



Scale to Measure Attitude of Dairy Farmers' Towards Foot and Mouth Disease Vaccination

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ABSTRACT

Foot and Mouth Disease (FMD) is a highly infectious and acute viral disease of cloven hooved animals and eradication of the disease through vaccination is the only choice in India because stamping out diseased animals is not possible due to socio-cultural and economic reasons. FMD can be controlled effectively if the right attitude towards vaccination is inculcated among dairy farmers. It is high time to assess the attitude dairy farmers' towards FMD vaccination. Keeping this in view, a standardized attitude scale was constructed to measure dairy farmers' attitude towards FMD vaccination following the method of summated ratings. The process started with identifying the dimension, collection of items followed by relevancy and item analysis and checking the reliability and validity for precision and consistency of the results. A total of 36 statements were framed in which 12 statements were retained which has practical applicability in measuring the variable. A total of twelve statements with the highest 't' values were chosen for the final scale, out of which 3 were positive and 9 were negative. The final scale satisfied the reliability test.

Key Words:- Attitude, scale, Dairy, farmer, FMD, vaccination, Likert, Summated rating

INTRODUCTION

In India, Foot and Mouth Disease (FMD) is endemic and occurs throughout the year in all parts of the country. The rate of annual incidence of FMD is as high as 15-20 per cent. The high annual incidence rate leads to heavy economic loss due to drastic reduction in the draft capacity and export potential of all livestock products. According to Govindaraj *et al* (2021), the total farm-level economic loss projected due to FMD in cattle and buffaloes in India was USD 3159 million (INR 221,110 million), USD 270 million (INR 18,910 million) and USD 152 million (INR 10,610 million), respectively during the severe, moderate and mild incidence scenarios at 2015-16 constant prices. Stamping out diseased animals is not possible in India due to socio-cultural and economic reasons; eradication through vaccination is the only choice. Efforts, actions and movement

in this direction can gain momentum only if awareness, attitude, perception and acceptability of the disease eradication programmes among the farmers will be studied and recommendations are made for popularization the practices as per the words of Sharma and Kaur (2022). A right attitude towards vaccination if inculcated among dairy farmers, it would favour the eradication strategies adopted by the government. Hence, it is high time we understood the dairy farmers' attitude towards FMD vaccination. Keeping this in view, an attitude scale has been constructed to measure dairy farmers' attitude towards FMD vaccination with the objective to assess the attitude of dairy farmers towards FMD vaccination.

MATERIALS AND METHODS

The method of summated ratings (Likert, 1932) was followed to develop the scale.

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Sr. No.	Attitude statement	t value
1	I like my cattle to be vaccinated against FMD at proper time	2.32
2	I believe that prevention is better than cure	2.4
3	I believe vaccination to be the most important measure to prevent FMD	2.83
4	I don't think FMD can be totally eradicated through methodical vaccination	1.13
5	I think all susceptible livestock species should be vaccinated to effectively control FMD	3.58*
6	If only my neighbour farmer vaccinates his livestock that I too vaccinate	2.5
7	I don't prefer to vaccinate my calves as it may cause lameness	3.59*
8	I don't mind even taking my animal to the veterinary hospital for vaccination	1.63
9	I don't prefer to vaccinate my livestock since they are after all animals	3.46
10	I believe vaccination against FMD is meaningless as there is uncontrolled trafficking of livestock	2.63
11	I believe that even vaccinated animals can contract FMD	3.65*
12	As I stay and keep the livestock in an isolated place, vaccination is irrelevant	7.93*
13	I decide to vaccinate my livestock against FMD even if somebody says even vaccinated animals contract FMD	3.29
14	I think that FMD is recurring because of vaccination only	2.65
15	I believe FMD vaccination failures are common	3.11
16	I should not give FMD vaccination since it may lower milk yield	3.54*
17	I should abstain from FMD vaccination as calves may die of it	7*
18	I would prefer FMD vaccination if only it is free of cost	3.48*
19	I am prepared to face the consequences of not vaccinating against FMD	4.22*
20	Why after all those who believe in nature cure should vaccinate	1.89
21	I don't prefer to vaccinate my livestock against FMD as it may cause fever	4.9*
22	I believe in the natural resistance of animals to diseases rather than in vaccination	4.24*
23	My opinion is that there should be strong media campaigns to make people aware of the significance of FMD vaccination	1.41
24	I don't like to advice my neighbours about the relevance of FMD vaccination	2.61
25	It is out of Governments compulsion that I vaccinate my livestock	3.5*
26	I don't prefer to vaccinate my livestock against FMD even during their early pregnancy	2.21
27	Vaccination of livestock is as important as that of human beings	2.23
28	It is rather the moral responsibility of any livestock owner to keep his animal free of pain and distress	1.11
29	I don't vaccinate my livestock against FMD since they may collapse	2.44
30	I am afraid; I may lose my animal if not vaccinated against FMD	3.02
31	I abstain from FMD vaccination as it may cause swelling at the site of vaccination	4.1*
32	I don't think my inconveniences of vaccinating my livestock to be more important than the distress due to FMD	2.48
33	I am prepared to give whatever possible assistance required in organizing FMD vaccination camps in my village	2.86
34	I feel that it is high time many awareness classes about FMD and vaccination were organized in my village	0.67
35	I feel that modest punishment should be given to whoever denies FMD vaccination	2.12
36	I feel that those livestock owners methodically vaccinating against FMD should be rewarded	3.05

Construction and standardization of the scale: Thurstone (1946) defined attitude as the positive or negative affect associated with a psychological object. The attitude towards a psychological object may be formed by the interrelation of cognition, feeling and action tendencies about the object. These three components of attitude are, however, consistently related to each other i.e. more favorable the belief, more is the liking for the object and then more intense is the action tendency in its favor (Sagar and Kunzru, 1993). For the purpose of the study, attitude is conceptualized as an important psychological determinant of the respondents' behavior in vaccinating his livestock against FMD.

Collection of attitude statements and editing: The particular situation or object that evokes the responses is called an item. The items making up attitude scale are known as statements. A statement is anything said about psychological object" (Naveenkumar and Chauhan, 2019). The first step in developing the scale is the collection of items (statements) in such a manner that the acceptance or rejection of each one implies a different degree of favorable or unfavorable attitude towards the subject being studied so that the important and relevant statements could be delineated and selected. A total of 36 statements reflecting the attitude of dairy farmers towards FMD vaccination were prepared after reviewing literature, discussing with subject matter specialists, progressive dairy farmers and experienced field veterinarians (appendix-1). Due care was taken to cover all the relevant aspects of FMD vaccination. The statements initially prepared were edited as per the criteria prescribed by Edwards and Kilpatrick (1969).

Rating of attitude statements: All the statements were administered to thirty livestock farmers. This group consisted of randomly selected members and was altogether different from those chosen for the final study. These farmers were asked to indicate their degree of favorableness or unfavourableness towards each statement and the responses were recorded on a five-point continuum

as strongly agree, agree, undecided, disagree and strongly disagree with weightages four, three, two, one and zero respectively for favorable or positive statements. For unfavorable or negative statements, the scoring system was reversed. The total score for each respondent was obtained by adding the weightage given for each individual item. The attitude statements included both positive and negative ones. The scores of various respondents were arranged in descending order. Thirty percent of the respondents with the highest scores and thirty percent of the respondents with the lowest scores were taken for calculating 't' values. These groups served as the criterion groups, low and high respectively in terms of which individual statements were evaluated. The 't' values of the statements were calculated using the formula;

$$t = \frac{\bar{X}_H - \bar{X}_L}{\sqrt{\frac{S_H^2}{n_H} + \frac{S_L^2}{n_L}}}$$

where,

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

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

S_H^2 = the variance of the distribution of responses of the high group to the statement

S_L^2 = the variance of the distribution of responses of the low group to the statement.

n_H = the number of subjects in the high group

n_L = the number of subjects in the low group.

The 't' value indicated the extent to which a statement differentiated between the high and low groups. These 't' values were arranged in descending order and twelve statements with the highest 't' values i.e. more than or equal to 3.47, were chosen for the final scale. The 't' values of all the thirty-six statements are given in appendix 1. The final scale items are given in Table 1.

Table 1. Final scale items to measure attitude of dairy farmers towards FMD vaccination.

No	Attitude statement	SA	A	UD	D	SD
1	I think all susceptible livestock species should be vaccinated to effectively control FMD (+)	4	3	2	1	0
2	I don't prefer to vaccinate my calves as it may cause lameness (-)	0	1	2	3	4
3	I should not give FMD vaccination since it may lower milk yield (-)	0	1	2	3	4
4	I believe that vaccinated animals cannot contract FMD (+)	4	3	2	1	0
5	I should abstain from FMD vaccination as calves may die of it (-)	0	1	2	3	4
6	I am prepared to face the consequences of not vaccinating against FMD (-)	0	1	2	3	4
7	Though I stay and keep the livestock in an isolated place, vaccination is relevant (+)	4	3	2	1	0
8	I don't prefer to vaccinate my livestock against FMD as it may cause fever (-)	0	1	2	3	4
9	I believe in the natural resistance of animals to diseases rather than in vaccination (-)	0	1	2	3	4
10	It is due to Governments' compulsion that I vaccinate my livestock (-)	0	1	2	3	4
11	I abstain from FMD vaccination as it may cause swelling at the site of vaccination (-)	0	1	2	3	4
12	I would prefer FMD vaccination if only it is free of cost (-)	0	1	2	3	4

SA- Strongly agree A- Agree UD-Uncecided D-Disagree SD-Strongly disagree

Reliability of the scale: The reliability of the test was found out by split half method. The test was administered to thirty dairy farmers and responses were obtained. Later the odd-even items were separated and the correlation value r' was computed. Since the split half test was applied, correction of r value was done employing Spearman Brown prophecy formula (Kishan et al, 2016).

$$r = \frac{2r'}{1+r'}$$

r = reliability coefficient

r' = correlation coefficient

The reliability coefficient was found to be 0.95, which indicated that the test was internally consistent.

Validity of the scale: The validity of the scale was assured by selecting the scale items after due

consultation with experts and referring to relevant literature.

RESULTS AND DISCUSSION

The final product of the aforesaid procedure was the development of a scale to measure the dairy farmers' attitude towards FMD vaccination using the standard procedure given by Likert (1932) and administered to all the respondents who were a total number of 120 respondents which comprised of sixty FMD experienced and sixty FMD inexperienced dairy farmers who were proportionately and randomly selected from the milk co-operatives of three panchayaths of Thrissur district under study" (Mohan and Rajkamal, 2022). The respondents were asked to record their positive or negative feelings on the five point continuum viz., strongly agree, agree, undecided, disagree and strongly disagree in the scale with respective weights of 5,

4, 3, 2, and 1 for the favourable statements and with the respective weights of 1, 2, 3, 4 and 5 for the unfavourable statements and scores obtained for each item was summed up to get the attitude score. Based on the total scores obtained, the respondents were categorized following Dalenius Hodges cumulative square root frequency method into three groups namely favorable, neutral and unfavorable. The best fit prediction models to estimate the relative contribution of socio-economic characteristics of dairy farmers' attitude towards foot and mouth disease vaccination was developed. (Mohan and Rajkamal, 2022)

CONCLUSION

Foot and Mouth Disease (FMD) being a highly infectious and acute viral disease that affects cloven hooved animals, it is a deadly dangerous disease having so much of economic and social impact among the farmers especially the dairy farmers. Due to the socio-cultural- religious-economic and political scenario of India, culling the animals is not at all a possible and vaccination is the only choice. A right attitude towards FMD vaccination has to be inculcated among the farmers'; otherwise all the Government efforts will be in vain. Keeping this in view, a scale has been constructed to measure dairy farmers' attitude towards FMD vaccination with the objective 'to assess the attitude of dairy farmers towards FMD vaccination'. Likert methodology was used. The final scale consisted of 12 statements.

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