

# IMPACT OF NUTRITION EDUCATION ON THE IMPORTANCE OF BREAKFAST CONSUMPTION AMONG YOUNG ADULTS

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**Abstract:** Meal patterns have received less attention because studies rarely collect data on time of consumption. Food consumed in the morning may be more satiating and this may provide a plausible mechanism for effects of breakfast on body weight. Most of the young adults skip meals including breakfast which can therefore lead to malnutrition, if they are not educated properly on the importance of adequate food and nutrients intake. Therefore, the study was aimed with the objective to improve the Knowledge, Attitude and Practice (KAP) of the young adults on breakfast consumption. Nutrition education is “any combination of educational strategies designed to facilitate voluntary adoption of food choices and other food and nutrition related behaviors conducive to health and well-being; it is delivered through multiple venues and involves activities at the individual, community, and policy levels. A total of 50 young adults were selected as samples from Coimbatore, India. They were given nutrition education on food groups, nutritional requirements of adolescents and young adults, health benefits of breakfast consumption and adverse effects of skipping breakfast. The impact of nutrition education on the young adults was evaluated using the scores obtained with KAP questionnaire. The results showed a significant impact on KAP of young adult students on breakfast consumption.

**Index Terms – nutrition education, breakfast, young adults, adolescents, KAP test**

## I. INTRODUCTION

The transition from adolescence to young adulthood constitutes a stage of exceptional nutritional research interest, since university students for the first time of their lives, often move away from the family home and as independent adults take the full responsibility for their eating habits (Hilger *et al* 2017 and Porto-Arias *et al* 2017). However, it is reported that young adults do not have the appropriate nutritional knowledge and experience in order to make healthy food choices (Ansari *et al* 2015). Students also face emotional challenges and socioeconomic concerns (Hamad, 2017). One of the main goals of universities is to broaden the knowledge of the people in a society; the enhancement of the nutrition attitudes, knowledge and practices of its students is of high importance, as this will subsequently lead to a more food conscious society and healthy people (Amamoto *et al* 2004).

Nutrition education can be described as a process by which belief, attitudes, environmental influences and understandings about food lead to practices that are scientifically sound, practical and consistent with individual needs and available food sources (Suryatapa Das, 2016). Nutrition education is widely used for a range of population groups as a medium to deliver healthy diet and nutrition information; however, this type of intervention is still rarely implemented for college students. Nutrition education programmes with college students must use an intervention that maximizes self-efficacy and ultimately reduce barriers to adopting a healthy lifestyle.

According to Cart Wright's theory, there is a need to change three structures in a person's mind in order to change their behaviour. These three factors are similar to the three parts of a Knowledge, Attitude and Practice (KAP) survey.

1. Cognitive structure (knowledge, information)
2. Motivational structure (attitude & beliefs)
3. Action structure (practices)

A Knowledge, Attitude and Practices (KAP) survey is a quantitative method (predefined questions formatted in standardized questionnaires) that provides access to quantitative and qualitative information. KAP surveys reveal misconceptions or misunderstandings that may represent obstacles to the activities that the investigator would like to implement and potential barriers to behavior change.

Knowledge is the capacity to acquire, retain and use information; a mixture of comprehension, experience, discernment and skill. Attitude refers to inclinations to react in a certain way to certain situation; to see and interpret events according to certain predispositions; or to organize opinions into coherent and interrelated structure. By Practice one could apply the rules and knowledge that leads to action. Good practice is an art that is linked to the progress of knowledge and technology and is executed in an ethical manner (Lbrahim, 1995).

Experiences from many programmes showed that adoption of new behavior or modification of the existing behavior needs much input like knowledge, awareness of the matter, attitude, and perception. (Wardle *et al.* 2000). Knowledge can however, influence health-related behaviours when mediated by attitudes, belief, self-efficacy, and an effective call to action (Green *et al.* 1999). Therefore the objective of the present study was to assess the impact of nutrition education on importance of breakfast consumption of young adults through KAP test.

## II. RESEARCH METHODOLOGY

### 2.1 Selection of subjects

Using cross section multistage stratified random sampling, a mixture of 50 young adults pursuing second and third year undergraduate programme from four colleges located at Coimbatore district, Tamil Nadu, Indi were selected as subjects for the conduct of the study.

### 2.2 Drafting of Knowledge, Attitude and Practices (KAP) test questionnaire

A questionnaire was framed with three sections to ascertain the Knowledge, Attitude and Practice (KAP) on healthy eating pattern for the selected subjects. Each section carried 15 questions. The first section consisted questions which measured the amount of the subject's knowledge about food groups and nutrients. The second part posed questions about the subject's attitudes towards nutrition and related diseases. The third part posed questions about choosing foods. To prevent the ambiguity of the KAP test questionnaire, it was subjected to pilot study with 15 adolescents and corrections were made.

#### 2.2.1 Scoring of KAP test questionnaire

All questions in the questionnaire were assigned scores as given in Table 1.

Table 1 Scores of KAP test questionnaire

Scores	Knowledge	Attitude	Practice	KAP
	1 = correct answer 0 = wrong answer	5 = Strongly agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree	1=Yes 0=No	Knowledge score + Attitude score + Practice score

In the knowledge section, 1 score was given for right and 0 for wrong answer. A respondent could score a maximum of 15 and minimum of 0. For questions in attitude, a score of 1 was given to 'strongly disagree', a score of 2 was given to 'disagree and a score of 3 was assigned to 'neutral', a score of 4 was assigned to 'agree' whereas a score of 5 was assigned to 'strongly agree', from which a respondent could score a maximum of 75 and a minimum of 15 in the attitude section. For questions in practices, a respondent obtained score 1 for 'yes' and 0 score for 'No', so that a respondent could score a maximum of 15 and a minimum of 0 in the practice section. The higher the score indicates the better respondent's nutrition-related knowledge, attitude, and practices.

### 2.3 Conduct of nutrition education and pre and post KAP Test

Subjects were explained about the questionnaire before being answered. Power point slides were prepared and used for imparting nutrition education. Education about food groups, nutritional requirements of adolescents and young adults, health benefits of breakfast consumption, adverse effects of skipping breakfast were imparted to them. Before starting of the nutrition education programme, questionnaire was administered to assess the initial nutritional knowledge and the same was used to test the final knowledge at end of the education period (immediately and after month). The difference between the initial and final scores was assessed to find the impact of nutrition education.

### 2.4 Statistical analysis

Statistical Package for Social Sciences (SPSS) version 16 was used for the data analysis. Paired t-test was used to find the significant difference between the pre and post KAP test scores. The level of significance was maintained at one percent level and five percent level

## III. RESULTS AND DISCUSSION

### 3.1 Nutritional Knowledge of the subjects

Nutritional knowledge of the subjects was assessed using the KAP questionnaire before and after nutrition education and presented in Table 2.

Table 2 Nutritional Knowledge of the selected participants

Knowledge on	Knowledge scores			BE Vs AE	AE Vs AM	BE Vs AM
	Before education	After education	After one month			
Balanced diet and nutrients	19 (38)	42 (84)	41 (82)	-16.14*	2.41**	-13.22*
Importance of Breakfast	20 (40)	42 (84)	41 (82)	-10.67*	1.63 <sup>NS</sup>	-9.80*
Awareness on millets	20 (40)	45 (90)	44 (88)	-7.00*	0 <sup>NS</sup>	-6.27*
Average	20 (40)	43 (86)	42 (84)	-	-	-

BE – Before education, AE – After education, AM – After one month of education

\*Significant at 1% level, \*\*Significant at 5% level, <sup>NS</sup> Not significant

It is evident from the table 2 that on an average 40 percent of the population had knowledge on balanced diet, nutrients, importance of breakfast and millets. This is similar to the study conducted by Azizi *et al* (2011) who stated that only 40 percent of the population agrees with the necessity of eating breakfast. After nutrition education, majority of the respondents (84 per cent) gained knowledge on nutrients and the impact of breakfast skipping. Almost 90 percent of the population understood that millets are good for health. After one month, test was conducted to check the knowledge retention among the same participants and the results indicated that almost 88 percent of them were still aware of millets and its importance. 82 percent of them gained appropriate knowledge on effects of breakfast skipping and importance of food groups and RDA.

### 3.2 Nutritional attitude of the subjects

Nutritional attitude of the subjects were assessed using the KAP questionnaire before and after nutrition education and presented in Table 3.

Table 3 Nutritional attitude of the subjects

Attitude towards		Nutrients	Sources of nutrients	Breakfast	Healthy foods	Average
Before education	No. (%)					
	Positive	12 (24)	15 (30)	15 (30)	18 (36)	15 (30)
	Neutral	15 (30)	13 (26)	12 (24)	13 (26)	14 (28)
	Negative	23 (46)	22 (44)	23 (46)	19 (38)	21 (42)
After education	No. (%)					
	Positive	40 (80)	38 (76)	48 (96)	41 (82)	42 (84)
	Neutral	2 (4)	6 (12)	2 (4)	5 (10)	4 (8)
	Negative	8 (16)	6 (12)	0 (0)	4 (8)	4 (8)
After one month	No. (%)					
	Positive	41 (82)	40 (80)	47 (94)	43 (86)	42 (84)
	Neutral	6 (12)	5 (10)	2 (4)	3 (6)	4 (8)
	Negative	3 (6)	5 (10)	1 (2)	4 (8)	4 (8)

Table 3 shows that the results of attitude of the participants towards nutritional information before and after nutrition education. It was observed that 46 percent of them had negative attitude towards function of the nutrients and importance of breakfast. Participants were in the attitude that skipping breakfast helps in weight reduction and it does not have any impact on academic performance. 24 per cent of them had no idea about the effect of breakfast on nutritional status or academic benefits they remained neutral. Almost equal percentage of positive and negative attitude (36 and 38) was recorded for attitude towards healthy foods among the participants. This finding indicates that most of the students (86 percent) were aware that unhealthy diet is a risk factor for various diseases after the nutrition education programme. 30 percent of the study population were not aware of food sources of nutrients and importance of breakfast prior to education but after education majority of them, 76 and 96 percent respectively changed their attitude towards sources and importance of breakfast. Although there is a deviation in the categories, overall scores indicated that 84 percent of the participants changed their attitude towards nutritional facts both immediately after education and post one month. In general, there is a major shift from negative and neutral attitude to Positive attitude among the participants which indicates the changeability of attitude after education.

### 3.3 Nutritional information practiced by the selected participants

Nutritional information practiced by the subjects were assessed using the KAP questionnaire before and after nutrition education and presented in Table 4

Table 4 Nutritional information practiced by the subjects

Practices followed by the subjects	Before education		After education		After one month	
	No.	(%)	No.	(%)	No.	(%)
Food guide gives us a picture on selection of food	18	36	39	78	39	78
Balanced diet provides all the nutrient required for a day	10	20	35	70	33	66
Awareness on RDA	11	22	48	96	48	96
Millets should be included in daily diet	21	42	45	90	48	96
Millets are healthy food	20	40	48	96	47	94
Consume milk everyday	32	64	46	92	48	96
Vegetables are included in daily diet	29	58	38	76	36	72
Consumption of pulses regularly	31	62	49	98	48	96
Include fruits in daily diet	12	24	28	56	30	60
Consume 6-8 glasses of water daily	19	38	37	74	39	78
Take three meals per day	30	60	45	90	46	92
Consume breakfast regularly	12	24	48	96	48	96
Breakfast skipping leads to poor academic performance	14	28	44	88	46	92

Fast food consumption is the best food practice (Response - No)	16	32	47	94	46	92
Consume healthy foods daily	28	56	42	84	44	88
<b>t value</b>	BE Vs AE	-9.8*	AE Vs AM-	1.1 <sup>NS</sup>	BE Vs AM-	-10.1*

BE –Before education, AE – After education, AM – After one month of education

\*Significant at 1% level, \*\*Significant at 5% level, <sup>NS</sup> Not significant

Table 3 illustrates the mean scores obtained for dietary practices followed by the subjects at pre and post phase of the nutrition programme. It is clear that only 42 percent included millet in their diet and thought it’s a healthy food but at post test, 90 – 96 percent accepted the benefits of millets and assured to practice to include millets in their diet. Only 64 percent consumed milk every day. Phyu *et al* (2012) stated that although majority of the study population had the habit of taking milk, only small percentage of them drink milk every day which is similar to the present study. Inclusion of fruits and vegetables in the daily diet was less (24 and 58 per cent) among the participants. Azizi *et al* (2012) also found similar result that both fruits and vegetables were not adequately consumed by the respondents. Hence importance of fruits and vegetables in daily diet was widely emphasized. Phyu *et al* (2012) recorded it is quite surprise to find that 32.4% (18.2 + 14.2%) of respondents believed that “adolescents should take fruits and vegetables only to prevent from being obese” and 24.6% of the respondents remained neutral for the statement. In post session, attributes of fruits and vegetables consumption was well accepted by 76 percent of the participants.

Almost 60 per cent of the population stated they take three meals per day and only one fourth of the population took breakfast regularly which is consistent with the findings of Rafia *et al* (2013) who reported that only 28 per cent of the students took breakfast regularly. This shows that participants in this research pay little attention to breakfast compared to Wong *et al* (1999) reporting 80 percent of population had breakfast regularly. 38 percent of the population who took 6-8 glasses of water prior to education was increased to 74 – 78 percent after education. Almost 84 – 94 per cent of the participants was aware of healthy foods and started practicing consumption of healthy foods after the education programme and they followed the practice even after a month.

**3.4 Knowledge, Attitude and Practice of nutrition among the subjects**

KAP scores obtained by the subjects before and after nutrition education followed by one month after education was assessed and presented in Table 5, 6 and Fig. 1 and 2.

Table 5 KAP Scores of the selected participants

Criteria	KAP scores		
	Before education	After education	After one month
Knowledge	20 (40)	36 (72)	35 (70)
Attitude	15 (30)	42 (84)	42 (84)
Practice	24 (48)	43 (86)	43 (86)

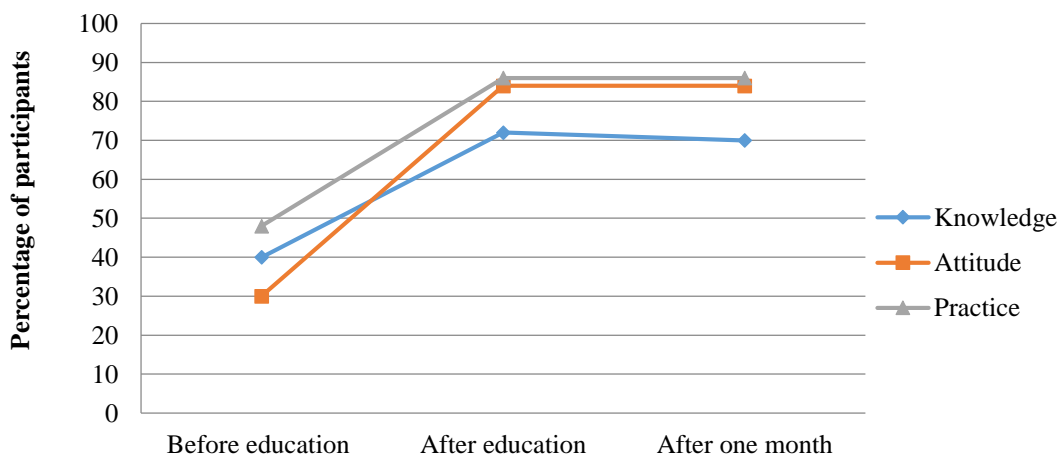


Figure 1  
KAP Scores of the subjects

Table 6 KAP score obtained by subjects

Criteria	KAP score obtained by selected participants		
	Before education	After education	After one month
Knowledge	20 (40)	36 (72)	35 (70)
Attitude	15 (30)	42 (84)	42 (84)
Practice	24 (48)	43 (86)	43 (86)

<b>Knowledge</b>	5.18 ± 1.39	10.86 ± 2.92	10.46 ± 2.86
<b>Attitude</b>	4.56 ± 0.39	12.78 ± 1.09	13.06 ± 1.19
<b>Practice</b>	7.08 ± 2.12	12.84 ± 0.99	12.54 ± 1.32

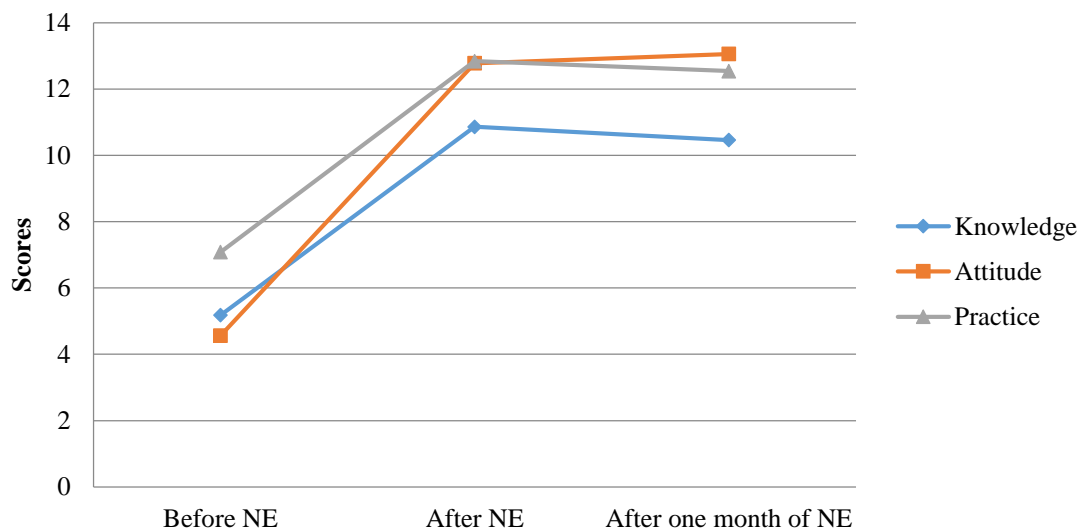


Figure 2  
KAP score obtained by subjects

It is evident from the Table 4 and 5 that imparting knowledge on nutritional facts improved the participant's knowledge and attitude towards nutrition concepts. Further, post test conducted after one month showed retention of knowledge, change in attitude and practices followed in daily diet which confirmed the impact of nutrition education programme. Sharma *et al* (2008) also reported that nutritional knowledge is significantly related to dietary habits (including consumption of green, red and yellow vegetables, fruits and avoiding fried foods). The findings of these studies showed that educational interference leads to an increase in nutrition knowledge and the enhancement of people's attitudes.

#### IV. CONCLUSION

This study concludes that nutrition education showed a significant impact on KAP of adolescent and young adult students. This would imbibe the knowledge on healthy diet pattern thereby increasing their attitude towards the importance of breakfast in their day to day life and also help them to practice to include nutritious foods in the daily diet.

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