**p < 0.01

Table 4 Continued

Interaction-Severity	F (4, 140)
$B_1C_2D_2/B_1C_2D_5$	15.28**
$B_1C_2D_3/B_1C_2D_4$	5.44**
$B_1C_2D_3/B_1C_2D_5$	4.07**
$B_1C_2D_4/B_1C_2D_5$	0.099
$B_2C_1D_1/B_2C_1D_2$	0.480
$B_2C_1D_1/B_2C_1D_3$	1.924
$B_2C_1D_1/B_2C_1D_4$	2.484
$B_2C_1D_1/B_2C_1D_5$	16.79**
$B_2C_1D_2/B_2C_1D_3$	0.480
$B_2C_1D_2/B_2C_1D_4$	0.779
$B_2C_1D_2/B_2C_1D_5$	11.59**
$B_2C_1D_3/B_2C_1D_4$	0.0357
$B_2C_1D_3/B_2C_1D_5$	7.349*
$B_2C_1D_4/B_2C_1D_5$	6.36**
$B_2C_2D_1/B_2C_2D_2$	0.0
$B_2C_2D_1/B_2C_2D_3$	0.0
$B_2C_2D_1/B_2C_2D_4$	0.0357
$B_2C_2D_1/B_2C_2D_5$	1.753

*p < 0.05

**p < 0.01

Table 4 Continued

Interaction-Severity	F (4, 140)
$B_2C_2D_2/B_2C_2D_3$	0.0
$B_2C_2D_2/B_2C_2D_4$	0.0357
$B_2C_2D_2/B_2C_2D_5$	1.753
$B_2C_2D_3/B_2C_2D_4$	0.0357
$B_2C_2D_3/B_2C_2D_5$	1.753
$B_2C_2D_4/B_2C_2D_5$	2.29 *
Interaction-Complexity	F (4, 140)
$B_1C_1D_1/B_1C_2D_1$	2.897*
$B_1C_1D_2/B_1C_2D_2$	0.4809
$B_1C_2D_3/B_1C_2D_3$	0.4809
$B_1C_1D_4/B_1C_2D_4$	3.34*
$B_1C_1D_5/B_1C_2D_5$	0.0
$B_2C_1D_1/B_2C_2D_1$	6.68**
$B_2C_1D_2/B_2C_2D_2$	3.58**
$B_2C_1D_3/B_2C_2D_3$	1.435
$B_2C_1D_4/B_2C_2D_4$	0.67
$B_2C_1D_5/B_2C_2D_5$	0.0357

*p < 0.05

**p < 0.01

Table 4 Continued

Interaction-Disorder	F (4, 140)
B ₁ C ₁ D ₁ /B ₂ C ₁ D ₁	0.143
B ₁ C ₁ D ₂ /B ₂ C ₁ D ₂	21.18**
B ₁ C ₁ D ₃ /B ₂ C ₁ D ₃	33.64**
B ₁ C ₁ D ₄ /B ₂ C ₁ D ₄	46.36**
B ₁ C ₁ D ₅ /B ₂ C ₁ D ₅	33.64**
B ₁ C ₂ D ₁ /B ₂ C ₂ D ₁	0.254
B ₁ C ₂ D ₂ /B ₂ C ₂ D ₂	11.59**
B ₁ C ₂ D ₃ /B ₂ C ₂ D ₃	28.05**
B ₁ C ₂ D ₄ /B ₂ C ₂ D ₄	61.12**
B ₁ C ₂ D ₅ /B ₂ C ₂ D ₅	35.87**

*p < 0.05

**p < 0.01

Key

B₁ = obesityC₁ = appearance onlyB₂ = scoliosisC₂ = appearance and functionD₁ = mildly severe; level oneD₂ = slightly severe; level twoD₃ = moderately severe; level threeD₄ = somewhat severe; level fourD₅ = very severe; level five

Appendix I

Table 5

Results of Analysis of Ranking Data Using Steele's
(1959) Kruskal-Wallis Method

Comparison of cerebral palsy to obesity (Study 1)	
Female	Tc = 76
	Td = 136
Male	Tc = 68*
	Td = 143
Comparison of scoliosis to obesity (Study 2)	
Female	Tc = 105
	Td = 125
Male	Tc = 72**
	Td = 124

*significant at $p < 0.01$ level

**significant at $p < 0.05$ level

Tc = Ranking sums of control group (obesity)

Td = Ranking sum of disorder group (cerebral palsy,
or scoliosis)

Appendix J

Table 6
F Values on Overall Ratings

<u>Source</u>	<u>F</u>
Between Sexes	
(Male vs. Females)	0.05 (df 1, 38)
Between Study 1 and Study 2	
(cerebral palsy and scoliosis)	0.23 (df 1, 1)

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