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Health and Nutritional Knowledge Assessment Scale for Workers in Cashew Industry

Suma Divakar, L. Prema and C.E. Ajith Kumar

Department of Home Science, College of Agriculture Vellayani, Trivandrum 695 522, Kerala, India

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ABSTRACT A major cause of malnutrition in our country is the lack of awareness regarding good nutritional and health practices. In order to chalk out any effective nutritional campaign, assessing the present level of knowledge is essential. Cashew industry employing a large section of the organized labour constitutes a significant segment of our working population. Hence, an assessment of their health was taken up with respect to their nutritional status. In this context, the level of knowledge was also assessed after standardizing a scale. This paper explains the procedure of developing and standardising a knowledge scale tomeasure the level of awareness on Health and Nutrition of such a socio-economically backward group. The scale has been constructed by making use of the summative method to get a 5 point judgment on items selected after review of literature and also discussion with subject experts. The short list statements were subjected to item analysis to finally arrive at eight statements. The scale was administered on 200 respondents. It was found that majority of the workers (78.5%) had only moderate level of knowledge on Health and Nutrition. The scale was thus constructed and standardised and has proved to be reliable, valid and also successful in assessing the knowledge.

INTRODUCTION

Malnutrition is common throughout the country. When some people lack adequate food, some others have adequate access and entitlement to food, but make poor food choices due to ignorance. Deficiency of food materials is not the only cause of malnutrition. Many deep- rooted beliefs, customs, practices, superstitions, food taboos, ignorance of food values, food habits and attitudes, religious beliefs, food fads, cooking practices etc have a powerful influence to cause malnutrition. This affects growth and development and thus adversely the livelihood of adults (Gupta and Kochar 2009).

Cashew industry is identified as a traditional industry, though the tradition behind it is far too short, not more than half a century (Kanji 2002). It has been reported that Cashew industry employs 65-90% of women and that there is no regular pattern in the spread and distribution of employment in this industry all round the calendar (Lindberg 2005). Hence their conditions are vulnerable with respect to health and nutrition.

Address for correspondence:
E-mail: divakarsuma67@gmail.com

The measurement of the level of knowledge of a group is difficult. A standard knowledge scale cannot be applied in all situations on all sections of population. The level of knowledge varies with exposure levels. Therefore a scale to test the level of knowledge to suit this group needs to be standardised. This would help to chalk-out an effective nutrition education programme.

Nutrition knowledge presumably influences attitude and eating behaviour. Nutrition questionnaires developed to date generally have limitations in one or more areas. They are developed as part of various studies and hence focus on specific topics like fat or cholesterol or caffeine knowledge (Parmenter and Wardle 1999).

Swift et al. (2006) developed an obesity related knowledge scale that was used to assess the effectiveness of health and education interventions and investigate the interaction between knowledge and obesity related behaviour.

Joel and Eleanor (1982) had standardised a scale to measure consumer's knowledge about general nutrition and beliefs on health related aspects of food products.

A knowledge scale with questions on 4 key areas: viz ; physical activity, diet, weight related attitudes and cultural identity, among children

from third to fifth grade children in America was developed by Stevens et al. (1999). Turconi et al. (2003) had developed a questionnaire to measure the effect of nutrition intervention in adolescents and proved its reliability when administrated on 72 subjects in the age group of 14-17 yrs.

METHODOLOGY

This study was conducted to assess the level of knowledge on "Health and Nutrition" among women workers of Cashew industry, who form a significant section of Kerala's working population. A scale for assessing their knowledge was constructed and standardized using standard procedures and was pre-tested to ensure reliability and validity. The scale was successfully administered to 200 respondents.

Kollam district of Kerala was purposively selected for the study because:

i) Of the 222 Cashew factories in Kerala, 200 factories are situated in Kollam district.
ii) Of the 1.68 lakh workers in the State, 90 percent of workers are enrolled in factories located in the district

Standardisation of the Scale

One hundred statements (items) that could elicit some information on the knowledge of cashew workers about health and nutrition were listed and were sent to 25 judges who were known experts in nutrition studies, for their rating. They were requested to rate these statements in a 5 point scale namely most relevant (5), relevant (4), neutral (3), irrelevant (2) and highly irrelevant (1).

Following the method of Patil and Swamy (1998), the relevancy percentage of the 100 items was calculated by summing up the scores of the 'most relevant' and 'relevant' categories, and converting them into percentage. Those items having relevancy percentage above 75 were considered for final selection of items.

Thus, twenty- five items were selected and in order to elicit responses, they were converted into multiple choice questions with a score of 1(one) for correct answer and 0 (zero) for wrong answers. These were then administrated to one hundred respondents who would not form part of the final study. The collected responses were subjected to item analysis . Item analysis is a set of procedures that is applied to know the indices for the truthfulness of validity of the items (Singh 1992). The 2 most common indices of item analysis are the index of item difficulty and index of item discrimination.

For item analysis, the total knowledge score of each respondent was calculated. The scores obtained were arranged in ascending order and twenty five percent of lowest and twenty five percent of highest scores were selected for calculating index of item difficulty and index of item discrimination.

Index of item difficulty - The difficulty index was determined using the formula (Edwards 1969)

$$P = Rn+R1/ Nu+N1$$

Where P = index of difficulty, Rn = no: of respondents answering correctly in the upper group. R1= no: of respondents answering correctly in the lower group. Nu = no: of respondents in the upper group. N1 = no: of respondents in lower group. The items having difficulty index ranging from 0.32-0.80 were selected (Garett 1967).

Index of item discrimination - The discrimination index of an item is its capacity to discriminate the well informed respondents from the poorly informed. It was calculated using the formula

$$V = Ru - R1/ Nu+N1$$

Where V= discriminatory power or validity, Ru = number of respondents giving correct answers in the upper group, R1= the number of respondents giving correct answers in the lower group, Nu = number of respondents in the upper group and NI =number of respondents in the low group. The items having discrimination index of above 0.2 were selected.

For establishing the internal validity of the knowledge text, point by serial correlation coefficient was found out. Since the items were scored simply as '1' (one) for correct and '0'(zero) for wrong answer. The point-by serial correlation coefficient was calculated as follows :

$$rpbis = Mp-Mq/ \sigma\sqrt{pq}$$

Where, rpbis = point by serial correlation , Mp= Mean of total score of the respondents who gave correct answers to the item. Mq = mean of the total respondents who gave incorrect answers to the item P= proportion of respondents giving correct answers to the item, q = proportion of respondents giving incorrect answers to the item and σ = standard deviation of the entire sample.

Significance of the point bi serial correlation coefficient was tested using the formula.

$$t = \frac{r^2}{1\text{-}r^2/\ n\text{-}2}$$

Where t is the test of significance, rpbis = point bi serial correlation coefficient of the item and it is the total size of the sample. If the calculated value was greater than table value, then it was considered significant for the final test.

Content validity of a scale is the extent to which a measuring instrument provides adequate coverage of the topic. The content validity of the scale was built in the process of construction of the scale itself, since the scale was prepared after extensive review of literature and subjected to expert's opinion.

The standardized knowledge test was administrated to the selected 200 respondents. The results were interpreted by giving scores of '1' or '0' for correct or incorrect answers respectively. The maximum score of a respondent obtained in this scale was '7'. The total score of each respondent was calculated and based on the mean and standard deviation, the respondents were classified as low, medium and high based on their knowledge level.

RESULTS AND DISCUSSION

From the 25 statements, 7 items having difficulty index ranging from 11.32-0.82, discrimination index above 0.011 and significant bi-serial correlation was selected as shown in Table 1.

Table 1: Item analysis of statements selected for testing knowledge

Items	*Difficulty index*	*Discrimination*	*Point bi serial index correlation*
1. Breast milk is the best food for infants	0.280	0.119	3.123
2. It is not necessary to brush teeth after every meal	0.189	0.123	3.5045
3. Breast milk must be given to infants as early as possible	0.180	0.199	2.180
4. Sprouting of pulses is not a healthy way of consuming that food*	0.690	0.344	5.158
5. Infant foods in the market are more nutrition's than breast milk	0.250	0.108	2.946
6. Vitamin C is abundantly found in yellow coloured fruits and vegetables *	0.820	0.210	3.026
7. It is always better to have long nails	0.297	0.757	2.845
8. Potato and tapioca are included in the diet to meet the protein requirement*	0.820	0.227	3.281
9. Consumption of fruit and vegetables will prevent constipation	0.310	0.093	3.016
10. Adolescence is a period of slow development	0.319	0.012	2.845
11. Washing vegetables before cutting ensures better nutrient supply than washing after cutting	0.299	0.193	2.765
12. Red colour of beetroot helps in production of blood	0.210	0.015	2.143
13. Breast milk alone is enough for infants upto 2 years to take care of their growth and development	0.289	0.097	1.893
14. By the time, the child is one year old, all the foods that are included in the diets of adult can be given to them	0.317	0.085	1.907
15. Children should not eat non vegetarian food before one year *	0.820	0.296	4.359
16. It is not good to spit in the open space *	0.800	0.282	4.740
17. Pregnant women should eat the same amount of food as normal women	0.302	0.079	1.963
18. Children can be given amla and guava, instead of apple and orange	0.812	0.065	1.950
19. Repeated heating of food destroys nutrients	0.302	0.091	2.567
20. Storing food in refrigera tor kills micro organisms	0.297	0.152	2.432
21. Eating too much during pregnancy makes delivery very difficult	0.231	0.262	2.562
22. The benefits of developmental programmes go only to the women and children of higher strata of society.	0.297	0.132	2.432
23. Raw vegetables must be consumed as much as possible *	0.360	0.308	4.558

Table 1: Contd....

Items	*Difficulty index*	*Discrimination*	*Point bi serial index correlation*
24. The nutritional problems cannot be solved by government programmes.	0.107	0.297	1.980
25. The activities advocated under the developmental programmes are expensive.*	0.880	0.350	5.258

When the knowledge scores were analysed, it was observed that only 5% of the group were high scorers, 78.5% were medium scorers and 16% were low scorers (Table 2).

Kim (2009) made similar observations on the level of knowledge of pregnant women using a standardised scale. Yahya (2011) also developed a valid and reliable scale on food and nutrition to assess knowledge of adolescents.

Table 2: Level of respondent's knowledge on health and nutrition

Level	*Details of respondents (%)*
Low	33 (16.5)
Medium	157 (78.5)
High	10 (5.00)

CONCLUSION

In conclusion, the developed scale was found to be a valid, reliable and clear instrument which could be used for assessment of knowledge of socio-economically underprivileged category of people.

Specific findings of this knowledge scale are that, nutrition education needs to be given focus among the working population like Cashew workers. Their conditions are especially critical because they face the doom of lean periods where they do not have wages.

- Means of utilizing available resources for food security have to be extended.
- The judicious selection of cooking methods needs to be propagated.
- Importance of fruits and vegetables needs to be emphasized.
- They are not aware of nutrient values of different food groups.
- Importance of childhood nutrition needs to be stressed.
- Awareness of all welfare programmes needs to be imparted and
- Health and hygiene measures need to be reemphasized.

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