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Appropriateness Test of Training Module on Culturally-Competent Emergency Relief Foods (ERFs) for Disaster Prone Regions of India

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ABSTRACT

A comprehensive knowledge on disaster prone regions of India and their culturally competent foods is crucial for nutritionists, extension specialists and other professionals involved in humanitarian assistance. A training module was developed for professionals who could use it while addressing the component of food assistance during emergency situations. The module complements the ongoing efforts of Indian government to address the food and nutritional needs of disaster hit evacuees of specific regions. Evaluation of the module for its content, presentation and applicability using an appropriateness scale was tested by a panel of 5 experts and 30 students in the year 2018-19. It was also assessed for its reading difficulty using Gunning Fog index. The results of the study showed that it was appropriate for its users and the reading difficulty index was also in line with the educational qualification of its intended users.

Keywords: Appropriateness, Difficulty index, Disaster, Food assistance, Module, Nutritionists

INTRODUCTION

According to GHA report (2013), natural disasters contribute to the large number of the world's displaced people. About 98 per cent of people were displaced by disasters in middle and lower income developing countries between 2008 and 2012 (Yonetani and Morris, 2013). In populations affected by the emergencies, the threat of communicable diseases increased significantly with a high risk of morbidity and mortality (Connolly, 2005). India is a large emerging economy showcasing a great variation in its geography, biodiversity and natural resources. Owing to these characteristics, India has been receiving a fair share of disasters from time immemorial. According to Indian Disaster Knowledge Network (IDKN), nearly 85 per cent of India's geographic area is prone to one or multiple hazards. Different components of climate have direct bearing on agriculture productivity, therefore any abrupt variations in these components has direct implications on agricultural production and which in turn led to severe penalty on the food security of the nation (Majumder *et al.,* 2019). Food security not only influences the intensity of the climatic shock but also tracks the vulnerability of the food system in the face of a particular shock. Similar is the impact of COVID-19, the Global Pandemic which has led to migration and displacement of thousands of poor people who are now stranded. Diarrheal diseases, malaria, measles, and acute respiratory infections in displaced populations also increase rates of malnutrition thus increasing the risk of morbidity and mortality (Connolly *et al.,* 2004). For country like India, where more than one third of its inhabitants are extremely poor and nearly half of all children are undernourished in one way or another, ensuring food security under these circumstances becomes extremely difficult. For proper nutrition, an adequate amount of calories, protein and sufficient nutritional diversity is essential (Thornton *et al.,* 2014).

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India is moving progressively towards 'Knowledge Economy', therefore, skills and knowledge have become most important driving forces for economic and social development of the country (Som *et al.*, 2019). Nutritionists and Health care professionals must be actively involved in cross-cultural encounters for better understanding about cultural competence to address the culturally sensitive issues during and post emergencies (Goody and Drago, 2009). It is imperative to train disaster professional including nutritionists, policy and decision makers and other volunteers involved in disaster assistance so that they can prioritize food needs and bring out the best use of available resources. Methodologies, expertise, techniques, theoretical frameworks and other required tools that can be used in training programs must be developed and strengthened. Training modules must be designed for these members and the volunteers (UNDP, 2009). Therefore, a training module was developed to help facilitate learning by its intended users and assessed the appropriateness of this module, and it explained about the comprehensive information on disaster or emergency management with respect to the findings of the present study.

METHODOLOGY

The present investigation was carried out on the development and evaluation of Emergency Relief Foods (ERFs) for disaster hit evacuees. Seven most disaster-prone states of India were purposively selected based on their vulnerability to disaster. They were further classified into four zones based on similar culinary habits and closed vicinity with each other. The traditional food preparations which are culturally competent to the particular regions tend to reduce psychological stress of the affected population post disaster phase as they derive familiarity with the food and easily accept them. Being the potential carrier of nutrients, thirteen traditional recipes of seven identified states were identified and then modified to meet the nutritional requirements of disaster stricken community. The develop products were further subjected to sensory, nutritional and storage studies. The consumer acceptability and cultural competence of the developed ERFs were also carried out in one state. A training module was developed based on the information collected from official documents, research papers/reports of National & International agencies, NGOs and media reports such as newspaper articles.

Reading difficulty index of the developed module was calculated using the method given by Gunning (1952). To measure the reading difficulty index, the standard steps were followed and index was calculated with following formula:

Readability difficulty index= 0.4 (words/sentences) + 100 (complex words/words)

Two nutritionists from department of Food and Nutrition and three extension specialists from department of Home Science Extension Education and Communication Management, Punjab Agricultural University were selected to evaluate the appropriateness of training module. Simultaneously, 30 students pursuing Master's and Doctorate degree in Food and Nutrition, were also selected to evaluate the developed training module.

Appropriateness scale developed by Kaur (2013) was used to evaluate the module for the content of the module, presentation of the module and applicability of module. The content of the module included parameters like comprehensiveness, understandability, systematic, free from errors, language and understandable examples. The presentation included parameters like 'clearly written learning objectives, introduction, systematic presentation, interesting, user friendly, easy to read, readability of font type and size, font color, contrast with background color and balance between graphics and text. The applicability of module included help in understanding of emergency, cultural competency, vulnerability to disasters, culturally competent Emergency Relief Foods of different states, improve knowledge regarding importance of culturally competent food aid during emergency The experts and subjects were required to give their response as on a scale of five from strongly disagree, disagree, neutral, agree to strongly agree.

RESULTS AND DISCUSSION

The average length of sentences per sample of 75 words in the developed module was 18.75. The total number of hard words were found to be about 9. The

hard words were categorized on the basis of number of syllables used. Usually, words with more than 3 syllables are called as hard words. The total number of words per sentence and hard words were then multiplied with 0.4 to obtain final score of reading difficult index which was found to be 12.30. This indicated that the readability of the matter in the module could be termed as easy for College students as per classification given by Gunning (1952). In a study conducted by Gyasi (2013), reading difficulty index of malaria medicine information leaflets was 14.2 to 18.8 which indicated that the leaflets were very difficult to read even by people with university education. In another study, readability of patient information and consent form was found to be 14.2 which did not match with the participant's educational level (Hammes *et al.,* 2016). It is observed that when learners have lower level of education than the readability of the module, it can create a readability gap which reflects that the users will not be able to understand the text in the module as reported by Badarudeen and Sabharwal (2010). However, the readability of the training module corresponded to the college level educational qualification of the users and the language used in this training module is understandable to its intended users (nutritionists/ other professionals in disaster management system).

The results regarding content of the module on "Culturally-competent ERFs for disaster prone regions of India" are presented in Table 1. For the characteristics like contents were comprehensive and easily understandable with the mean score of 4.6. The experts gave a strong agreement with a mean score of 5.0 for topicality of content. A score of 4.4 was obtained for characteristics like examples given were easily understood and contents were free of spelling errors. For characteristics like language used for preparing module was good and presentation of the content was systematic, the mean score was 4.6 and 4.8 respectively.

Similarly, the mean score for contents being understandable and related to topic was 4.7 as given by students of Food and Nutrition. A mean score of 4.5 was obtained for content's comprehensiveness and systematic presentation. A mean score of 4.3, 4.4 and 4.6 was obtained for content free of spelling errors, good language used and use of understandable examples in the module, respectively.

The findings indicated that the overall mean score obtained for content of the module was 4.6 and 4.5 which indicated that the experts and users had strong agreement that the contents of the module were appropriate in all aspects.

Table 2 shows data regarding appropriateness with respect to presentation of module as assessed by the experts. The learning objectives were clearly written,

Table 1: Parameters for the appropriateness of contents of the module by the expert and users

Parameters	Score	
	Experts	Users
Comprehensive	4.6±0.54	4.5±0.63
Easily understandable	4.6±0.54	4.7±0.46
Related to the given topic	5.0±0.0	4.7±0.48
Systematic presentation	4.8±0.44	4.5±0.63
Examples quoted are easy to understand	4.4±0.54	4.6±0.50
Free of spelling errors	4.4±0.89	4.3±0.80
Language usage in content presentation	4.6±0.54	4.4±0.63
Overall score	**4.6±0.26**	**4.5±0.11**

Values are Mean±SD; Scores are out of 5.0

Table 2: Parameters for the appropriateness of presentation of the module by the expert and users

Parameters	Scores	
	Experts	Users
Learning objectives are clearly written	4.4±0.89	4.4±0.63
Good introduction to topics	4.8±0.44	4.5±0.74
Systematic presentation of ideas	4.8±0.44	4.5±0.74
Content presentation suits interactive learning	4.4±0.54	4.4±0.73
The module is interesting	4.6±0.54	4.7±0.59
User friendly	4.8±0.44	4.7±0.61
Text is easy to read	4.4±0.54	4.6±0.50
Font type and size is readable	4.4±0.54	4.7±0.45
Font color is in contrast with background color	4.6±0.54	4.9±0.35
There is proper balance between graphics and text	4.8±0.44	4.7±0.49
Overall Score	**4.6±0.13**	**4.6±0.14**

Values are Mean±SD; Scores are out of 5.0

Table 3: Parameters for the appropriateness of applicability of the module by the expert and users

Parameters	Score	
	Experts	Users
Useful in understanding of emergency	4.8±0.44	4.7±0.48
Useful in understanding of cultural competence of foods	4.8±0.44	4.7±0.45
Useful in understanding of India's vulnerability to disasters	4.8±0.44	4.8±0.41
Helpful in understanding of culturally competent Emergency Relief Foods of different states	5.0±0.0	4.8±0.41
Helpful in improving knowledge regarding importance of culturally competent food aid during emergency	5.0±0.0	4.9±0.35
Can be distributed among all those who are interested in humanitarian assistance and treated as learning aids	4.8±0.44	4.8±0.35
Overall Score	**4.9±0.23**	**4.8±0.05**

Values are Mean±SD; Scores are out of 5.0

content presentation suits interactive learning, text was easy to read and font type and size was readable, a mean score of 4.4 was given by both the experts and users. Other characteristics such as module is interesting and font color was in contrast with background color, a mean score of 4.6 was recorded. A mean score of 4.8 was awarded to four characteristics viz. good introduction to topics, systematic presentation of ideas, user friendly and proper balance between graphics and text.

Table 3 revealed that majority of experts agreed that the module had applicability value for its users. A mean score of 5.0 was awarded to two characteristics of the module applicability such that this module would help in the understanding of culturally competent ERFs of different states and improve the knowledge regarding importance of culturally competent food aid during emergency. The other characteristics about the module applicability such as the module helps in understanding of emergency, cultural competence, India's vulnerability to disasters and that the module can be distributed among all those who are interested in humanitarian assistance and treated as learning aids received a mean score of 4.8.

Similarly, a mean score of 4.7 was obtained for characteristics like module helps in understanding emergency and cultural competence by the users.

The overall mean score obtained for module applicability was 4.9 and 4.8 which reflected the fact that experts and users had a strong opinion that the module is appropriate for its applicability with respect to all its given characteristics. Overall appropriateness scores for the appropriateness of the module ranged from 4.5 to 4.9 on the scale of 5 which indicated that the module was highly appropriate for its end users.

CONCLUSION

A training module was developed for assisting the professionals, policy makers and nutritionists involved in the disaster management operations. It was tested for the Reading difficult index which was found to be 12.30, thereby indicating the readability of the matter in the module as easy for College level students as per classification given by Gunning (1952). The findings indicated that the overall mean scores as assigned by the experts from the field of Communication Management as well as Nutrition for the content of the module were 4.62, for presentation of module was 4.60 and for module applicability was 4.86 which indicated that the experts had strong agreement that given parameters of the module was appropriate for its learners. The suitability of the module was also tested for the above parameters by the students of nutrition who assigned the mean scores of 4.5, 4.6 and 4.8 for the content of the module, presentation of the module and module applicability, respectively.

The reading difficulty index of the module was in accordance with the educational qualification of its users. The appropriateness test of the module reflected that its content, presentation and applicability were highly appropriate. The training module will complement and

expand the existing knowledge of the professionals engaged in disaster management, nutritional assistance and policy-programs. This suggested that the manual could be forwarded to State Disaster Management Authority (SDMA) of identified disaster prone states covered in the module, so that they could review it and use for their food program interventions during emergency.

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