

Validating developmental modeling for interactions in a supplementary feeding program

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Introduction

The data collected from studies to develop a “human supplementary feeding program utilizing mechanically separated turkey” for nutritionally depressed areas of the world, was used to develop models to best describe the needs of individuals in three geographic regions. From this data a model was developed that included different variables of the survey conducted on the people who considered this type of supplementation as being important. In each area the responses were asked to rank the following factors in order of importance; nutrition, palatability, texture, tenderness, flavor, and cost. On a separate evaluation form they were also asked to score each factor (1-9 scale) depending on how important they considered that individual factor. The individuals respondents were categorized as medical patients, pregnant mothers and medical personnel.

Procedures

The first country utilized was India since there would be no language barrier or need for interpreters, access was available and this would give the interviewer experience on a reduced scale of how the program was progressing. Puna hospital was selected which services over 1,000 patients, and access was given to over 100 medics and nurses. The pregnant mothers was also unlimited. Selection of respondents was aided by using random table numbers from 1 through 3 and utilizing the Nth (according to the random table) person in the group.

The second country that was selected was a Tibet refugee camp located just across the boarder in Nepal. The medical personal were military paramedics whose principle job was to care for patients in transport to the hospital. Here a translator was used when needed; however, most of the people spoke Hindi which the interviewer could speak. In this camp there were 50+ paramedics and approximately ~150 patients and thousands of pregnant mothers. The Same system for selection was used as described for India.

The third area that was selected was the “out back” of Australia. A translator was needed here. In Alice Springs there were 6 flying doctors, and 100+ nurses and medical personal and approximately 3 to 4 thousand patients. Since here it is customary for family members and friends to accompany patients with medical problems, there was a vast number of the pregnant mothers. Selection for respondents was carried out as described for India.

Results

The respondents for each country were divided into medical personal, patients, and pregnant mothers. Factors evaluated were nutrition, palatability, texture, tenderness, flavor, and cost. The respondents were asked on two separate questioners: 1) to rank the factors in order of importance and 2) to rate on a 1-9 scale the importance of each factor. Respondents were selected and 376 individuals participated. Forms incompletely filled out or when instructions were not followed were discarded and not included in the count or statistically evaluated. The results of the surveys are shown in Table 1 and 2.

In all cases there was a significant three way interaction between “country*respondent*factors evaluated” which suggest that every country, medical personal/ patients/pregnant mothers would have a different response on the desirability of traits and when developing a product all three of these combinations should be considered. However in all but one cases “cost” and “nutrition” were considered the two most important categories. In general palatability, texture, tenderness, and flavor were ranked considerably lower and importance here varied between countries, respondents, and factors evaluated. Correlations between the two types of evaluations by the same respondents were usually significant between many of the categories evaluated as would be expected. The developmental model was validated using data from the two types of surveys.

Table 1. Ranka of each category for all data (three way interaction Country*Respondent*Type was significant)

	India			Tibet			“Outback” Australia		
	Medical Personal	Patients	Pregnant Mothers	Medical Personal	Patients	Pregnant Mothers	Medical Personal	Patients	Pregnant Mothers
Number of Observations	7	32	42	8	42	55	28	57	105
Nutrition	1.3±0.49	1.3±0.46	1.8±0.43	1.7±0.46	1.8±0.38	1.9±0.26	1.8±0.36	1.9±0.28	2.9±0.81
Palatability	3.5±0.79	5.0±0.54	4.2±0.52	3.1±0.35	3.2±0.42	3.8±0.64	4.0±0.79	3.6±0.59	2.2±0.64
Texture	4.3±0.95	5.6±0.61	5.2±0.66	5.8±0.46	4.4±0.94	5.0±0.98	5.1±0.88	5.6±0.60	5.7±0.60
Tenderness	5.3±1.25	4.3±0.69	5.6±0.70	4.8±0.89	5.6±0.48	5.7±0.47	5.2±0.72	4.9±1.08	5.0±0.75
Flavor	4.4±1.40	2.8±0.55	3.0±0.22	4.4±0.74	4.7±0.86	3.4±0.57	3.8±1.24	3.9±0.87	4.1±0.77
Cost	2.1±1.35	1.9±0.62	1.2±0.43	1.2±0.46	1.2±0.38	1.1±0.26	1.1±0.36	1.1±0.29	1.1±0.38

^a Average ± SD of rank of items based on 1 = most important and 6= least important, all numbers from 1 to 6 must to be used on the column of the respondent score sheet.

Table 2. Rating^a for each category for all data (three way interaction - Country*Respondent*Type was significant)

	India			Tibet			“Outback” Australia		
	Medical Personal	Patients	Pregnant Mothers	Medical Personal	Patients	Pregnant Mothers	Medical Personal	Patients	Pregnant Mothers
Number of Observations	7	32	42	8	42	55	28	57	105
Nutrition	8.1±1.21	8.0±1.06	7.1±1.10	7.4±1.06	7.1±0.86	6.9±0.70	7.0±0.79	6.8±0.80	5.5±1.65
Palatability	5.1±1.07	4.6±0.71	4.5±0.59	5.9±0.64	5.5±0.94	4.9±0.78	5.0±0.98	5.3±1.16	7.0±1.03
Texture	4.1±0.90	4.6±0.61	3.8±1.09	2.2±1.03	3.7±1.31	3.1±1.35	2.8±1.09	2.3±0.95	2.3±1.05
Tenderness	4.7±1.11	4.0±0.50	4.5±0.67	4.5±0.76	4.4±0.55	4.5±0.60	4.6±0.73	4.9±0.96	4.8±0.72
Flavor	5.0±1.41	6.3±1.02	6.2±0.75	4.5±0.76	4.7±0.75	4.4±1.15	5.6±1.02	5.2±1.11	4.8±0.93
Cost	7.4±1.62	7.7±0.99	8.5±0.67	8.1±0.83	8.5±0.67	9.6±0.63	8.6±0.63	8.5±0.71	4.8±0.64

^a Average ± SD of items based on how important each category is considered by the respondent: 9 = extremely important and 1= extremely not important. (numbers may be repeated in a column, all numbers do not have to be used).