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# Test to Measure the Attitude of Horse Stakeholders Towards Horse Keeping

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ABSTRACT

A scale was constructed and standardized to measure the attitude of horse keepers towards horse management using Thurstone's "equal-appearing interval" method from March 2021 to September 2021. Several attitude statements concerning the psychological object i.e., horse management were collected. 36 experts responded unbiasedly to the 22 attitude statements. On the basis of scale values and Q-values, only 8 statements were incorporated in the final attitude scale. When administered in a non-sample area, the reliability coefficient of the whole test was 0.88 in Spearman-Brown formula. The content validity was computed using index of reliability formula and it was 0.93. When the constructed attitude scale was administered among 60 horse stakeholders (horse keepers, veterinarians and NGOs) from October 2021 to April 2022, majority (66%) of the respondents had unfavourable attitude towards horse keeping which is evident from the declining horse population in India. The developed attitude scale can be applied practically for identifying the attitude of horse keepers which will aid policy-makers in right decision-making.

## INTRODUCTION

Horses (*Equus caballus*) are the most prominent and significant equine species owing to their predominant role in shaping human civilization. They are believed to be the first domesticated animal in India. From being companions to kings and nobles, gradually horses became available to anyone who can afford it. Horses were increasingly used for transportation and sporting events all over the world. Horses are the species most differentiated into breeds throughout the world (Hall & Raune, 1993). When a group of horses has distinctive characteristics that are transmitted consistently to their offspring, they are referred as horse breeds. There are more than 300 horse breeds in the world today (Hedge & Wagoner, 2004). According to Khadka (2010), of the total horse breeds in the world, 22.60 per cent horse breeds are "at risk" and 11.50 per cent are extinct completely.

The rapid mechanization of transportation and agriculture after industrial revolution overshadowed the immense role played by horses in human civilization. More attention is being given to develop horse breeds for sports and leisure activities. On the basis of geographical localization, three horse breeds (Marwari, Kathiawari and Kachchhi-Sindhi) has been characterized in India. These are the horses found in northwestern region of India and are used for transportation and sports (Pal et al., 2021). The onset of farm mechanization in India gave rise to higher food grain production and productivity; but decline in the population of working horses. According to the Indian livestock census 2019, there is a decline of horses and ponies population of about 45.58 per cent from the Indian livestock census 2012. This population decline of upto 50 per cent is contributed by various factors like increasing management costs, modern means of transportation and lack of organized scientific breeding practices. Looking into this heavy decline in horse population, it is imperative to study the attitude of horse stakeholders towards horse management. Attitude is considered as an important determinant of acceptance or rejection of a psychological domain (Gupta et al., 2020). It is the most indispensable concept in social psychology and plays a vital role in behavioural change (Sasmitha et al., 2021, Gupta et al., 2022).

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Thurstone (1946) defined attitude as the degree of positive or negative affect (feeling) associated with some psychological object like symbol, phrase, slogan, person or ideas towards which people can differ in varying degrees. Equal-appearing interval scale developed by Thurstone (1929) was adopted in scale construction (Edwards, 1969). The specific steps delineated by Selltiz et al., (1976) in construction of Thurstone's attitude scale were followed in this study. Thus, an attitude scale has been constructed, standardized and administered to measure the attitude of horse stakeholders towards horse management.

## METHODOLOGY

Large number of statements conceived to be related to horse management were gathered from literature, discussion with scientists and veterinarians. These statements were screened by following Edward's informal criteria for attitude statements (1969). Out of these large number of statements, 22 generalised attitude statements which were unique and relevant were chosen and arranged for judges' rating. All the 22 statements were mailed to 60 judges who comprised of extension scientists, veterinarians, equine scientists and equine welfare agencies from Haryana and Rajasthan state in April 2021. Out of the 60 judges, 42 judges responded to the 9-point continuum from 'least favourable' to 'most favourable'. The number of categories in this study was reduced from 11 to 9, as a greater number of categories makes judging difficult. Only 36 judgements were considered for computation of scale values and Q values and the remaining 6 responses were rejected owing to its biased judgement by the respective experts. The scale values and Q values were computed for 22 statements by applying the formula given by Thurstone & Chave (1929).

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

where, S = the median or scale value of the statement
l = the lower limit of the interval in which the median falls,
Σpb = the sum of the proportions below the interval in which the median falls,
pw = the proportion within the interval in which the median falls,
i = the width of the interval and is assumed to be 1.0

$$Q = C_{75} - C_{25}$$

where Q = Interquartile range, $C_{75}$ – the 75$^{th}$ centile,

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

$C_{25}$ – the 25$^{th}$ centile, $C_{25} = l + \frac{(0.25 - \Sigma pb)}{pw} \times i$

The scale reliability was analysed by applying Spearman-Brown formula (split-half method) in SPSS software.

$$rt = \frac{2r_h}{1 + r_h}$$

Where, $r_t$ – reliability coefficient of the whole test
$r_h$ – correlation between the two halves

Validity of the scale was analysed with the help of index of reliability.

Index of reliability, $r_{1\infty} = \sqrt{r_1}$

Where, $r_1$ – reliability of the scale

The total sample size of the study was 60 comprising of the horse stakeholders from North-western India (Haryana, Punjab, Gujarat and Rajasthan) sampled randomly from the list of horse stakeholders who availed training at ICAR-NRCE, Hisar in 2020-21.

## RESULTS AND DISCUSSION

The final statements for inclusion in the attitude scale were selected by following the criteria given by Thurstone and Chave. i) Statements with large Q values were eliminated. ii) The scale values should have equal-appearing intervals. iii) Even representation of the universe of opinions. iv) More or less equal distribution of favourable and unfavourable attitudes. Based on these criteria, 8 statements with serial numbers 7, 19, 9, 17, 4, 15, 11 and 1 of the original list of 22 statements were selected. The range of scale values of the eight selected statements was from 1.81 to 4.83 and the range of Q-values was from 1.20 to 1.71. These limits were set arbitrarily for each scale construction based on the obtained scale values and Q-values. The final attitude scale on horse management along with its scale values and Q-values were given in Table 1.

### Reliability and validity of the scale

Split-half method was employed to determine the reliability of the constructed attitude scale since it was considered as the best method to measure reliability (Garrett, 1979). This split-half method was developed by Charles Spearman and William Brown in 1910. Reliability refers to the consistency with which the scale measures what it aims to measure. The eight selected statements

**Table 1.** Final set of attitude statements selected

| S.No. | Item No. | Scale value | Q value | Statement | Nature of statement |
|---|---|---|---|---|---|
| 1. | 7 | 1.81 | 1.20 | Vaccination is beneficial for horse health. | Positive |
| 2. | 19 | 2.50 | 1.42 | Insufficient medicines available for horse treatment. | Negative |
| 3. | 9 | 2.75 | 1.48 | Sufficient income can be generated by the sale of horses. | Positive |
| 4. | 17 | 3.25 | 1.67 | Adequate veterinary facilities for horses in India. | Positive |
| 5. | 4 | 3.90 | 1.71 | Horse management is cost-effective. | Positive |
| 6. | 15 | 4.50 | 1.22 | Exotic breeds should be promoted in our country. | Negative |
| 7. | 11 | 4.63 | 1.31 | Artificial Insemination (AI) is better than natural services in horses. | Positive |
| 8. | 1 | 4.83 | 1.18 | Horses are reared for pleasure over business. | Negative |

were divided into two equal halves by following odd-even method. The part which contains the statements 1,3,5 and 7 were considered as part 1 and the part containing the statements 2,4,6 and 8 were considered as part 2. The two halves of the test were administered separately to 30 horse keepers in a non-sample area.

The reliability coefficient of the whole test was 0.88 in Spearman-Brown formula and 0.87 in Guttman formula for internal consistency. Since the reliability score is greater than 0.60, according to Kumar et al., (2015); Kumar et al., (2016) when the purpose of the test is to compare the means of the two groups of narrow range, a reliability coefficient of 0.50 or 0.60 would suffice and hence the constructed scale is reliable. Validity of the scale (what it intends to measure) was computed using index of reliability formula and was found to be 0.93. The index of reliability implies that the test measures true ability of the subjects to the extent of 93 per cent.

**Administration of the scale**

The constructed scale was then incorporated in an interview schedule for horse keepers, veterinarians and NGOs. After recording the responses, the scoring was done with the help of the method proposed by Eysenck & Crown (1949). Each of the statements in the scale were provided with a 4-point continuum response from 'strongly agree', 'agree', 'disagree' to 'strongly disagree'. The scoring pattern of positive and negative statements are shown in Table 2.

The first statement is positive with a scale value of 1.81. If a horse stakeholder strongly agrees with it, the score for the statement was computed as 1.81 multiplied by 4; which is 7.24. Following this method, the scores for all the statements were calculated. The summation of all the scores were done to arrive at the attitude score of each horse stakeholder.

**Attitude of horse stakeholders**

It was found that the attitude score of the respondents ranged from 65 to 112 as mentioned in Table 3. By classifying the entire data into three classes (Unfavourable, Favourable and Most favourable) with a class interval of 16, the degree of attitude of each respondent is identified. More than half of the respondents had unfavourable attitude towards horse management which can be directly correlated with the declining horse population in India. Moreover, the lockdown due to COVID – 19 situation also triggered unfavourable attitude towards horse management when access to, for example, veterinary care, horse feed and adequate outdoor exercise spaces was limited (Ratschen et al., 2020). Around 26 per cent of the respondents had favourable attitude towards horse management. These respondents have easy access to veterinary facilities and are young. Only 6 per cent of the respondents had highly favourable attitude towards horse management because of their entrepreneurial capability. They are generating sufficient income from composting horse dung and organizing horse riding classes in schools. Another interesting finding is horse keepers are more optimistic about horse keeping than professionals like veterinarians or NGOs involved in horse welfare.

Table 4 reveals that majority (96.60%) of the horse stakeholders agreed or strongly agreed that vaccination is vital for maintaining a horse healthy and 83.40 per cent of horse stakeholders believed that sufficient income can be generated from horse keeping.

**Table 2.** Scoring of attitude statements

| S.No. | Statements | Scale values | Scores | | | |
|---|---|---|---|---|---|---|
| | | | Strongly agree | Agree | Disagree | Strongly disagree |
| 1. | (+) Vaccination is beneficial for horse health. | 1.81 | (4) | (3) | (2) | (1) |
| 2. | (-) Insufficient medicines available for horse treatment. | 2.50 | (1) | (2) | (3) | (4) |

**Table 3.** Frequency of respondents under various degrees of attitude towards horse management

| S.No. | Attitude score | Degree of attitude | Horse keepers | | Veterinarians | | NGOs | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | No. | Percent | No. | Percent | No. | Percent | No. | Percent |
| 1. | 65 to 80 | Unfavourable | 25 | 65.78 | 13 | 65 | 2 | 100 | 40 | 66.66 |
| 2. | 81 to 96 | Favourable | 10 | 26.31 | 6 | 30 | 0 | 0 | 16 | 26.66 |
| 3. | 97 to 112 | Most favourable | 3 | 7.8 | 1 | 5 | 0 | 0 | 4 | 6.66 |
| | | Total | 38 | 100 | 20 | 100 | 2 | 100 | 60 | 100 |

**Table 4.** Attitude of horse stakeholders on each attitude statement

| S.No. | Statements | Strongly agree | Agree | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| 1. | (+) Vaccination is beneficial for horse health. | 29(48.30%) | 29 (48.30%) | 1 (1.70%) | 1 (1.70%) |
| 2. | (-) Insufficient medicines available for horse treatment. | 4(6.70%) | 26(43.30%) | 23 (38.30%) | 7 (11.70%) |
| 3. | (+) Sufficient income can be generated by the sale of horses. | 10 (16.70%) | 40(66.70%) | 9 (15%) | 1 (1.70%) |
| 4. | (+) Adequate veterinary facilities for horses in India. | 9(15%) | 23(38.30%) | 26 (43.30%) | 3(5%) |
| 5. | (+) Horse management is cost-effective. | 6 (12%) | 40 (66.70%) | 11 (18.30%) | 0 |
| 6. | (-) Exotic breeds should be promoted in our country. | 3 (5%) | 25 (41.70%) | 19 (31.70%) | 13 (21.70%) |
| 7. | (+) Artificial Insemination (AI) is better than natural services in horses. | 14(23.30%) | 31(51.70%) | 12 (20%) | 3 (5%) |
| 8. | (-) Horses are reared for pleasure over business. | 3 (5%) | 27 (45%) | 23 (38.30%) | 7 (11.70%) |

Most of the 60 horse stakeholders acknowledged the efficiency of Artificial Insemination over natural services in horses (75% agreed or strongly agreed). Among the interviewed horse stakeholders, almost 50 per cent indicated the advantages of exotic horse breeds in Indian horse industry whereas the remaining half per cent were having problems with the promotion of exotic horse breeds in India. Regarding accessibility to medicines and veterinary services, the respondents had divided opinion with equal share of them having favourable and unfavourable attitude. This finding agrees that most of the veterinary services received by farmers are curative in nature, rather than preventive (Pal et al., 2011).

When queried about the entrepreneurial opportunities in horse keeping, 50 per cent of the respondents agreed with the business arena present in this animal. The remaining 50 per cent of the respondents denied the remunerative nature of horse keeping. This implies that an equal per cent of horse stakeholders are rearing it for pleasure over profit.

## CONCLUSION

The aim of this study was to provide insight into the attitude level of horse stakeholders towards horse keeping in North-western India, the breeding tract of Indian horse breeds. The results of this research will assist the veterinary department in framing appropriate strategies for stabilizing horse population in India. It is imperative to organize workshops and trainings for horse keepers to bring about favourable attitude towards horse management which will directly influence the population growth of horses. Horse keeping is increasingly becoming unaffordable to an average Indian due to inaccessible veterinary services and disease diagnostic facilities. Collaboration between different horse stakeholders is necessary for timely assistance to horse keepers. Several entrepreneurial options surrounding these companion animals like eco-tourism, equestrian sports, etc. has to be explored economically because more the animal is reared for pleasure, great is its decline.

## REFERENCES


Edwards, L. A. (1969). *Techniques of Attitude Scale Construction*. Vakils, Feffer and Simons Pvt. Ltd., Bombay, pp 152-153.

Eysenck, H. J., & Crown, S. (1949). An experimental study in opinion-attitude methodology. *International Journal of Opinion-Attitude Research*, Vol 3.

Garrett, H. E. (1979). *Statistics in Psychology and Education*. Vakils, Feffer and Simons Pvt. Ltd., Bombay.

Gupta, R. K., Saha, A., Tiwari, P. K., Dhakre, D. S., & Gupta, A. (2020). Attitudes of tribal dairy farmers towards dairy entrepreneurship in Balrampur District of Chhattisgarh: A Principal Component Analysis. *Indian Journal of Extension Education, 56*(1), 59-63.

Gupta, S. K., Nain, M. S., Singh, R., & Mishra, J. R. (2022). Development of scale to measure agripreneurs attitude towards entrepreneurial climate. *Indian Journal of Extension Education, 58*(2), 153-57. http://doi.org/10.48165/IJEE.2022.58237

Hall, S. J. G., & Raune, J. (1993). Livestock Breeds and their Conservation: A Global Review. *Conservation Biology, 7*(4), 815-825.

Hedge, J., Wagoner, D. M., & Equine Research Inc. (2004). *Horse conformation: Structure, soundness, and performance*. Guilford, Conn: Lyons Press.

Khadka, R. (2010). *Global horse population with respect to breeds and risk status*. Swedish University of Agricultural Sciences (Masters thesis). http://epsilon.slu.se/

Kumar, R., Slathia, P. S., Peshin, R., & Nain, M. S. (2015). Development of scale to measure attitude of farmers towards rapeseed mustard crop. *Journal of Community Mobilization and Sustainable Development, 10*(2), 221-224.

Kumar, R., Slathia, P. S., Peshin, R., Gupta, S. K., & Nain, M. S. (2016). A test to measure the knowledge of farmers about rapeseed mustard cultivation. *Indian Journal of Extension Education, 52*(3&4), 157-159.

Pal, Y., Bhardwaj, A., Legha, R. A., Talluri, T. R., Mehta, S. C., & Tripathi, B. N. (2021). Phenotypic characterization of Kachchhi-Sindhi horses of India. *Indian Journal of Animal Research, 55*(11), 1371-1376. doi: 10.18805/IJAR.B-4221.

Pal, Y., Legha, R. A., Thakur, Y. P., Gupta, A. K., & Singh, R. K. (2011). Socio-economic status of spiti horse owners vis-a-vis horse management in native tract. *Veterinary Practitioner, 12*(1), 73-76.

Ratschen, E., Shoesmith, E., Shahab, L., Silva, K., Kale, D., & Toner, P. (2020). Human-animal relationships and interactions during the Covid-19 lockdown phase in the UK: Investigating links with mental health and loneliness. *PLoS ONE, 15*(9), e0239397. https://doi.org/10.1371/journal.pone.0239397

Sasmitha, R., Iqshanullah, A. M., Arunachalam, R., & Shanjeevika, A. (2021). Scale Construction to Measure the Attitude of Hilly Tribes towards Environmental Conservation. *Indian Journal of Extension Education, 57*(2), 26-30.

Selltiz, C., Wrightsman, L. S., & Cook, S. W. (1976). *Research Methods in Social Relations*. Holt, Rinehart and Winston, New York.

Thurstone, L. L. (1929). Theory of attitude measurement. *Psychological Review, 36*(3), 222.

Thurstone, L. L. (1946). Comment. *American Journal of Sociology, 52*(39).