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CHAPTER IV

CONSTRUCTION AND DESCRIPTION OF THE INSTRUMENTS

4.1 INTRODUCTION

Keeping in mind the variables to be tested in context to the project, a number of suitable instruments were constructed to measure the different variables of importance giving valuable description and analysis.

Three different types of instruments were prepared as it was thought to be useful in serving the purpose of the project, viz -

(i) Personal Data Sheet
(ii) Questionnaire on Problems of widows
(iii) Socio-Economic status Scale for Widows

4.2 DESCRIPTION AND SCORING OF THE INSTRUMENTS

4.2 (a) PERSONAL DATA SHEET (PDS)

To get demographic details and a view of the socio-economic background of the widows the Personal Data Sheet (PDS) was prepared. The Personal Data Sheet gathers information on type of marriage, number of children in the household, place of birth, religion, age at marriage, age at widowhood, period of widowhood, dowry, cause of husbands death, sources of income before and after widowhood and present place of residence (Appendix A).

4.2(a-i) SCORING - Simple percentages were used to draw inferences.
4.2 (b) QUESTIONNAIRE ON PROBLEMS OF WIDOWS

Questionnaire on Problems of Widows (QPW) attempts to study the socio-economic and personal problems of educated and uneducated widows.

This inventory is expected to yield results indicating the actual problems faced by the widows socially, economically and personally. English version of the Questionnaire on Problems of Widows are appended on App. B.

The inventory consists of a total of 82 items selected to represent different problem areas, viz -

(1) Money matters
(2) Social life
(3) Child rearing and
(4) Widow remarriage

<table>
<thead>
<tr>
<th>Problem Area</th>
<th>No of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem in Money Matters</td>
<td>20</td>
</tr>
<tr>
<td>Problem in Social Life</td>
<td>25</td>
</tr>
<tr>
<td>Problems in child Rearing</td>
<td>17</td>
</tr>
<tr>
<td>Problem in Widow remarriage</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td><strong>Total 80</strong></td>
</tr>
</tbody>
</table>

The description of the problem areas and the type of items asked are given as -
(1) MONEY MATTERS

The area of money matter was placed first, as it is the most important area. The economic problem of widows are great. The items in this area deal with the economic problems faced by the widows like financial difficulties meeting basic needs of children such as providing good food, clothing and school fees, financial strains to purchase items of luxury, maintain give and take with friends, maintain previous standards of living, pay back loans taken by the husband, fulfil his liabilities, meet personal expenses, apprehension about meeting wedding expenses of the children and the provision of dowry for daughters. Some typical questions are -

1. I experience problem in providing good food to my children Yes/No ?
2. I face difficulty in paying school fees of my children Yes/No ?

2. SOCIAL LIFE :

The next placed area was social life. The widows have numerous social problems. Problems about social relationship, attitude of society towards them, feeling of adequacy, acceptance or rejection in the society, problems of social life that cause problems are included in the items. In general widows have a very low status in society. A widow after the death of her husband is considered not only inauspicious but also useless. Society prescribes a set
of norms which have to be strictly adhered to by these women, failing which they are ostracised. Items in this area include dress habits like wearing of simple and sober clothing, discarding of ornaments, difficulties in entertaining male visitors, lack of male escort in social functions, lack of companionship, expressing drop in social status, problem of excessive criticism and restriction by in-laws, problem in work place regarding treatment from male colleagues, fear of sexual advances from men, problem of being a member of a club or social organisations and problem in doing regular essential outdoor activities.

EXAMPLES:

1. I dress up soberly as it is customary in our society. This causes problem Yes/No?
2. I feel unhappy as I lack male escort for attending social functions like "Parents Day", "Parents Meeting" etc. Yes/No?

3. CHILD REARING

The third problem area was child rearing. Being single widows face difficulty in bringing up small children as they have to play the dual role of both parents to their children, marriage of children, daughter in particular and education of children seem to be major problems faced by widows.

The area includes items like experiencing difficulties in taking care of the daily needs of children, taking care of children when they are sick, disciplining them, problem
of helping children in their school assignment, choosing subjects for their higher studies, taking them out for movies, picnics, trips to hill stations and making arrangements for their wedding.

EXAMPLES;

(1) I encounter tension as I cannot take care of my children when they are sick Yes/No?

(ii) I experience difficulties in disciplining my children Yes/No?

4. WIDOW REMARRIAGE:

The fourth problem area was problem of widow remarriage. Problems about attitude of the society towards widow remarriage, feeling of loyalty towards husband, emotional involvement of the widows with the children after the death of the partner, fear that children will suffer, fear of death of new partner, too old children and employment of the widow that cause problem in widow remarriage are included in the items.

EXAMPLES:

1. I have abstained from remarriage as my children are grown up/too old Yes/No?

2. I have not remarried because I have love and respect for my late husband Yes/No?

4.2(b-i) SCORING

To facilitate scoring, a chart containing the names of the areas with sufficient blanks for writing the raw score in each area was given. The scoring of the inventory is very
simple. There is no right or wrong answers. Every 'yes' answer indicates problem, no special scoring key is developed for the scoring of the test. An individual score is the number of statements or problems marked 'yes'. The total problem score includes all the problem ‘areas presented’ earlier. A high score in the inventory indicates more problem while a low score indicates less problem. The total problem score of an individual is derived by adding up problem score of the four different areas (Appendix B).

4.2 (c) SOCIO ECONOMIC STATUS SCALE FOR WIDOWS

Socio-Economic Status scale for widows was constructed to ascertain the status of the widows, as the status of widows have a very close relationship with the problems of widows. A high status indicate less problem and a low status indicate more problem.

4.2 (c-i) CONSTRUCTION OF THE SOCIO'ECONOMIC STATUS SCALE FOR WIDOWS

In constructing the socio-economic status scale for widows, different steps of test construction were carefully followed in order to make it a valid and a reliable measure. At the outset a study of related literature on widows problem was made for locating the problem area of the widows. In order to make the study more scientifically based, it was decided that SEES items should represent the problems of widows as experienced by themselves rather than as society sees them. A pilot study was conducted as a
preliminary to the construction of the SESS. The study was carried out by the Questionnaire method.

4.2 (c-ii) ITEM ANALYSIS

An item is the basic element in test construction, because the items as a whole deal with the central thought and the effectiveness of the test also depends upon the characteristics of the items which compose it. After constructing the question it was grouped into areas. The sequence of the areas and the grouping of items in each area were arranged in such a way that it can ensure continuity of thought in the individual respondent. Grouping of items in each area was done in such a way that each area can be used as a separate unit to serve a specific purpose.

The scale consisted of 20 number of items in all, 2 on education, 1 on occupation 5 on economic condition 3 on house type, 4 on material possession, 4 on expenditure and 1 on social status.

After classifying and grouping of items in different areas a set of directions was framed for answering the questions. The general instructions were plainly written and given on the first page of the Socio-Economic Status Scale for Widows. The scale was constructed in English.

Thus the SESS stands ready for experimental tryout to get preliminary statistical evidence about the scale as a whole. Before deciding to put the items in final form of the scale, the necessity for preliminary or experimental tryout is required for scientific analysis. Therefore a pilot study was carried with a sample of population consisting of forty (40) urban widows for whom the scale was ultimately designed. This was considered essential to identify vague, ambiguous, irrelevant, difficult and inappropriate items and intended to find out the defects and weakness that needed improvement in the items and finally to find out the applicability of the final test.

Item analysis is the most widely accepted procedure for
improving the quality and effectiveness of a test. The main objective of item analysis is to discriminate good items from bad so that the test can be constructed with only useful items. The purpose is to see that all items in the scale contribute to the measurement of a particular criterion. Item analysis through statistical method enables to eliminate inappropriate items.

Items analysis is concerned with item selection, item difficulty and item validity. Item difficulty of an item is determined by the percentage or proportion of individuals who are able to answer a particular item correctly. Item validity known as validity index or discriminating index depends on how well the item distinguishes between the superior and inferior respondents in the group, i.e. differentiate between the two criterion group. Item discrimination may be positive or negative.

In the present study, responses to such item were correlated with the total test score.

The procedure for item analysis of items involved the following steps -

(i) The total score on a section of all 40 widows were recorded.

(ii) After collecting the data, the group was dechotomised into a high and low. The median was taken as the cut off point. A higher group and a lower group was thus sorted out. The high group consisted of 50% i.e, 20 out of 40 getting the highest total score and a lower group
consisted of 50% i.e., 20 widows getting lowest score on it.

After sorting out the groups the responses of each of the 40 widows on each of the 20 items was tabulated. This was done for both high and low groups. By tabulating the data in the above manner it was possible to find out the total frequency of a score on each items for both the groups.

iii) The next step was the calculation of $X^2$ (chi-square) of each item for both the high and low groups. Chi-square was supposed to be the most appropriate statistical method for the purpose of item analysis.

The chi-square values obtained in item analysis are presented in the table below:-

<table>
<thead>
<tr>
<th>Item No</th>
<th>Chi-square</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12.84*</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>14.4*</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>13.16*</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>14.50*</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>22.64*</td>
<td>2</td>
</tr>
<tr>
<td>6</td>
<td>23.52*</td>
<td>2</td>
</tr>
<tr>
<td>7</td>
<td>7.02*</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>11.86*</td>
<td>2</td>
</tr>
<tr>
<td>9</td>
<td>20.00*</td>
<td>2</td>
</tr>
<tr>
<td>10</td>
<td>7.04</td>
<td>2</td>
</tr>
<tr>
<td>11</td>
<td>5.7</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>21.20*</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>26.12*</td>
<td>2</td>
</tr>
<tr>
<td>14</td>
<td>19.6*</td>
<td>1</td>
</tr>
<tr>
<td>15</td>
<td>10.98*</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>0.76</td>
<td>1</td>
</tr>
<tr>
<td>17</td>
<td>14.02*</td>
<td>1</td>
</tr>
<tr>
<td>18</td>
<td>24.00*</td>
<td>1</td>
</tr>
<tr>
<td>19</td>
<td>7.68</td>
<td>2</td>
</tr>
<tr>
<td>20</td>
<td>5.00</td>
<td>1</td>
</tr>
</tbody>
</table>

$X$ - significant at 0.01 level of confidence.
The results of the table show that except a few items showing negative discrimination the bulk of the items indicate positive discrimination. Table-1 indicates that the chi-square value of item number 1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 13, 14, 15, 17 and 18 are statistically significant at 0.01 level of confidence. Hence these items were retained in the scale. Items whose chi-square values were not significant were eliminated. The contigency table is given in appendix C.

4.2(c - iii) CONSTRUCTION OF FINAL DRAFT

After analysing the items of the preliminary draft of the scale the revised or final draft was constructed.

**TABLE - II**

CLASSIFICATION OF ITEMS IN DIFFERENT AREAS INCLUDED

<table>
<thead>
<tr>
<th>Serial No.</th>
<th>Areas</th>
<th>No. of items in Preliminary draft</th>
<th>Items significant at 0.01 level</th>
<th>Items not significant</th>
<th>Items Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Education</td>
<td>2</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Occupation</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Income</td>
<td>5</td>
<td>5</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Housetype</td>
<td>3</td>
<td>3</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>Material possession</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Expenditure</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>7</td>
<td>Social Status</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>
The final draft of the SESS was made up with 6 areas with 15 items.

The final draft of the SESS for widows in English is shown in Appendix D.

The final draft of the scale was named "SOCIO-ECONOMIC STATUS SCALE FOR WIDOWS" (URBAN).

4.3(c—iv) RELIABILITY

The concept of reliability refers to the consistency of a measuring device. It deals with self-consistency among scores earned by an individual. A test is called reliable if repeated measurements yield consistent results for an individual, i.e. if the individuals score remains, substantially the same when the test is repeated or in that his position in the group shows little change.

The concept of reliability underlines the computation of the amount of error present in the test score. It has been defined as "The degree of consistency with which a test measure. Whatever it does measure, or the degree to which all compensating errors are present".¹

The measurement of test reliability can be

expressed in terms of reliability co-efficient, which has been defined by Thorndike as "the ratio of the variance of true scores to the variance of obtained scores".

Reliability of the Socio-Economic Status Scale.

The reliability of the Socio-Economic status Scale has been estimated by

(1) Test Retest method, i.e. repeating the test on two different occasions.

(2) Split-half Technique, i.e. subdividing the test on two equivalent halves.

To measure co-efficient of stability of the test, the reliability was calculated by Test Retest Method. Secondly to know the co-efficient of internal consistency, odd even method was applied.

4.1 (c-iv) (a)

THE RELIABILITY CO-EFFICIENT BY THE TEST RETEST METHOD

To compute this co-efficient a sample of 40 widows were retested on two different occasions. The scale was administered on the second occasion after two weeks. On the basis of the two sets of scores the test retest reliability of the scale was estimated.

RELIABILITY CO-EFFICIENT BY THE SPLIT HALF-METHOD

In this method the test is split into two reasonably equivalent "halves" and the correlation found for these half tests. The most common way of splitting the test is to serve the odd and even numbered items separately. The reliability co-efficient of the whole test is estimated by applying the Spearman-Brown Prophecy Formula by Buildford as

\[ r_{11} = \frac{2r \frac{1}{2} \frac{1}{11}}{1 + r \frac{1}{2} \frac{1}{11}} \]

To apply this method the test was split up into two equivalent halves, one containing the odd items and the other composed of even items. The odd even reliability was estimated on the basis of scores obtained in the first administration. After separating both the halves the scores were correlated. From this half test reliability the full test coefficient were calculated by applying the Spearman Brown Formula.

The results of the calculation are shown in Table No. III and Table No. IV:
TABLE III
THE RELIABILITY CO-EFFICIENT OF SESB ESTIMATED BY THE TEST-RETEST METHOD

\[
\begin{array}{ccc}
x^2 & y^2 & xy \\
3169 & 3022 & 3100 \\
\end{array}
\]

\[
r = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \Sigma y^2}} = \frac{3100}{\sqrt{9576718}}
\]

\[
r = \frac{3100}{3094.6272}
\]

\[
r = 1.0019392
\]

\[N = 40\]

\[r = 1.00\text{ (highly reliable)}\]

TABLE IV
THE RELIABILITY CO-EFFICIENT OF SESB ESTIMATED BY THE SPLIT-HALF METHOD

\[
\begin{array}{ccc}
x^2 & y^2 & xy \\
901.42 & 724.4 & 766.12 \\
\end{array}
\]

\[
r = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \Sigma y^2}}
\]

\[
r = \frac{766.12}{\sqrt{901.42 \times 724.4}}
\]

\[
r = \frac{766.12}{808.07712}
\]
The results are sufficiently high so the test is highly reliable.

4.2 (c-v) VALIDITY

The concept of validity refers to the extent to which a measuring instrument measures what it is designed to measure, i.e., how well it fulfills the function for which it is used.

There are several methods of determining the validity of a socio-economic status scale. But fundamentally all methods for estimating validity are "concerned with the relationship between performance on the test and other independently observable facts about the behavior characteristic under consideration."^4

In validating the SEBS (Widows) the following types of validity have been dealt with

4.2 (C-v) (a)

CONTENT VALIDITY

The content validity investigates whether the test represent the entire sample or the indices of the criterion to be measured. It was found that SESS include such factors as education, income, occupation, house type, material possession and expenditure. After constructing suitable and appropriate items on all the indices of socio economic status the scale was given to three teachers of Education Department of Guwahati University to suggest whether it represented the whole area of the socio economic criterion. As suggested by them language and categorisation of items were improved.

Again in item analysis validity co-efficient was determined for each item by chi-square method and only such items were included which yielded significane at .01 level.

It was determined to calculate the validity by the method of comparison between the contrasted groups. In order to see whether the individudals differ significantly as regards their total test scores obtained on the Socio-Economic Status Scale, the analysis of variance was computed (Table V).
TABLE NO. V
SHOWING THE ANALYSIS OF VARIANCE FOR DETERMINING VALIDITY

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>df</th>
<th>Ss</th>
<th>Ms</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between ss</td>
<td>1</td>
<td>2265.025</td>
<td>2265.025</td>
<td>96.42</td>
</tr>
<tr>
<td>Within ss</td>
<td>38</td>
<td>892.95</td>
<td>23.49</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>3157.975</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ F = \frac{2265.025}{23.49} = 96.42 \]

From Table F

- \( F \) at .05 level = 4.08
- \( F \) at .01 level = 7.31

\[ t = \sqrt{F} \]

\[ = \sqrt{96.42} \]

\[ = 9.81 \]

The analysis of variance was found to be 96.42 which was highly significant or significant beyond .01 level of confidence.

When there are two means to be compared \( t \) is to be computed that is \( t = F \) and the two tests \( F \) and \( t \) give the same result. In our finding the \( t = 9.81 \). From Table D we have found that for 38 df the .05 level of significance for this \( t \) is 2.02 and for 38 df the .01 level of significance for this \( t \) is 2.71. Our \( t \) of 9.81 is beyond the .05 and .01 level of significance and hence is significant.

4.2 (c-v) (b) INTERNAL CONSISTENCY

For being satisfactorily valid it is necessary that the test should be validated by the method of internal consistency. In measuring internal consistency the
criterion is the total score on the test itself. In the present investigation the performance of the upper socio economic group determined on the basis of the total test score on each item of the test was compared with that of the lower criterion group. On item analysis, items whose chi-square values were not significant were eliminated and only those items yielding significant chi-square values were retained. Thus the scale may be said to be internally consistent. Another method for determining internal consistency was the odd even reliability. As discussed earlier, the odd even reliability refers to the fact that the odd items of the scale are related to the even items. The odd even reliability was found to be .96. Thus it suggests that the scale is internally consistent as half of the items i.e. odd are related to the other half of the items i.e. even.

4.2(c-v) (c) FACE VALIDITY

Face validity means that the test contains such items as appears to be related to the variable being measured. No statistical analysis is required for this type of validity.

The scale is valid as the validity index being 96.42 is very high.

This scale has got a high reliability as well as high validity value, it may be concluded that the scale will prove itself to be an appropriate tool for measuring socio-economic status of Assamese Urban Population.
4.2 (c-vi) SCORING OF THE SESS FOR WIDOWS

to facilitate scoring a SCORE-CARD containing items, weights and scores were also prepared, to find out the status score of the widows. Thus the score card summarises the information obtained in the SESS for the purpose of finding out the status score of the respondent. The final form of the socio economic status scale (urban) contains 15 items. The score card can be completed and the status score of the individual can be worked out. The scale on the basis of total score is as follows:

S 33 TO 40 HIGH SOCIO ECONOMIC STATUS (HSES)
C
A 24 TO 32 MIDDLE SOCIO ECONOMIC STATUS (MSES)
L
E 15 TO .23 LOW SOCIO ECONOMIC STATUS (LSES)

The weighted scores of the variables could be added in order to get the final score of the Socio Economic Status Scale. Weightage was given to each item. Each item was scaled on a 2 or 3 point scale by providing equal interval between the different points of the scale. The total score ranged from 15 to 40.