

Development of Scale Measuring Attitudes of Visually Handicapped Towards Community

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The present study describes the process of development of an indigenous scale to measure attitudes of visually handicapped towards community. The development and validation of this scale was carried out in three steps by using independent samples. In the first step, a pool of items was generated. Judges' opinion was sought in the second step to evaluate appropriateness of items. In the third step, factor analysis was performed for empirical evaluation of the scale on a sample of 55 visually handicapped people. The final scale comprised of 22 statements with 5-point response options. Factor analysis resulted in one major factor solution. The psychometric properties of attitude scale revealed an alpha coefficient of .92 for the entire scale. The empirical evaluation also showed sufficient validity of scale.

Keywords: Visually handicapped, scale development, attitude measurement, community

Almost all types of physical handicaps are usually perceived in terms of derisory behavioral functioning the way person interacts with surrounding environment. Individuals with physical handicap may be inherently restricted from making normal responses to ones surroundings (Parke & Lewis, 1981). Community exhibits its own expectations about people with visual, auditory, and physical handicap to behave in stereotyped ways. Cultural differences regarding perceptions of disability are also reflected in the behavior of people belonging to different nationalities or ethnic groups. In this context, a disability becomes a socially defined position or status (Malik, 1991).

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All types of handicaps have both personal and social implications. The personal implications are further split in two forms: the effects that disabilities impose and as the reactions of individuals with disabilities to these effects (Horton, 1986). The social implications are obvious in the behaviors, attitudes, and policies of society toward people with handicaps. The personal implications are regarded as a major determinant of personal adjustment. Disability is not an objective thing in a person, but a social value judgment (Speakman, 1989). Handicaps are considered as socially imposed limitations positioned on individuals who may or may not be sufficiently different from others to be regarded as atypical.

Loss of vision has quite often been described as the most crippling disability. The social and psychological implication of blindness far outweighs its physical limitations (Panday & Advani, 1995). Visually handicapped relatively experience more segregation within the sighted community, thereby restricting their social interactions to other visually handicapped persons. This in turn would induce feelings of emotional loneliness and low self esteem (Berry & Dalal, 1994). Therefore, visual handicap is considered as probably a greater social and psychological handicap than is defensible by its sensory limitations (Stevenson, Hart, Montgomery, McCulloch, & Chakravarthy, 2004).

Few scientific studies of attitudes of visually handicapped towards the sighted are available (Patterson, 1996). Measures developed to assess visually handicapped' attitudes mainly emphasize those aspects which refer to emotional and psychological well-being and indirectly deals with them through activities that may be affected by visual impairment. Examples of such activities may include learning new skills, adapting patterns of behavior which may affect current home life, changing social relations, adjusting to employment and influence on hobbies (Senior & Viveash, 1998). Different attitudinal studies revealed that visually handicapped had reflected their concerns regarding various aspects of their interactions with the sighted community (Maccuspie, 1996; Sacks & Wolfe, 1998). In addition, survey instruments include a mental health component which helps to fabricate a picture of the experience of blind and partially-sighted people (Hinds et al., 2003; Parrish, 1996). Currently, there is a lack of well-tested instruments for measuring successful psychosocial interactions of visually handicapped (Tolman, Hill, Kleinschmidt, & Gregg, 2005). To counter this, studies now strive to develop their own survey instruments, the Guide Dogs Functionality Survey is a recent example (Pey, Nzegwu, & Dooley, 2007). The review of literature highlights prominent dearth of Pakistani studies concerning visual handicap (Malik, 1991). Handicapped individuals themselves have

not yet achieved much publicity within Pakistan (Miles, 1982) nor has their opinion been asked for other than in a token manner (Shurka & Katz, 1982). Mainly scales developed and surveys conducted in Pakistan focused on perceptions of sighted people towards visually handicapped (Faruqui, 1988) but not much emphasis was given to explore attitudes of visually handicapped.

Like every other minority group the visually handicapped require and appreciate the concern of the non-handicapped counterparts. The attitudes of visually handicapped depend to a large degree on the facilities and amenities offered to them (Siller, 1988). Unless the reciprocal attitudes of the visually handicapped and the sighted are subjected to careful and objective analysis, there would be little hope of discovering ways of modifying them.

Attitudes are multi-dimensional, having cognitive, affective and behavioral components, and do not exist in seclusion from each other, rather they are products of environmental factors, and exist only in relation to a social structures or referent (Triandis, Adamopoulos, & Brinberg, 1984; Tybout & Scott, 1983). Thus attitudes can be influenced and changed through effective educational interventions. Disabled people face difficulties due to negative attitudes which are manifested towards them (Halender, 1994). These attitudes may be based on ignorance and prejudice. Research has indicated that among the main factors that affects disability; probably the most important are the beliefs, attitudes, and behaviors of the community surrounding the disabled person (Berry & Dalal, 1994).

The most widely used, and the most carefully designed and tested method of measuring attitudes is use of attitude or opinion scales (Mitchell, Hayes, Gordon, & Wallis, 1984). The method of scale measurement does not measure opinions and attitudes directly (Makas, 1988; Rubin, 1983). It requires that the individual react verbally with expressions of agreement or disagreement to a set of carefully standardized items (Gilbride, 1993). The pattern and summation of reactions to the set of items provide a way of inferring the individual's opinion or attitude concerning the object to which the items refer and permit the individual to be assigned a position along a quantitative scale of proness or conness providing an understanding about underlying predispositions (Wood, 1982).

The present study was designed to explore attitudes of visually handicapped towards community. Keeping in view a strong need to understand perceptions of visually handicapped individuals regarding their interactions and social environment, an indigenous attitude scale was developed.

Method

The development of attitude scale was carried out in three steps. In step I the items pool was generated. Step II comprised item evaluation while in step III empirical evaluation was done through factor analysis.

Step I: Generation of Items Pool

To develop the scale, items pool was generated in following two phases.

Phase I: Literature review

A comprehensive review was conducted of research articles of different scales that have been developed to assess perceptions of visually handicapped towards sighted people over the time. On the basis of this information, different categories were identified that helps the researcher to construct items.

Phase II: Qualitative interviews with visually handicapped

For the generation of specific items, an open-ended interview was conducted with 20 blind people. They ranged in age from 20 to 45 years. They were workers in the Government Technical Workshop for the Blind in Rawalpindi. They were all contacted individually at their workplace. The interviews lasted from 30 minutes to an hour. The interviewees were asked about their feelings and general perceptions about different aspects of community and behavior of people with whom they come into contact in day-to-day life.

Three judges were requested to analyze the content of these interviews and highlight the major aspects. On the mutual consent of the judges, five categories related to the various aspects of sighted people's behavior were deduced. These categories were:

Interpersonal Relationships. The relationship between visually handicapped and sighted people for coordination and better understanding of mutual problems is lacking. Sighted people are usually hesitant in establishing social contacts with the visually handicapped.

Helping Behavior. A sighted person shows a lack of interest to help visually handicapped especially, in social situations.

Moral Support. It reflects the tendency of the sighted to support the visually handicapped by giving favorable opinions and playing active part in their wellbeing.

Under Estimation. It has been observed that sighted people generally under estimate the potentialities and capabilities of the visually handicapped and consider them not equally competent in everyday life affairs.

Step II: Selection of Final Items for Scale

After content analysis and specification of various behavioral categories, about 50 items were generated. Researcher closely evaluates these items and after weeding out ambiguous, unfamiliar, and repetitive items, 22 items were selected for the construction of attitude scale. However, prior to final scale construction the items were read out loud to five visually handicapped to find out any possible problems of understanding and memory (i.e., retaining of content for evaluation).

It was also intended to know whether visually handicapped have any difficulty in the use of 5-point rating scale to indicate their agreement/disagreement with the items of the scale. Moreover, judges' opinion was also sought from three professional psychologists on these 22 items to ensure the appropriateness of items. They evaluated each item along dimensions of face validity, language suitability and subject significance. The scoring of final 22 items was as the degree of disagreement was scored as 1 and 2 and agreement as 4 and 5 with "1" indicating strong disagreement and "5" indicating strong agreement while "3" indicated undecided.

For negative or unfavorable items the scoring was later reversed. Negatively phrased items were 1, 3, 5, 7, 11, 12, 14, 15, 16, 21, and 22. Possible score range for the scale fluctuate from 22-110 with cutoff score of 66. This score range suggested that higher the positive score obtained by the participants, more favorable attitude manifested by the visually handicapped towards community while low scores exhibit their unfavorable attitudes.

Step III: Empirical Evaluation of the Scale through Factor Analysis

The dimensionality and construct validity of the scale were tested. Then twenty two items of the scale were factor analyzed through Principal Component Factor analysis technique (Field, 2005). On the basis of factor loadings ($>.40$) and familiarity of items on the first factor of the scale, items were selected for final version of scale. For this purpose the following sample and procedure was used:

Sample

A purposive sample of 55 visually handicapped participants (35 men and 20 women) was taken. The participants were in the age range of 20 to 55 years, with mean age 33.10 years for men and 28.90 years for women. The participants were taken from the institutes of Qandeel; Al-Maktoom and Government Technical Workshop for the Blind of Rawalpindi city. All the respondents were either blind by birth or had lost their vision during their infancy because of a disease or accident.

Procedure

In this phase, the scale comprising 22 items with 5-point response options was administered to 55 visually handicapped participants. Each item was read out loud to each participant individually. They were requested to verbally respond to each item in terms of their agreement and disagreement. Response categories were repeated after every 4 or 6 items so that they could be easily retained by the participants.

Factor analysis like many statistical methods is used to study the relation between independent and dependent variables. Factor analysis is different; it is used to study the patterns of relationship among many dependent variables, with the goal of discovering something about the nature of the independent variables that affect them, even though those independent variables were not measured directly. Factor Analysis was carried out to determine the dimensionality of the scale. It revealed one major attitudinal factor with Eigen value of 12. Again judgment was acquired from independent group of experts. According to their opinion, as the subject matter and content of the items is generic and overlapping so it would be appropriate to lower the limit of factor loadings. Therefore, all the items which had highly

significant correlations on Factor I showed loadings of .40 and above on this factor was retained in the final scale.

Table 1

Factor Loadings of 22 Items of Attitude Scale and their Communalities

Item No	Factor I	h^2	Item No	Factor I	h^2
1	.64	.72	12	.59	.66
2	.70	.66	13	.69	.72
3	.59	.75	14	.55	.64
4	.60	.64	15	.83	.83
5	.58	.62	16	.60	.72
6	.47	.57	17	.52	.66
7	.73	.70	18	.63	.72
8	.65	.54	19	.69	.77
9	.58	.59	20	.78	.82
10	.51	.64	21	.71	.79
11	.84	.74	22	.66	.68

Note. h^2 = values of communalities.

Table 1 showed final 22 items which were selected on the basis of two criteria. Firstly, all the items have factor loadings of .40 and above. Secondly, all the items have their loadings on the first factor. Factor analysis revealed uni dimensionality of the scale with one major attitudinal factor. Results also showed communalities of all items were more than .54 which indicate less specific variance among variables. Initially 50 items were generated, and judges identified 22 items through content analysis. Moreover, the Eigen value obtained on the first factor is 14.20 which explained 38.0% of the variance.

Final Attitude Scale

The factor analysis revealed unidimensionality of the scale. The scale was intended to measure attitudes of visually handicapped towards community. The selection of final items was made on the basis of two criteria's that is factor loadings equal to or greater than .40 and items identified on the first factor. On the basis of factor analysis, 22 items were finally included in the scale. The various

behavioral categories of attitudes of visually handicapped in the unifactor scale with their item numbers are as follows:

1. Interpersonal relationships: 1, 3, 7, 10, and 12
2. Helping behavior: 2, 5, 13, 18, and 20
3. Moral support: 4, 8, 9, 14, and 17
4. Underestimation: 6, 11, 15, 19, and 22
5. Specific social problems measured by item no. 16 and 21

Results

Item Total Correlation

Item analysis was performed to determine the internally consistency and significant items for the attitude scale. To examine their relevance with the test, item total correlation was computed. This analysis help to know whether that all the items were consistent with the total scores of scale or not. It also helps in determining the reliability and validity of the scale.

Table 2

Item Total Correlations of Attitude of Visually Handicapped Towards Society Scale

Item No	Item Correlations	Item No.	Item Correlations
1	.54*	12	.59*
2	.82*	13	.68*
3	.56*	14	.49*
4	.74*	15	.55*
5	.45*	16	.60*
6	.64*	17	.49*
7	.72*	18	.65*
8	.82*	19	.76*
9	.50*	20	.60*
10	.70*	21	.54*
11	.86*	22	.69*

* $p < .01$

Table 2 showed that all the items are significantly correlated with total score of scale. The correlation coefficient ranged from .45 to .86 for all the 22 items of scale. It showed that all the items were consistent with the total scores of scale. It also determines reliability and validity of the scale.

Reliability Estimates

For the determination of reliability of attitude scale, alpha coefficient was calculated for the 22 items of the scale. To establish split half reliability coefficient, the whole scale was divided into two equal parts with 11 items in each part. The alpha coefficient for the scale was found as .92. This high alpha coefficient value expresses internal consistency of the scale and measure of single underlying factor. It also shows that scale is a reliable measure. Split-half correlation coefficient for the final scale was found to be .84. This value also indicates significant reliability measure of the scale.

Discussion

Attitudes of visually handicapped towards community are of fundamental importance in the entire process of adjustment to blindness. The present study is designed to develop an attitude scale to measure visually handicapped' perceptions towards sighted people. Development of attitudinal measures can highlight (Dandona, Dandona, McCarty, & Rao, 2000) a comprehensive picture of the burden of visual impairment that is beyond clinical evaluation. Similarly, difficulties associated with visual impairment are often as much to do with society's attitudes towards them as with the direct effect of visual impairment (Du Feu & Fergusson, 2003). In addition, researches by Hazel, Peter, Armstrong, Benson, and Frost (2000) investigated impact of vision loss in shaping attitudes of visually handicapped.

Therefore, an attitude scale is developed to evaluate attitudes of visually handicapped towards community. It can help to identify perceptions of visually handicapped regarding different aspects and interactions with the society. The scale is constructed through a standardized procedure. The empirical evaluation showed that it has sufficient reliability and internal consistency. The construct validity of scale was determined through factor analysis and item analysis.

The empirical basis of scale development procedure also reveals content validity of the scale. Psychometric properties of the scale revealed alpha coefficient for the entire scale as .92. The value obtained is highly significant indicating the scale as a reliable and internally consistent measure. Split-half reliability also established its consistency. Item total correlation exhibited significant results. These results suggest that scale is reliable and valid measure of attitudes. The scale also includes statements which refer to various aspects of visually handicapped' attitudes towards community. These aspects were explored through activities reflected in their interpersonal relationships (Sacks & Wolffe, 1998), helping behavior, moral support (Maccuspie, 1996), under estimation of their abilities (Khan, 1999) and specific social problems.

It may be concluded that attitude scale is a unifactor scale, which can be conveniently administered and scored. Moreover, psychometric properties of the scale indicate sufficient empirical evidence that the scale is reliable and valid measure. It can be used to assess attitudes of visually handicapped possessing different demographic characteristics and profiles.

Limitations and Suggestions

In the development of attitude scale, primary information was explored from a small sample of visually handicapped respondents, employed in educational institutes and government technical workshop. For future reference, employing a larger sample with differential demographics would be more appropriate and provide better insight into the perceptions of visually handicapped. The consequential information would facilitate in constructing more comprehensive, authentic, and dependable instruments.

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