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Knowledge, Attitude, Practice of School Going Children Regarding Phytochemical Intake

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ABSTRACT

This study deals about phytochemicals consumption by school going children. 300 school children aged 8- 14 years through purposive sampling method were studied. Twenty four hour recall was taken to collect information regarding dietary phytochemical intake according to the serving of fruits and vegetables consumed per week. Knowledge-Attitude-Practice assessment was done through multiple-choice questionnaire. Statistical Analysis has been done for data analysis and making inferences. Results showed that children 120, 100 and 80 children found taking low, moderate and high phytochemical consumption status. Their energy, protein, iron intake found increasing with increase in phytochemical intake. Similarly, good knowledge level was found in 30.83%, 21 % and 27.5 %, good attitude among 25%, 35 % and 10% children, and good practices found among 16.6%, 24 % and 17.4%, respectively of low, moderate and high phyto-intake groups. So, a significant association between phyto-intake and Knowledge-Attitude-Practice and nutritient intake has been indicated from the results.

KEYWORDS : Knowledge –Attitude –Practice, Phytochemical Intake

1. Introduction

"Phytochemicals are natural compounds found in fruits and vegetables. Each type of fruit or vegetable may contain hundreds of phytochemicals. They are not vitamins, proteins, carbohydrates, fats or minerals. Phytochemicals, are non-nutritive plant chemicals that have either defensive or disease protective properties. Dietary intake of phytochemicals may promote health benefits, protecting against chronic degenerative disorders, such as cancer, cardiovascular and neurodegenerative diseases. Majority of foods, such as whole grains, beans, fruits, vegetables and herbs contain phytochemicals. Phytochemicals with nutraceutical properties present in food are of enormous significance due to their beneficial effects on human health since they offer protection against numerous diseases or disorders such as cancers, coronary heart disease, diabetes, high blood pressure, inflammation, microbial, viral and parasitic infections, psychotic diseases, spasmodic conditions, ulcers, osteoporosis and associated disorders.

Epidemiological studies provide convincing evidence that diet rich in antioxidants is associated with a lower incidence of degenerative diseases [2]. Free radicals which are often called as bad molecules are body's own molecules that attack the genetic material in our cells. Free radicals can adversely alter lipids, proteins and DNA and have been implicated in aging and a number of human diseases. [3] They cause what is known as "oxidative stresses, increased risk of cancer, heart disease and other illness. Phytochemicals acts as antioxidatns and stabilizes these free radicals by donating an electron to them. [4]. Researches show that phytochemicals play important role in enhancing the health and nutritional status of children. [8, 14, 15]

The study has been aimed to found out phytochemicals consumption by school going children and to assess its effect on the variables like nutrient intake and nutrition Knowledge Attitude Practice of children.

2. Methodology

The Sample: The study was preceded with the selection 300 school children aged 8- 14 years through purposive sampling method from The Shree Krishna Public school, Tilak nagar, Indore (MP). Consent has been taken on paper from their parents in this regard.

Data collection: A pre-tested and pre-designed performa was used to collect the information regarding socio- cultural background, family history regarding diseases and dietary characteristics. Twenty four hour recall was taken to collect information regarding dietary intake and food habits.

Diet Survey: Twenty four hour recall was taken with the help of a format in which the meal and meal timings were mentioned. The phytochemical intake of subjects was assessed by using a food frequency questionnaire. In which names of all the fruits and vegetables available in local markets in different seasons were mentioned**.** The quantities consumed by the subjects were entered carefully on the sheet. Phytochemical intake of the subjects was computed by counting the number of serving of fruits and vegetables per week. A maximum of 80 servings per week kept as standard as per ICMR recommendations The subjects who had servings >30/week were considered as low intake group, subjects who had 31-50 servings/week were considered as moderate intake group and the ones with 51-80 servings/week were considered as high intake group

Knowledge-Attitude-Practice (KAP) assessment was done by using a multiple-choice questionnaire, specially designed for the subjects containing 10 questions in each category based on different aspects of phytochemical nutrition. Each item was scored as 1 for a correct response and 0 for an incorrect response.

Statistical Analysis: Mean, Standard Deviation, frequency distribution, percentages and ANOVA were and Chi test have been used for data analysis and making inferences using computer software.

3. Results:

Eating more fruits and vegetables help children to maintain a healthy weight, feel better and have more energy. Vegetables and fruits provide phytochemicals and considerable health significance to the human body. These special factors are required for delaying ageing and preventing the processes which leads to diseases such as cataract, cardio-vascular diseases, diabetes and cancer**.** Keeping these facts in mind in present study the nutrient intake and knowledge, attitude ,practices of children has been studied

Table -1
Phytochemical intake status of school going children

Value	Phytochemical Intake Status			F Value
	Low (n=120)	Mod. (n=100)	High (n=80)	
Mean	21.52	41.49	58.57	10.22*
SD	6.68	5.71	4.04	

***Significance at 5 % level**

From the above table it is clear that the obtained mean values of the fruits and vegetables servings/week consumed by the children adjudged as low, moderate and high phyto-taking groups were respectively found to be 21.52±6.68, 41.49±5.71 servings and 58.57±4.04 serving's scores out of recommended 80 servings weekly. .

Table -2
Nutrient intake of school going children in relation to their phytochemical intake

Nutrient	Phytochemical Intake Status			F Value
	Low (n=120)	Mod. (n=100)	High (n=80)	
Energy (kcal)	2180±220.84	2247.25±196.82	2300.7±202.31	8.31*
Protein (gm)	55.01±7.27	61.22±5.93	66.38±6.13	74.46*
Fats (gm)	22.73±2.32	22.55±1.84	26.8±3.11	87.09*
Iron (mg)	29.78±7.88	34.57±7.79	33.35±7.43	29.34*
Calcium (mg)	504.16±105.43	660.78±119.53	622.50±67.45	70.73*

***Significance at 5 % level**

The above table shows that the obtained F value for the difference in mean values of the nutrient intake of the children taking high, moderate and low levels of phytochemical foods were significant. Energy, Protein, iron intake found increasing with increase in phytochemical intake. Moreover fat and calcium intakes of low, moderate and high phytochemical groups were found to have negligible difference.

Table No.-4
Distribution of School Going Children According to their Knowledge of Food and Nutrition and Phytochemical Intake Status (Percentage and Chi Value)

Indices	Scores	Phytochemical Intake Status			Chi Value
		Low (n=120)	Mod. (n=100)	High (n=80)	
Knowledge	Good	30.83	21	27.5	14.4*
	Fair	42.5	49	62.5	
	Poor	26.66	30	10	
Attitude	Good	25	35	10	27.7*
	Fair	41.66	45	72.5	
	Poor	33.33	20	17.5	
Practice	Good	16.66	24	17.4	59*
	Fair	33.33	64	72.5	
	Poor	50	12	10	

***Significant at 1 % level**

According to above table Good knowledge level was found to be 30.83%, 21 % and 27.5 % respectively, fair knowledge among 42.5%, 49% and 62.5% and poor knowledge among 26.6%, 30% and 10% respectively in low, moderate and high phyto-group. However, Good attitude for nutritional management was observed among 25%, 35 % and 10% children, fair among 41.6%, 45%, and 72.5% children and poor attitude occurred in 33.33%, 20% and 17.5% respectively of low to high phyto-intake groups. The practices of children regarding nutrition was found good among 16.6%, 24 % and 17.4%, fair in 33.3%, 64%, and 72.5% children and poor among 50%, 12% and 10% children respectively of low, moderate and high phyto-intake groups.

4. Discussion:

Results of the present study clearly indicates that children are not talking phytochemical rich food like fruits and vegetables. Out of 300 children only 80 found taking high phytochemicals while 120 found taking these pro-health foods in low amounts. Similarly their nutrient intakes are also found significantly and reciprocally associated with the amount of phytochemical foods. Furthermore the knowledge, attitude and practices of children towards food and nutrition have also found affecting the fruits and vegetable intakes and the overall nutrition.

A nutritionally adequate diet is essential for optimal growth and development. Childhood and adolescence are periods of continuous growth and development. For the school going children a healthy diet containing all the food groups in required amounts is essential for optimum body composition, BMI and to reduce the risk of diet-related chronic diseases in later life and prevent vitamin deficiency.

Diets high in fruits, vegetables and legumes could decrease the risk of obesity, diabetes, cardiovascular diseases and some cancers [9]. In Australia most children eat less than the recommended amounts of fruit and vegetables. [10]. Eating a variety of vegetables and fruit ensures an adequate intake of most micronutrients, dietary fibre, phytochemicals and also displaces foods high in saturated fats, salt and sugar. [1, 12]. The quantity, consistency and variety of vegetables and fruits for baby are quickly graded up with growth and development. Increased fruit and vegetable consumption is promoted for all Australian children**.** [5, 11]

Therefore fruit and vegetable promotions need to be aimed at reaching children, specifically those from low socio economic families and boys, as they have been identified as consuming the least. Promoting increased availability of fruit and vegetables within schools can have a positive effect on children's food choices [6, 16]

Research has shown the positive increase in vegetable consumption amongst children when parents provide vegetables and increase their own intake [9]. Bere E. et al., (2005) reported the effect of the Fruits and Vegetables Make the Marks intervention, during the school year of 2001–02. The intervention programme was rated as very good by the teachers, and the pupils reported that they enjoyed it. The intervention failed to change fruit and vegetable intake, probably because it did not succeed in changing the pupils' preferences for or the accessibility of fruit and vegetables—the two strongest correlates of children's fruit and vegetable intake.

However the result of the present study reveals significant association between phyto-intake and Knowledge Attitude Practice of school children and it is indicated that high phyto intake children are having good nutrition practices than the low intake subjects. The proper nutrition in childhood reinforces lifelong eating habits that contribute to children's overall well being and help them to grow up to their full potential and lead a healthy life. By educating children about healthy eating habits could help the children to take proper nutrition and maintain a healthy lifestyle when they are adults.

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