



# Knowledge and Attitude Regarding Rainbow Nutrition among Mothers in the Selected Urban Pocket

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## Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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## ABSTRACT

**Introduction:** Good nutrition is highly crucial for the Children's development-mentally and physically. According to the Dietary Guidelines for Americans (DGAs), fruit and vegetable consumption focuses on health promotion, illness risk reduction, and chronic disease prevention. To gather all of the nutrients our bodies need, different colored fruits and vegetables must be consumed daily. Eat the Rainbow nutrition is about eating many fruits and vegetables of many different color every day, which offer different nutrients to the body.

**Objective:** To assess the knowledge and attitude regarding rainbow nutrition among mothers and associate the knowledge and attitude score regarding rainbow nutrition among mothers with their selected demographic variables.

**Methods:** The research design used for the proposed study was descriptive research design and the sampling technique used nonprobability convenient sampling technique. The population in this study is 14 years of child's mothers who are living in urban area of wardha district.

**Results:** The study result is 22% of mothers were having poor knowledge regarding rainbow nutrition, while 27 (54%) mothers had satisfactory knowledge and 20% subjects had had good and

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4% excellent knowledge regarding rainbow nutrition and 74% of mothers were having unfavourable attitude (<50), 13 (26%) were having moderately favourable (51-75%) attitude and none of the mothers having favourable attitude (>75%) towards rainbow nutrition.

**Conclusion:** After finding all results it was concluded that there is a need to improve the knowledge and develop a favourable attitude of mothers towards rainbow nutrition. The study result is 22% of mothers were having poor knowledge regarding rainbow nutrition, while 27 (54%) mothers had satisfactory knowledge and 20% subjects had had good and 4% excellent knowledge regarding rainbow nutrition.

*Keywords: Rainbow nutrition; Dietary Guidelines for Americans (DGAs); vegetables.*

## 1. INTRODUCTION

Proper nutrition is one of the most important aspects of staying healthy and living a long life. People deal with food daily, and food has been a component of life since the dawn of civilization [1]. What we consume forms our diet, and our diet has a significant impact on how healthy we are and how effectively our bodies perform. Children's growth and development are influenced by their diet [2]. Insufficient nutrition can result in malnutrition, delayed growth, diminished capacity for labor and poor mental and social development. While the discussion remains on the inclusion of meat, dairy, grains and vegetables in a balanced diet, the scientific community seems to be little dispute regarding fruit and vegetables being good for the health of the individual [3].

Eating plant-based meals is a component of many different dietary patterns. Nutrition is essential for the mental and physical development of children [4]. Fruit and vegetable consumption is supposed to focus on health promotion, illness risk reduction, and chronic disease prevention, according to the Dietary Guidelines for Americans (DGAs) [5]. Different colored fruits and vegetables must be included in the diet every day to acquire all of the nutrients our bodies require. "Eat the Rainbow" is a teaching program developed for children to urge them to include fruits and vegetables in their daily diets to acquire all of the nutrients their bodies require [6].

Good nutrition means getting the right amount of nutrients from healthy food in the right combinations. Proper nutrition helps in developing and maintaining good health, cause being healthy not only makes us feel great, but also enable us to enjoy life to our fullest potential and follow our dreams [7].

People need various quantities of fruits and vegetables, according to age, gender and daily physical activity. Most people need to increase the number of fruits and vegetables they eat daily to reach their daily target [5]. The usual recommended for fruit and vegetable consumption is at least 400 grams per person per day (five servings of 80 g per day), or around 146 kg per person per year. Similarly, national nutrition standards prescribe 300 g of vegetables (portion size= 100 gm; number of portions=3) and 100 g of fruits (portion size= 100 gm; number of portions=1) per day. Green leafy vegetables (50 gm), other vegetables (200 gm), and roots and tubers (50 gm) are among the veggies. Although whole fruit is suggested for its fiber content in conjunction with an active lifestyle, a glass of fruit juice (excluding sweetened drinks) counts towards a daily amount of fruit. All product forms count – fresh, frozen, canned, dried and 100% juice. Whole fruits, on the other hand, often contain more fiber than juice. New health advantages connected with fruits and vegetables are being reported by scientists regularly. Consuming more fruits and vegetables is a worthy aim. Eating a variety of various colored fruits and vegetables every day is a novel approach to achieving the objective. The advice to "eat the rainbow" is often used with kids [8].

Studying mother's knowledge and attitudes on rainbow nutrition in a selected urban area that has a key role in promoting a healthy lifestyle among children. Healthy nutrition and frequent physical activity, according to school health recommendations, have a significant influence in avoiding chronic illnesses. Children's eating habits are influenced by a variety of factors, including demographic, personal, and environmental influences [9]. Therefore, it is important to educate children and inculcate healthy eating habits in them as early as elementary school.

## 2. MATERIALS AND METHODS

### 2.1 Study Setting and Design

We conducted a descriptive research study in the Wardha Districts of Maharashtra.

### 2.2 Sample Size and Sampling Technique

This research aims to assess the knowledge and attitude regarding rainbow nutrition among mothers in the city of Wardha. A total number of 50 mothers were taken inside this study. The study uses a non-probability convenient sampling technique.

### 2.3 Statistical Analysis

The data was entered into the MS-Excel 2019 software and the Social Sciences Statistical Package (SPSS, version 23) was used for data analysis. The statistical tests used for the

analysis of the result were Students unpaired t test, one-way ANOVA was used.

### 2.4 Sample size

A total number of 50 mother were recruited for this research. The study uses a non-probability convenient sampling technique.

### 2.5 Criteria for Selection of Samples

#### 2.5.1 Inclusive criteria

1. Mothers who are able to speak as well as write Marathi
2. Mothers who are available during data collection period
3. Mothers whose children were aged 14years and below

#### 2.5.2 Exclusive criteria

1. Mothers who are not willing to participate in the study.

## 3. RESULTS

### Demographic Variables of Mothers in Selected Urban Pocket.

Table 1. Frequency and percentage distribution of mothers in selected urban pocket n=50

Demographic variables	Frequency (n)	Percentage (%)
<b>Age in years</b>		
< 21 years	10	20
21-25 years	30	60
26-30 years	09	18
>30 years	01	02
<b>Number of children</b>		
1	37	74
2	11	22
3	02	04
>3	00	00
<b>Education</b>		
Up to primary education	10	20%
Up to secondary education	27	54%
Up to higher secondary education	10	20%
Graduate and above	03	06%
<b>Monthly income of family</b>		
< 10000 pm	09	18
10001 to 15000 pm	23	46
15001 to 20000 pm	17	34
>20000 pm	01	02
<b>Occupation of mother</b>		
House occupied	25	50
Self-employed	19	38
Salaried- government	05	10
Salaried- private	01	02

**Assessment of Knowledge of Mothers towards Rainbow Nutrition.**

**Table 2. Distribution of mothers towards rainbow nutrition n=50**

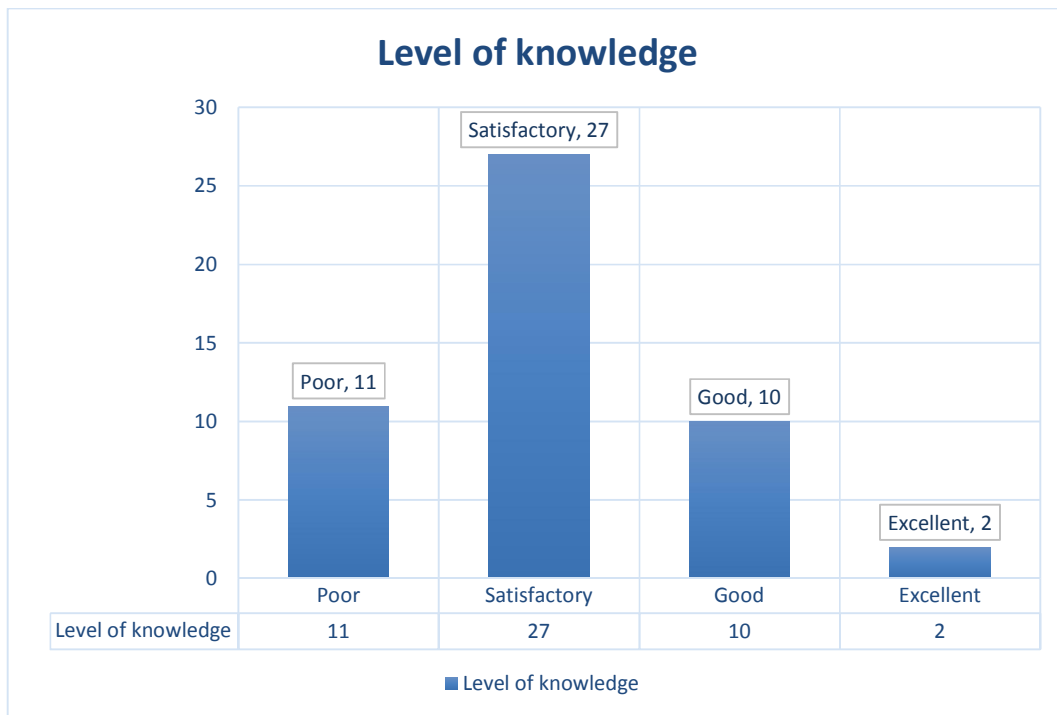
Level of knowledge	Score Range	Frequency	Percentage
Poor	0-25%	11	22%
Satisfactory	26-50%	27	54%
Good	51-75%	10	20%
Excellent	76-100%	02	04%

Data represented in the table shows that 11 (22%) subjects had poor knowledge regarding rainbow nutrition, while 27 (54%) subjects had satisfactory knowledge and 10 (20%) subjects had good and 2(4%) excellent knowledge regarding rainbow nutrition (Table 2).

Data represented in the table shows that 37 (74%) subjects were having an unfavourable attitude (<50), 13 (26%) were having moderately

favourable (51-75%) attitudes and none of the subjects having a favourable attitude (>75%) towards rainbow nutrition (Table 3).

Data represented in the table shows that 37 (74%) subjects were having an unfavourable attitude (<50), 13 (26%) were having moderately favourable (51-75%) attitudes and none of the subjects having a favourable attitude (>75%) towards rainbow nutrition.

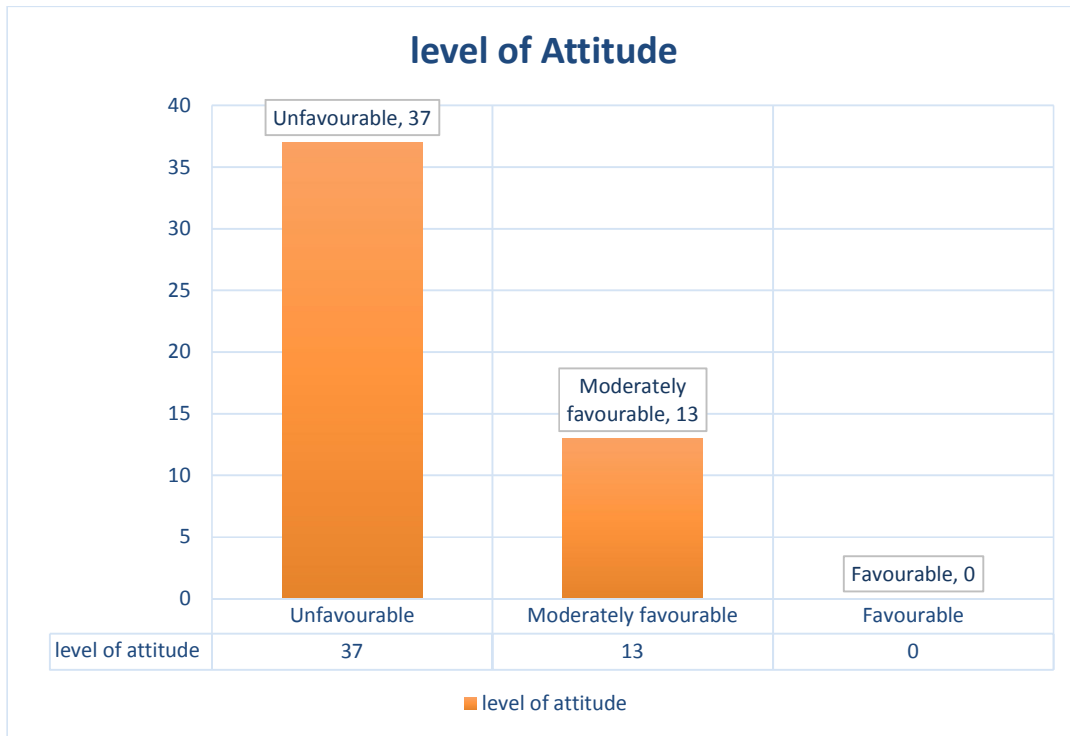


**Fig. 1. Distribution of mothers regarding the level of knowledge towards rainbow nutrition**

**Distribution of mothers regarding the level of attitude towards rainbow nutrition.**

**Table 3. Distribution of mothers regarding the level of attitude towards rainbow nutrition n=50**

Level of Attitude	Score Range	Frequency	Percentage %
Unfavourable (< 50)	<50%	37	74%
Moderately favourable (51-75%)	50 to 75%	13	26%
Favourable (> 76 – 100%)	76 to 100%	0	0



**Fig. 2. Frequency and percentage distribution of mothers regarding the level of attitude towards rainbow nutrition**

**Association between the Knowledge among Mothers towards Rainbow Nutrition with Their Selected Demographic Variables.**

**Table 4. Reveals the association of level of knowledge among women with their selected demographic variables n=50**

Demographic Variable	Knowledge Score								Chi-square (X <sup>2</sup> )
	Poor		Satisfactory		Good		Excellent		
	(n)	%	(n)	%	(n)	%	(n)	%	
<b>Age in year</b>									<b>9.366<sup>NS</sup></b> <b>df=9</b>
< 21 years	01	02	06	12	02	04	01	02	
21-25 years	07	14	17	34	05	10	01	02	
26-30 years	03	06	03	06	03	06	0	0	
>30 years	0	0	01	02	0	0	0	0	
<b>Number of children</b>									<b>1.049<sup>NS</sup></b> <b>df=6</b>
1	05	10	17	34	06	12	01	02	
2	06	12	10	20	04	8	01	02	
3	0	0	0	0	0	0	0	0	
>3	0	0	0	0	0	0	0	0	
<b>Education status of mother</b>									<b>8.18<sup>NS</sup></b> <b>df=9</b>
Up to primary education	03	06	06	12	0	0	01	02	
Up to secondary education	06	12	14	28	06	12	01	02	
Up to higher secondary education	02	04	04	08	04	08	0	0	
Graduate and above	01	02	02	04	0	0	0	0	

Demographic Variable	Knowledge Score								Chi-square ( $\chi^2$ )
	Poor	Satisfactory	Good	Excellent					
<b>Monthly income of family</b>									
< 10000 pm	03	06	06	12	01	02	0	0	2.998 <sup>NS</sup>
10001 to 15000 pm	07	14	09	18	05	10	01	02	df=9
15001 to 20000 pm	01	02	11	22	04	08	01	02	
>20000 pm	0	0	01	02	0	0	0	0	
<b>Occupation of mother</b>									
House occupied	06	12	13	26	04	08	02	04	6.451 <sup>NS</sup>
Self employed	03	06	10	20	06	12	0	0	df=9
Salaried- government	02	04	03	06	0	0	0	0	
Salaried- private	0	0	1	02	0	0	0	0	

**Association between the Attitude among Mothers towards Rainbow Nutrition with Their Selected Demographic Variables.**

**Table 5. Association between attitude with their selected demographic variables**

Demographic variables	Attitude scale			Chi-square ( $\chi^2$ )
	Unfavourable	Moderately favourable	Favourable	
<b>Age in year</b>				
< 21 years	15	05	0	$\chi^2 = 0.0032^S$
21-25 years	22	08	0	df= 1
26-30 years	0	0	0	
>30 years	0	0	0	
<b>Number of children</b>				
1	18	06	0	$\chi^2 = 0.262^{NS}$
2	04	04	0	df= 2
3	0	0	0	
>3	15	03	0	
<b>Education status of mother</b>				
Up to primary education	01	0	0	$\chi^2 = 0.015^S$
Up to secondary education	04	01	0	df= 3
Up to higher secondary education	26	10	0	
Graduate and above	06	02	0	
<b>Monthly income</b>				
< 10000 pm	01	0	0	$\chi^2 = 0.0046^S$
10001 to 15000 pm	03	01	0	df= 3
15001 to 20000 pm	28	10	0	
>20000 pm	05	02	0	
<b>Occupation of mother</b>				
House occupied	24	06	0	$\chi^2 = 0.3016^{NS}$
Self employed	12	07	0	df= 2
Salaried- government	01	0	0	
Salaried- private	0	0	0	

#### 4. DISCUSSION

Eat the rainbow nutrition education intervention is an important programme to be included in the schools which play a significant role in promoting the healthy life style among school children. This study also discovered a substantial disparity in the knowledge and consumption of fruits and vegetables. Similarly, A study conducted in elementary school to examine the difference in mean fruit and vegetable are eaten, like, preference, and self-efficacy scores found a significant difference in the intervention group as well as between the pre-test and post-test intervention [10].

The study's findings indicate that integrating information and attitudes about nutrition with colourful fruits and vegetables is an effective technique for increasing fruit and vegetable consumption in the diet.

#### 5. CONCLUSION

After the detailed analysis, this study leads to the following conclusion. Result is 22% of mothers were having poor knowledge regarding rainbow nutrition, while 27 (54%) mothers had satisfactory knowledge and 20% subjects had had good and 4% excellent knowledge regarding rainbow nutrition.

An association was not found between Age in the year, several children, education status of the mother, monthly income of family and occupation of mother Hence, based on the above findings, it was concluded that there is a need to improve the knowledge and develop a favourable attitude of mothers towards rainbow nutrition.

#### CONSENT

Before taking any type of history we took written consent from mother in their local language (Marathi).

#### ETHICAL APPROVAL

Ethics approval was obtained from Institutional Ethics Committee, Datta Meghe Institute of Medical Sciences (DMIMS(DU)/IEC/Dec-2019/8656).

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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