

Construction of Attitude Scales—(2)

By

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The Method of Summated Ratings

THE Thurstone technique is cumbersome because of the necessity of using a large number of judges.

To overcome this difficulty, in 1932, Rensis Likert proposed a simpler method of attitude scale construction based on internal consistency. This is known as the "Method of summated ratings". This was further elaborated by Rundquist and Sletto in 1936.

The steps in the construction of this type of scale are, collection of a number of items, editing them (this should be done more carefully as there is no judging group and hence no ambiguity-index.), and giving a pretest to a random group of subjects. From this point the deviation from Thurstone technique is clear.

Once the statements are edited, they are submitted to a group, with instructions to indicate their opinion on a 5-point scale : Strongly agree, agree, undecided, disagree, strongly disagree. Some people have used a 3-point scale : Agree, uncertain, disagree—or Yes and No.

The number of statements to be used depends upon the discretion of the investigator. But, generally speaking, about 20-25 statements would be sufficient.

Preliminary tryout

The items are given to a small group (nearly 100) and they are asked to indicate one of the 5-responses which closely corresponds to their own, for each item.

Determination of Scoring Weights

While Likert himself used three methods, the simplest and reliable one is the arbitrary weighing method. Weights are assigned so that low scores indicate relative unfavourableness and high scores, relative favourableness to the issue.

	Response	Weightage
For positive items, or those expressing favourable attitudes	S.A. (Strong Agreement)	5
	A. (Agreement)	4
	U.N (Uncertain)	3
	D. (Disagreement)	2
	S.D. (Strong Disagreement)	1

For negative items, or those expressing unfavourable attitudes

S.A.	1
A.	2
U.N.	3
D.	4
S.D.	5

Attempt is made to have, as far as possible, equal numbers of positive and negative statements. This is essential to prevent the "halo effect".

Scoring

The preliminary tryout is conducted on about 100 subjects with the five possible responses for each item, out of which the individual indicates one; then the answer of each subject is given weightage in accordance with the weightage method shown just now. The total of weights for all statements for the individual is his total score.

Elimination of inconsistent items

When all the 100 subjects' answers are given weightage and the total is worked out, we have to compare the average scores of the 25% highest scoring and 25% lowest scoring subjects.

For example, on a negative item the following are the scores of 25% upper, and 25% lower scores :

Response	Weight	Lowest 25%		Highest 25%	
		Frequency	f × weight	Frequency	f × weight
Strongly Agree	1	2	2	0	—
Agree	2	18	36	3	6
Uncertain	3	3	9	4	12
Disagree	4	2	8	15	60
Strongly disagree	5	0	—	3	15
Total		25	55	25	93

$$\text{Mean or average} = \frac{\sum fxw}{f} = 2.2 \quad \frac{\sum fxw}{f} = 3.72$$

$$\text{Scale-value difference} = 2.20 - 3.72 = 1.52$$

It is also possible to use a 3-point scale instead of 5-points. In this case the arbitrary weights will be

assigned as follows :

	Response	Weightage
Positive item :	Agree	3
	Uncertain or ?	2
	Disagree	1
Negative item :	Agree	1
	Uncertain	2
	Disagree	3

That means, the scoring is just the reverse of what it is for the positive item.

Selection of items for the final scale

The items that can successfully discriminate between the high and low scorers are said to satisfy the criterion of interval consistency and hence are eligible for inclusion in the final scale. The index of this "Discrimination Power" (D.P.) of items is the difference between the means of the upper and lower 25% of scorers and the significance of this difference as estimated by the critical ratio. However, in later work with the Likert type of attitude scales, just the difference between the means is considered. From the writer's experience, it may be arbitrarily stated that while using a five-point scale, a difference of 1.00 and above between the means of the upper and lower scorers may be considered as significant. In a 3-point scale, the difference of .75 and above may be taken as significant. Only items with good D.P.'s should be selected for inclusion in the final scale.

While giving this, so as to reduce the calculations involved in computing the critical ratio for each item, the researcher must be cautioned that it is always better to take the help of a statistician and get the critical ratio worked out for each item.

It is possible that for a final scale, while applying this criterion of interval consistency to eliminate the items, there may be an insufficiency of either positive or negative items in the final scale. It is, however, essential to prepare another set of statements, give a tryout, and work out the interval consistency by the D.P. Ultimately, one can use a scale with not less than 20 to 30 items, including an almost equal number of positive and negative items.

Administration of the Test and Scoring

The items are arranged at random and given to any group with instructions to indicate their opinion on the 5-point or 3-point scale of agreement and disagreement. Arbitrarily weights are worked out for each subject's response to each item, the total of which is the individual's score.

Norms, Reliability and Validity

While norms and validity follow much the same pattern, as used for the Thurstone scales, the split-half method of finding reliability is good for Likert scales (where the scores for odd and even items are correlated).

From the point of view of preparation of the scale, administration, scoring, and ease of computation, the Likert technique or the method of summated ratings is far easier. Though based on a different rationale, the Thurstone technique or the method of equal appearing intervals, is quite useful, when expert's opinion is important in the attitude scale to be constructed.

Selected References

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(Concluded)

Bronchial Asthma—(Contd. from page 116)

first day brings the attack rapidly under control. The dose is gradually tailed off in the course of a week to ten days.

The prophylactic treatment has to be planned individually for each patient. A careful and painstaking assessment of the possible causative factors should be made. When causes are attributed to psychological influences, the handling of the patient with sympathy and understanding is of utmost importance. Maintenance of calm confi-

dence, avoidance of unnecessary fuss and worry are essential.

If allergy is the cause, it is advisable for the patient to avoid contact with substances to which he is sensitive. If the causative allergen is well established, desensitising with the solution of the allergen spread over a few weeks is worthwhile. In the meantime, the patient should be under vigilant observation.

Healthy habits of living, correction of constipation, avoidance of

large and heavy meals in the evening, tend to help in minimising the severity of the attacks. Physical exercise, designed to encourage the use of diaphragm in inspiration, and the abdominal muscles in forcing out the expirations, are taught. The asthmatic patient will greatly benefit by breathing exercises carried out regularly; it will help him to overcome the obstruction to breathing during the attacks, and also in preventing the incidence of emphysema.