

A Scale to Measure Superstition

¹Md. Mahfuzul Huque and ²Ataharul Huq Chowdhury

¹Department of Agricultural Extension Education, Bangladesh Agricultural University

²Wageningen University, The Netherlands

Abstract: The purpose of the study was to construct a scale to measure superstition in a rural setting. A total of 31 statements or items expressing superstition were collected through reviewing relevant literature, consultation with extension experts, social scientists, progressive farmers and local leaders. Statements were carefully examined and edited as per the criteria of Edwards^[1]. The statements were employed to the rating by a battery of judges selected from Tilli union under Saturia upazila of Manikganj. Scale values (S) and inter-quartile range value (Q) were computed for these statements. Twenty two statements were selected for preparation of draft scale considering their scale and inter-quartile range value. The draft scale was administered on 100 randomly selected maize farmers of four villages of Tilli union under Saturia upazila. Critical ratio (t) was calculated for each of the statements. Finally, 20 statements having ≥ 1.75 were retained in the scale. Both reliability and validity of the scale were ascertained.

Kew words: Superstition, scale, farmers

INTRODUCTION

Research system has continually been releasing innovations in all fields of social development- agriculture, food and nutrition, health and sanitation, family planning and environment. Unfortunately societies, especially of the Third World countries, lag much behind in using these research based technologies than the rate these are generated although social scientists have come up with many RD& D models- a compilation of these appear in the arduous work of Havlock^[2].

One significant reason for low rate of innovation diffusion in such societies can be traced in the characteristics of their social systems. In the other scenario, diffusion researches of more than half a century have conclusively shown that demographic, situational, socioeconomic and psychological factors affect variously the rate of innovation diffusion although the same levels of interventions through the “directed change” approach could be followed. Understanding the complex phenomenon of social change in reference to other socio-demographic factors is relatively easier, but it is harder when the variables relate to some aspects of psychology. It is so because the effect of such variables in clients’ behaviour is harder especially in the operationalization of these with acceptable level of validity.

One such psychological variable is “superstition” which the Oxford Dictionary defines as “the belief that particular events happen in a way that can not be explained by reason of science, the belief that particular event brings good or bad luck”. Bhusan^[3] defined superstition as “a belief about natural phenomena that depends upon a magical or occult interpretation of events and that is widely held to be true in spite of objectively demonstrable facts to the contrary”. Both conservatism and superstition arise from the belief system, both are held on a historical perspective, both are handed down from one generation to the next and resist social change process. Superstition is a type of belief which can be regarded as the precursor of one’s attitude development including behaviour. In Bangladesh, it is probably Sana^[4] who introduced first this variable to ascertain its relationship with his subject knowledge in shrimp farmers in a Southern Bangladesh rural community. He selected 60 statements on a broad national context. In consultation with local leaders and extension personnel of the community concerned, he came up with a 25-item scale, each items was subjected to a three-point rating scale. However, assessing reliability and validity tests remained beyond the scope of scale construction. Following him shortly, Biswas^[5] developed a scale on superstition to assess the standing of his subject, accessibility of rural women in family decision-making. This also lacked the ended

Corresponding Author: Ataharul Huq Chowdhury, MSc Student, Wageningen University, Hoevestein 239,4C5, 6708AK, Wageningen and Assistant Professor, Department of Agricultural Extension education, Bangladesh Agricultural University, Mymensingh

sophistication in terms of reliability and validity. Thus, developing a valid scale to measure superstition of the people in the rural community of Bangladesh was considered an important and pioneering research accomplishment.

MATERIALS AND METHODS

Observing an individual in psychological context is difficult in the sense that psychological behaviors can not be observed physically. For measuring psychological variables like perception, risk orientation, fatalism, attitude etc., different scales have been developed. Thurstone's Equal Appearing Interval Scale and Likert Summated Rating Scale are the two scales that are often used to measure different psychological object, especially subjects' attitude. The Scale Discrimination Technique, which combines the advantages of Thurstone's "Equal Appearing Scale" and Likert's "Summated Ratings Scale" as described by Edwards^[1], with slight modification in the rating principle, was used to develop the scale. The locale of the study was four randomly selected villages out of ten, which fall under Tilli union of Sauria, one of the upazillas of Manikganj district. Twenty judges were selected purposively to rate the scale statements. Out of 550 maize farmers 100 farmers were selected following simple random sampling method. These farmers were the respondents in developing this scale. The reliability and the validity of the scale were also calculated.

RESULTS AND DISCUSSION

Item collection for the scale was crucial in the sense that the statements needed to be so constructed that each of these could reflect one's position in the variable concerned. However, items were collected from available literature, especially of Sana's^[4] who used the scale in his thesis work. Besides, informal interview with the selected local people, extension experts and professional colleagues were the sources for statement selection. From all the sources a battery of over 60 items was prepared. The statements were examined and edited as per criteria suggested by Edwards^[1]. After rigorous culling, only 31 of the 60 items were retained. After selection of statements following successive steps were followed to construct the final scale.

Ratings of the judges on the statements: Twenty judges were selected from the locale of the study which was Tilli union under Sauria upazial of Manikganj district. They comprised of three upazila level extension

officers, two concerned extension agents, five school teachers, seven local leaders having agricultural background and three religious leaders. They were asked to place each of the statements on a five point continuum ranging from "Most appropriate", "Appropriate", "Undecided", "Less Appropriate" and "Least Appropriate".

Since the median of the distribution of judgements for each statement was taken as the scale value of the statement, the scale value was calculated from the data following Edwards^[6] formula which follows below:

$$S = l + \frac{(0.50 - \sum pb)}{pw} \times i$$

Where,

S = the median or scale value of the statement

l = the lower limit of the interval in which the median falls

$\sum pb$ = the sum of the proportions below the interval in which the median falls

pw = the proportions within the interval in which the median falls

i = the width of the interval and is assumed to be equal to 1.0

The inter quartile range (Q) was computed as an index of dispersion of the statements on the scale^[6]. It contained the middle 50 percent of the judgements. To determine the value of Q, it was necessary to find two other point measures, the 75th centile (C₇₅) and 25th centile (C₂₅). These were calculated using the following two formulae:

$$C_{75} = l + \frac{(0.75 - \sum pb)}{pw} \times i$$

$$C_{25} = l + \frac{0.25 - \sum pb}{pw} \times i$$

Where,

l = the lower limit of the interval in which the centile concerned falls

$\sum pb$ = the sum of the proportion below the interval in which the centile concerned falls.

pw = the proportion within the interval in which the centile concerned falls.

i = the width of the interval and it assumed to be equal to 1.00

The scale value and the Q value for all the statements have appeared in Table 1. According to Thurstone and Chave^[7], the 22 statements having smaller Q value and higher scale value were retained in the scale. The scale values of the statements ranged from 4.5 to 2.08 and Q values ranged from 0.58 to 1.05.

Table 1: Items of superstition scale with their scale, Q values and critical ratio (t)

Sr.No.	Statements	Scale value	Q value	Critical ratio
1.	Women must wear an ornament at nose and remove it after husband's death	3.91*	0.83	1.0×
2.	Birth of handicapped children is the consequence of parent's sin	3.08*	0.92	2.10✓
3.	It is a symbol of good luck for the father, if the first issue is a daughter	4.0*	0.83	2.44✓
4.	If anyone praises a healthy and good-looking child, he/she gets sick for having an evil eye.	3.87*	0.62	9.43✓
5.	Jaundice patients should avoid taking all kinds of protein including fish	3.88*	0.76	5.44✓
6.	It is an ominous start if any one stumbles at the door or gets head struck with the roof while getting out of the home.	3.96*	0.66	6.36✓
7.	It is a sign of bad luck if someone takes food in a broken or fissured plate	3.35*	1.02	1.80✓
8.	It is ominous to see an empty pitcher or a black cat on way out of home	4.03*	0.66	11.81✓
9.	Devils read out a religious book when it is kept open	2.83	1.21×	-
10.	One should not open the doors at night on hearing a single call from someone outside the home	4.5*	1.05	2.31✓
11.	If a dog whines piteously at night, danger is ahead	3.66	2.75×	-
12.	One should not give or take anything from the shop on credit in early morning or at dusk	4.78*	0.80	3.83✓
13.	During the last night of the fortnight and full moon, the evil make free movements	3.1*	0.76	10.05✓
14.	Having faced sudden obstacle in the pharynx while taking food, it symbolizes that someone is remembering you	3.25*	1.07	1.52×
15.	If a lizard makes ticking sound in the midst of a conversation, it bears truthfulness	3.03*	0.66	6.47✓
16.	In an attempt if you fail to kill a snake at daytime, it will come to bite you at night	3.97*	0.58	3.88✓
17.	Entrance of butterfly in the room is a good sign	4.03*	0.66	3.98✓
18.	Taking good food and having pastime on the first day of a new year (e.g. 1 st Baishak of the Bengali Year) will make your days good throughout the year	2.19	1.94×	-
19.	If a baby continuously becomes thinner by being sick, he/she has gone under an evil eye	1.40	1.34×	-
20.	Breaking mirror bears a bad sign	3.90*	0.66	6.73✓
21.	If you want to buy lime and turmeric, you should ask for curds and hue, respectively after the dusk	2.08*	0.58	4.16✓
22.	It is an auspicious sign to see a pitcher filled with water on way out of home	3.07*	0.71	4.88✓
23.	Tamarind trees are the abodes of devils	1.16	0.66×	-
24.	Frisking of left eye is a sign of getting sick soon	3.90*	0.66	8.20✓
25.	If a pregnant women cut anything during the lunar eclipse or solar eclipse, she will deliver a deformed child	4.87*	0.62	2.09✓
26.	One's death is inevitable if a cow sneezes while he sets out from residence	1.125	0.62×	-
27.	It is ominous to see a broom on way out of home	2.97*	0.58	6.97✓
28.	If someone takes eggs on the examination day, he will have a poor performance	1.12	0.62×	-
29.	If a women takes joint banana, she will give birth of twins	1.05	0.55×	-
30.	Presence of infertile women in the wedding ceremony is inauspicious	1.26	1.11×	-
31.	If the fetus moves in mother's womb, it will be a boy, else it will be a girl	2.16*	0.66	4.68✓

* Item selected based on judge rating; × Item rejected based on the judge rating; × Item rejected based on the critical ratio; ✓ Item retained in the final scale

Preparation and administration of the draft scale:

The statements retained were placed in a random sequence against four ratings expressing- "High", "medium", "Low" and "Not at all". This was pre-tested on 15 farmers of the area under investigation. Based on the pretest experience expressions of the items were modified.

The draft scale was administered on the selected 100 farmers. Each respondent was asked to indicate whether or not he believed in the message contained in each of the statements and if so to what extent. He was asked to specify his belief level in any of the expressions- "high", "medium", "low" and "not at all" and score assigned were 3, 2, 1 and 0 respectively. The superstition score of a respondent was obtained by summing the scores against all the statements. Thus, the

score of an individual subject could theoretically vary from 0 to 63 in reference to the present scoring system where "63" would indicate high degree of superstition and "0" indicate no superstition.

Final selection of items:

In the statements of draft scale, item analysis was done as suggested by Edwards^[1] taking the data of the 100 farmers. The critical ratio or 't' values were considered for final selection of the item. Critical ratio is a measure of the extent to which a given statement differentiates between the high and low groups of respondents^[1]. The low group and high group comprised of twenty percent of the respondents with the lowest and highest total scores of the respondents against the variable under analysis. The distribution of the total scores in the sample is shown in the Table 2.

Table 2: Distribution of total superstition scores

Sl. No.	Range of scores	Frequency
1	0-7	2
2	8-14	2
3	15-21	14
4	22-28	10
5	29-35	12
6	36-42	16
7	43-49	6
8	50-56	30
9	57-66	8
Total		100

As sample size on the present study being 100, frequency in high group (X_H) and low group (X_L) were equal i.e. 25 and therefore, the critical ratio was calculated by the following formula.

$$t = \frac{\bar{X}_H - \bar{X}_L}{\sqrt{\frac{\sum (X_H - \bar{X}_H)^2 + \sum (X_L - \bar{X}_L)^2}{n(n-1)}}$$

Where

$$\sum (X_H - \bar{X}_H)^2 = \sum X_H^2 - \frac{(\sum X_H)^2}{n}$$

$$\text{and } \sum (X_L - \bar{X}_L)^2 = \sum X_L^2 - \frac{(\sum X_L)^2}{n}$$

$\sum X_H^2$ = Sum of the squares of the individual scores in the high group

$\sum X_L^2$ = Sum of the squares of the individual scores in the low group

\bar{X}_H = The mean score on a given statement for the high group

\bar{X}_L = The mean score on a given statement for the low group

n = Number of respondent in each group

The statements which had t values equal or greater than 1.75 were retained in the final scale^[1]. Out of 22 only two statements (item 7 and 14 in Table 1) in the draft scale were rejected. Thus, the remaining 20 statements were arranged in descending on the basis of their 't' values, which is shown in Table 3.

Reliability of the scale: A scale is reliable when it consistently produces the same results on application to the same sample. In the present study the reliability was measured using the following two common methods:

Split-half reliability: In this method the 20 items of the superstition scale was divided into equal halves of 10 odd-numbered item in one half and 10 even numbered items in another. These two sets of statements were administered to 10 farmers. The Pearson Product Moment Correlation Coefficient (r) between two sets

was found to be 0.847, which was significant 0.01 level of probability. This indicates the internal consistency of the scale. Scoring scale on an odd-even basis means cutting its length in half. Thus, the reliability the original scale. The correction was made by Spearman - Brown formula^[8] which follows:

Spearman - Brown formula

$$rtt = 1 - \frac{2r_{oe}}{1 + r_{oe}}$$

Where

rtt= Coefficient of reliability of the original test

r_{oe} = the reliability coefficient obtained by correlating the scores on the odd items with the scores of the even items

By substitution, corrected reliability coefficient was found as 0.91

Test-retest method: The scale was administered to 10 randomly selected farmers of the total sample of 100 farmers at an interval of 30 days and co-efficient of correlation between the two sets of superstition score was found to be $r = +0.97$. This was significant at 0.01 level of probability. Therefore, the scale was highly stable and dependable to measure superstition.

Validity of the scale: Validity of a scale is the property that ensures the obtained test scores measure the variable they are supposed to measure. However, content and concurrent validity of the scale were worked out.

Content validity: A scale has content validity when it adequately covers both the content and the objectives of learning. The items of the scale were collected by discussing with the farmers, extension specialists, learned professionals and relevant literature. Items were also selected on the values of judgement in respect of degree of suitability of the statements made by a team of 20 judges from the locale of the study. Finally, the items were selected on the basis of their critical ratio (t). This indicated that the items had high discriminatory power. It was, therefore, assumed that the scale had content validity.

Concurrent validity: This validity could be measured by finding out how the scores correspond to some outside criterion of the psychological object being measured. In the present study, known group method was applied. The concerned Block Supervisors was asked to name 10 farmers with low superstition and 10 with high superstition. The final selection of each of the group was made on the basis of the experience of data collection. As the enumerator was highly educated (MS

Table 3: Final superstition scale

Sl. no.	Statements	t-value (Critical ratio)	Extent of belief			
			High	Medium	Low	Not at all
1.	It is ominous to see an empty pitcher or a black cat on way or out of home	11.81				
2.	During the last night of the fortnight and full moon, the evil make free movements	10.05				
3.	If anyone praises a healthy and good-looking child, he/she gets sick for having evil eye.	9.43				
4.	Frisking of left eye is a sign of getting sick soon	8.20				
5.	It is ominous to see broom on way out of home	6.97				
6.	Breaking a mirror bears a bad sign	6.73				
7.	If a lizard makes ticking sound in the midst of a conversation, it bears truthfulness	6.47				
8.	It is an ominous start if any one stumbles at the door or gets head struck with the roof while getting out of the home	6.36				
9.	Jaundice patients should avoid taking all kinds of protein including fish	5.44				
10.	It is an auspicious sign to see a pitcher filled with water on way out of home	4.88				
11.	If the fetus moves in mother's womb, it will be a boy else it will be a girl	4.68				
12.	If you want to buy lime and turmeric, you should ask for curds and hue, respectively after the dusk	4.16				
13.	Entrance of butterfly in the room is a good sign	3.98				
14.	In an attempt if you fail to kill a snake at daytime, it will come to bite you at night	3.88				
15.	One should not give or take anything from the shop on credit in early morning or at dusk	3.83				
16.	It is a symbol of good luck for the father, if the first issue is a daughter	2.44				
17.	One should not open the doors at night on hearing a single call from someone outside the home	2.31				
18.	Birth of handicapped children is the consequence of parent's sin	2.10				
19.	If a pregnant women cut anything during the lunar eclipse or solar eclipse, she will deliver a deformed child	2.09				
20.	It is a sign of bad luck if someone takes food in a broken or fissured plate	1.80				

in Extension Education) and hailed from the same locality, it could be assumed that labeling the groups as low and high was more or less valid. The final scale was administered to the selected 20 respondents. Student 't' test was applied to demonstrate the discriminatory power of the scale. The 't' value was found to be 16.99, which was significant at 0.01 level of probability. This shows that the scale is fairly valid because it has the ability to discriminate between the two groups and consequently between the subjects.

CONCLUSION

The scale constructed bears discriminatory power and it is reliable and dependable. The theoretical score of the scale could range from 0 to 60. This scale so constructed has implication on Bangladeshi rural communities in general. However, it may not suit in the aboriginal communities of the country where the social

systems are much different. Besides Bangladesh, the scale may have bearing with the Bengali speaking communities of West Bengal, Asam and Orissa. Also, the scale might be used in other developing countries whose social system and the level of development stage are satisfactorily comparable.

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