

ADHERENCE TO INDIAN ACADEMY OF PEDIATRICS GUIDELINES ON THE FAST AND JUNK FOODS, SUGAR SWEETENED BEVERAGES, FRUIT JUICES, AND ENERGY DRINKS AMONG CHILDREN AGED 1 TO 5 YEARS IN TAMILNADU, INDIA

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Abstract

Background: The Indian Academy of Pediatrics consensus statement on guidelines regarding the Fast and Junk Foods, Sugar Sweetened Beverages, Fruit Juices, and Energy Drinks intake in Indian children and adolescents was published in 2019. A new acronym 'JUNCS' foods, to cover a wide variety of concepts related to unhealthy foods (Junk foods, Ultra-processed foods, Nutritionally inappropriate foods, Caffeinated/colored/carbonated foods/beverages, and Sugar-sweetened beverages) was suggested in the guidelines. This study was undertaken with the primary objective of determining the adherence to Indian Academy of Pediatrics Guidelines on the Fast and Junk Foods, Sugar Sweetened Beverages, Fruit Juices, and Energy Drinks among children aged 1 to 5 years in Tamilnadu, India. **Materials and Methods:** This observational cross-sectional study was done among 141 children aged 1 to 5 years in Tamilnadu, India over a period of three months from April 2023 to June 2023. A total of eight guidelines for children and family were chosen from Indian Academy of Pediatrics Guidelines on the Fast and Junk Foods, Sugar Sweetened Beverages, Fruit Juices, and Energy Drinks among children (2019) for inclusion in the study. After obtaining informed consent from the participants, details were collected from the parents or primary caretaker of the child in a predesigned questionnaire and statistically analysed. **Results:** Maximum non adherence was observed for the frequency of JUNCS per week guideline with 68.09% showing non adherence. There was no statistically significant association of adherence to guidelines with demographic characteristics of the study participants. (Table 3). Maternal employment status and employment of cook at home also did not show any statistically significant relationship with adherence to the guidelines. Among the guidelines, 100% of the study participants were aware of not consuming food while watching screens, preference of home cooked meals and offering traditional home-made snacks as alternative to JUNCS foods guidelines. None of the participants were aware about the guideline regarding fruit juices. The next lowest percentage of awareness was observed for the guideline on frequency on JUNCS food (38.30%). **Conclusion:** The adherence to Indian Academy of Pediatrics guidelines on the Fast and Junk Foods, Sugar Sweetened Beverages, Fruit Juices, and Energy Drinks is low among children aged 1 to 5 years in Tamilnadu, India. Though parents were aware of few of the guidelines, awareness regarding majority of the guidelines remains low.

INTRODUCTION

The increasing trend of fast food culture among children and adolescents has been attributed to the ready availability, taste, low cost, marketing strategies and peer pressure.^[1] Several health care

agencies across the world has published guidelines and recommendations regarding fast food intake in children and adolescents. The Indian Academy of Pediatrics consensus statement on guidelines regarding the Fast and Junk Foods, Sugar Sweetened Beverages, Fruit Juices, and Energy Drinks intake in

Indian children and adolescents was published in 2019.^[2] A new acronym 'JUNCS' foods, to cover a wide variety of concepts related to unhealthy foods (Junk foods, Ultra-processed foods, Nutritionally inappropriate foods, Caffeinated/colored/carbonated foods/beverages, and Sugar-sweetened beverages) was suggested in the guidelines. This study was undertaken with the primary objective of determining the adherence to Indian Academy of Pediatrics Guidelines on the Fast and Junk Foods, Sugar Sweetened Beverages, Fruit Juices, and Energy Drinks among children aged 1 to 5 years in Tamilnadu, India.

MATERIALS AND METHODS

This observational cross-sectional study was done among 141 children aged 1 to 5 years in Tamilnadu, India over a period of three months from April 2023 to June 2023. Inclusion criteria included children in the age group of 1 to 5 years whose parents were willing to participate in the study. Children with chronic illnesses, acute illnesses, on medications, obesity, overweight, severe acute malnutrition, moderate acute malnutrition, developmental delay, neurodevelopmental disorders and behavioural problems were excluded from the study. A total of eight guidelines for children and family were chosen from Indian Academy of Pediatrics Guidelines on the Fast and Junk Foods, Sugar Sweetened Beverages, Fruit Juices, and Energy Drinks among children (2019) for inclusion in the study. After obtaining informed consent from the participants, details were collected from the parents or primary caretaker of the child in a predesigned questionnaire. Questionnaire included demographic details of the child and details regarding awareness and adherence to the eight guidelines. Socioeconomic status of the study participants was classified according to Modified

Kuppusamy Socio Economic Status scale. Following the guideline always was defined as Strict Adherence. Following it occasionally or majority of the times was defined as Partial Adherence and never following it was defined as Non-Adherence. Statistical analysis was done using suitable statistical methods using SPSS 25 software. P value less than 0.05 was considered statistically significant.

RESULTS

The distribution of the study participants according to gender, age, socioeconomic status and family type are shown in [Table 1]. 69.50% of the mothers were home makers and cook were employed in only 26.95% of the households.

Details regarding adherence to the eight guidelines chosen in the study is shown in [Table 2]. The number of participants with strict adherence, partial adherence and non adherence of the eight guidelines are shown. Maximum non adherence was observed for the frequency of JUNCS per week guideline with 68.09% showing non adherence. There was no statistically significant association of adherence to guidelines with demographic characteristics of the study participants. [Table 3]. Maternal employment status and employment of cook at home also did not show any statistically significant relationship with adherence to the guidelines.

Among the guidelines, 100% of the study participants were aware of not consuming food while watching screens, preference of home cooked meals and offering traditional home-made snacks as alternative to JUNCS foods guidelines. None of the participants were aware about the guideline regarding fruit juices. The next lowest percentage of awareness was observed for the guideline on frequency on JUNCS food (38.30%). [Table 4]

Table 1: Demographic characteristics of the study participants.

	Number	Percentage
Gender		
Male	73	51.77%
Female	68	48.23%
Age		
1 years	36	25.53%
2 years	38	26.95%
3 years	20	14.18%
4 Years	26	18.44%
5 Years	21	14.89%
Socioeconomic Status		
Class I	25	17.73%
Class II	31	21.99%
Class III	42	29.79%
Class IV	22	15.60%
Class V	22	15.60%
Family Type		
Nuclear Family	68	48.23%
Joint Family	73	51.77%
Maternal Employment Status		
Employed	43	30.50%
Home maker	98	69.50%

Employment of cook		
Yes	38	26.95%
No	103	73.05%

Table 2: Adherence to guidelines among study participants

S. No	Guidelines	Strict Adherence	Partial Adherence	Non-Adherence
1	JUNCS not more than one serving per week	10 (7.10%)	35 (24.82%)	96 (68.09%)
2	Not consuming food while watching screens	29 (20.57%)	26 (18.44%)	86 (60.99%)
3	JUNCS should not be used as rewards/gift	59 (41.84%)	38 (26.95%)	44 (31.21%)
4	No fruit Juices below 2 years/ maximum 125 ml per day between 2 to 5 years	26 (18.44%)	66 (46.81%)	49 (34.75%)
5	No caffeinated drinks below 5 years	21 (14.89%)	41 (29.08%)	79 (56.03%)
6	Offering traditional home-made snacks as alternative to JUNCS foods	19 (13.48%)	112 (79.43%)	10 (7.09%)
7	Preference of home cooked meals	19 (13.48%)	76 (53.90%)	46 (32.62%)
8	Water preferred over juice and drinks	27 (19.14%)	95 (67.38%)	19 (13.48%)

Table 3: Statistical significance between adherence to guidelines and demographic characteristics

Adherence to Guideline	Parameter	Statistical Significance
JUNCS not more than one serving per week	Gender	Not Significant (P Value > 0.05)
	Age	Not Significant (P Value > 0.05)
	Socioeconomic Status	Not Significant (P Value > 0.05)
	Family Type	Not Significant (P Value > 0.05)
	Maternal Employment Status	Not Significant (P Value > 0.05)
	Employment of Cook at home	Not Significant (P Value > 0.05)
Not consuming food while watching screens	Gender	Not Significant (P Value > 0.05)
	Age	Not Significant (P Value > 0.05)
	Socioeconomic Status	Not Significant (P Value > 0.05)
	Family Type	Not Significant (P Value > 0.05)
	Maternal Employment Status	Not Significant (P Value > 0.05)
	Employment of Cook at home	Not Significant (P Value > 0.05)
JUNCS should not be used as rewards/gift	Gender	Not Significant (P Value > 0.05)
	Age	Not Significant (P Value > 0.05)
	Socioeconomic Status	Not Significant (P Value > 0.05)
	Family Type	Not Significant (P Value > 0.05)
	Maternal Employment Status	Not Significant (P Value > 0.05)
	Employment of Cook at home	Not Significant (P Value > 0.05)
No fruit Juices below 2 years/ maximum 125 ml per day between 2 to 5 years	Gender	Not Significant (P Value > 0.05)
	Age	Not Significant (P Value > 0.05)
	Socioeconomic Status	Not Significant (P Value > 0.05)
	Family Type	Not Significant (P Value > 0.05)
	Maternal Employment Status	Not Significant (P Value > 0.05)
	Employment of Cook at home	Not Significant (P Value > 0.05)
No caffeinated drinks below 5 years	Gender	Not Significant (P Value > 0.05)
	Age	Not Significant (P Value > 0.05)
	Socioeconomic Status	Not Significant (P Value > 0.05)
	Family Type	Not Significant (P Value > 0.05)
	Maternal Employment Status	Not Significant (P Value > 0.05)
	Employment of Cook at home	Not Significant (P Value > 0.05)
Offering traditional home-made snacks as alternative to JUNCS foods	Gender	Not Significant (P Value > 0.05)
	Age	Not Significant (P Value > 0.05)
	Socioeconomic Status	Not Significant (P Value > 0.05)
	Family Type	Not Significant (P Value > 0.05)
	Maternal Employment Status	Not Significant (P Value > 0.05)
	Employment of Cook at home	Not Significant (P Value > 0.05)
Preference of home cooked meals	Gender	Not Significant (P Value > 0.05)
	Age	Not Significant (P Value > 0.05)
	Socioeconomic Status	Not Significant (P Value > 0.05)
	Family Type	Not Significant (P Value > 0.05)
	Maternal Employment Status	Not Significant (P Value > 0.05)
	Employment of Cook at home	Not Significant (P Value > 0.05)
Water preferred over juice and drinks	Gender	Not Significant (P Value > 0.05)
	Age	Not Significant (P Value > 0.05)
	Socioeconomic Status	Not Significant (P Value > 0.05)
	Family Type	Not Significant (P Value > 0.05)
	Maternal Employment Status	Not Significant (P Value > 0.05)
	Employment of Cook at home	Not Significant (P Value > 0.05)

Table 4: Awareness regarding guidelines among study participants

S. No	Guidelines	Number of parents aware about the guideline	Percentage
1	JUNCS not more than one serving per week	54	38.30%
2	Not consuming food while watching screens	141	100%
3	JUNCS should not be used as rewards/gift	108	76.60%
4	No fruit Juices below 2 years/ maximum 125 ml per day between 2 to 5 years	0	0%
5	No caffeinated drinks below 5 years	75	53.19%
6	Offering traditional home-made snacks as alternative to JUNCS foods	141	100%
7	Preference of home cooked meals	141	100%
8	Water preferred over juice and drinks	109	77.30%

DISCUSSION

Regular consumption of fast food and ultra processed food in children and adolescents has significantly contributed to the rising trend of increasing non communicable diseases in India. The emerging fast-food culture has been linked to obesity, metabolic syndrome and associated complications, infections due to microbiological contamination, increased risk of cancer due to carcinogenic potential of fast food, dental caries, neuropsychiatric symptoms and cardiac dysrhythmias due to caffeinated drinks.^[3]

To deal with the increasing trend of consumption of fast food and sugar sweetened beverages, a National Consultative group constituted by the Nutrition Chapter of the Indian Academy of Pediatrics (IAP) formulated recommendations and guidelines on the Fast and Junk Foods, Sugar Sweetened Beverages, Fruit Juices, and Energy Drinks intake in Indian children in 2019.^[2] Guidelines for Children and Families, Schools, Labelling, Advertising, and Marketing were recommended by the consensus statement.

Few important guidelines for children and families recommended by the consensus statement are avoiding consumption of the JUNCS by all children and adolescents as far as possible and limit their consumption to not more than one serving per week. Intake of regional and seasonal whole fruits over fruit juices in children and adolescents is advised. The statement advises no fruit juices/drinks to infants and young children (age <2y), whereas for children aged 2-5 y and >5-18 y, their intake should be limited to 125 mL/day and 250mL/day, respectively. The Group recommends that caffeinated energy drinks should not be consumed by children and adolescents. Adherence to Indian Academy of Pediatrics Guidelines on the Fast and Junk Foods, Sugar Sweetened Beverages, Fruit Juices, and Energy Drinks was studied among 141 children aged 1 to 5 years in Tamilnadu, India. Adherence to eight age-appropriate guidelines from the consensus statement was analysed.

A study among 131 healthy four years old urban Swedish children by Garemo et al revealed that junk food was consumed regularly by a third of the study participants.^[4] A 36% consumption of junk food in the preceding 24 hours was observed in a study among rural school aged children in Himachal Pradesh, India.^[5] These studies from various parts of the world identify fast food consumption as a global

phenomenon across various classes. Paradoxically, there was a 10-percentage decrease in the proportion of foods consumed that were classified as junk food among US children and adolescents between 2003 to 2016.^[6] The IAP guidelines recommend avoiding consumption of the JUNCS foods and beverages by all children and adolescents, as far as possible. Alternatively, it is advised to limit consumption of the JUNCS foods at home/outside and suggest having not more than one serving per week, serving not exceeding 50% of total daily energy intake for that age. In our study, strict adherence to this guideline was observed in only 7.10%. Only 38.30% were aware of the advised frequency of JUNCS food intake. Following the other guidelines regarding marketing of JUNCS food and limiting availability will help in improving the adherence to this guideline. While fully avoiding JUNCS food in this age group might not be possible due to social and peer pressure, limiting the frequency of JUNCS food intake to once a week would help in improving the health of children. 100% of the parents participating in the study were aware of the benefits of home cooked meals and using traditional home-made snacks as alternative to JUNCS foods, though only 13.48% strict adhered to this. This huge gap between awareness and adherence necessitates not only more educative initiatives but also nutritional intervention programmes, school-based programmes and behavioural modifications among both children and their families.

The unfavourable associations between screen use during meals, and junk food consumption in early childhood has been consistently demonstrated by studies in several parts of the world.^[7-9] Compared to the other guidelines, all the study participants were aware of the guideline regarding not using screens during meals, though only 29 (20.57%) of the 141 study participants strictly adhered to not watching screens during mealtimes.

Caffeinated drinks intake among children has several toxicity concerns.^[10] Many energy drinks have unregulated amount of caffeine and has been associated with seizures, diabetes, cardiac abnormalities, mood and behavioral disorders and interactions with certain medications.^[11] Only 56.03% of the children in the study strictly avoided intake of caffeinated drinks. Parental awareness was also quite low at 53.19%. Labelling caffeinated drinks including coffee and tea regarding age related

guidelines would avoid caffeine consumption in children younger than 5 years as recommended.

Fruit juices have been long regarded as a healthy drink and often sugar is added to improve taste and palatability. Also stored processed juices are often fed to children as healthy drink considering the ease. Nursing bottle caries have been recognized as a consequence of feeding juice in bottles. Non-specific toddler's diarrhoea has been associated with juice consumption.^[12] There is a concern regarding added sugar in fruit juices also. 1 serving per day of 100% fruit juice was associated with BMI gain among children by Nguyen et al,^[13] IAP recommends choosing whole seasonal fruits instead of fruit juices and not to offer fruit juices to children below 2 years. As per the guidelines, fruit juices should be limited to 125 mL per day for children aged between 2-5 years, and 250 mL per day for age >5 years and these should preferably be given as fresh juices. Water was also preferred over juices and drinks. None of the study participants were aware of the guideline regarding avoiding fruit juice below 2 years and limiting the quantity in children between 2 to 5 years. The result of the study reveals a huge misconception among Indian parents regarding fruit juices. More strategies to educate the parents in this regard and labelling of fruit juices will help in enforcing the guideline regarding fruit juices.

Indian Academy of Pediatrics Guidelines on the Fast and Junk Foods, Sugar Sweetened Beverages, Fruit Juices, and Energy Drinks has provided multilevel recommendations and guidelines to tackle the increasing menace of junk food consumption. The results of the study indicate need for more awareness, educational initiatives, nutritional interventional programs and behavioural modification strategies to improve awareness and adherence to the guidelines among Indian children.

CONCLUSION

The adherence to Indian Academy of Pediatrics guidelines on the Fast and Junk Foods, Sugar Sweetened Beverages, Fruit Juices, and Energy Drinks is low among children aged 1 to 5 years in Tamilnadu, India. Though parents were aware of few of the guidelines, awareness regarding majority of the

guidelines remains low. More nutritional interventional programmes and educational initiatives at various levels are required to improve the awareness of Indian parents regarding the recommendations of Indian Academy of Pediatrics on Fast and Junk Foods, Sugar Sweetened Beverages, Fruit Juices, and Energy Drinks intake among children.

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