
Factors influencing the food preferences of South Indian youngsters

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Abstract:

Food choice is influenced by many interacting factors in humans. The study aimed at determining the food choices, preferences and eating behavior among the young south Indian adults that are affected by some factors such as health, mood, economic, convenience, sensory, natural content, weight control and familiarity.

India is the country where the diversity plays huge role among the factors of decision making. There are five states and one union territory in south India. The study also aimed to look at the deviation in the preferences of food choices of the South Indian youngsters based on their region.

The data collected through online survey using Google forms that had been spread through various regions in south India and captured 150 responses from the youngsters within the age group of 16 to 35. The analysis is focused on the food choices of the youngsters based on the region and gender, how they vary according to the impact of the factors that taken in the study.

1. Introduction:

The trends in the food choices have seen rapid changes in recent decades which is possibly due to increasing interest of consumers what they eat. Nowadays People are aware of their health and its impact through food consumption and their choice of food. The emerging trends have seen remarkable changes in consumer's food consumption habits. The consumption of food also varied based on the individual's mood, where people expect food to make them relax, keeps away from stress and also to put them in happy situation in case of depression. The economic factors such as price and value for money also impacts the choice of the food but by considering various factors the people whether they compromise their concern on health is on a question.

The food consumption has become a lifestyle for this generation youngsters. They consider food choices for the lifestyle trends such as vegans, natural contents, diet controllers, foodies etc. A sensory perception of food also makes a vital impact on choosing what to eat. The smell, texture and taste are the deciding factors for the consumers for choosing the food in most of the situation.

Previous studies have been made on food preferences of different countries such as Poland, Italy and other European countries. Some studies have been made on food choices of adolescents in India but not on Indian youngsters so this gap motivated us to conduct a study on the food preferences of youngsters in India. To make this research specific we decided to go with the food choices of South Indian youngsters.

India is the country where food is highly respected and it is also the emerging super power where it adopts to the foreign culture. In this context the food habits of Indians do varies from their traditional behavior. In India each state has its own culture and special food known for their region. The youngsters of this modern India has large role to play in this food culture, In this study we explore the interest of the youngsters in south India on choosing their food and the deviation among the males and females in choosing their food and also the factors that impact them on making their food choices.

2. Literature Review:

In the study conducted by Lena Hallström on Breakfast habits and factors influencing food choices at breakfast in relation to socio-demographic and family factors among European adolescents The HELENA Study they shown that Breakfast consumption and choice of food for breakfast was associated with region in Europe; sex; socio-environmental factors (parents) and personal factors (hunger, taste and health) are appreciably associated with socio-demographical factors. The main finding of this study was that European adolescent's breakfast consumption and choice of food for breakfast was associated with region in Europe; sex; socio-environmental and personal factors are inappreciably associated with socio-demographical factors.

The previous study conducted by Lidia Wałdołowska on Food choice models and their relation with food preferences and eating frequency in the Polish population: POFPRES study shown that the effectiveness of nutritional policy in Poland is currently related to the sensory and functional features of food. The greatest interest was aroused in Polish consumers by tasty and fresh food, followed by food which was healthy and cheap.

The study by Ewa Babicz-Zielinska on Food preferences among the Polish young adults gender has no substantial influence on the rankings of food and its choice factors, some items and choice factors are differently scored by males and female students.

The research by Xuqi Chen, Zhifeng Gao, Brandon R. McFadden on Reveal Preference Reversal in Consumer Preference for Sustainable Food Products confirms the existence of preference reversal in a popular food product.

Elisa De Marchi study on Time preferences and food choices confirm that both health- and environment-related attributes are relevant in consumer's choice. The study concluded that healthy attributes and environment related characteristics are important in consumer's choice of food products and that, as hypothesized, people with different time preferences could also have different food preferences.

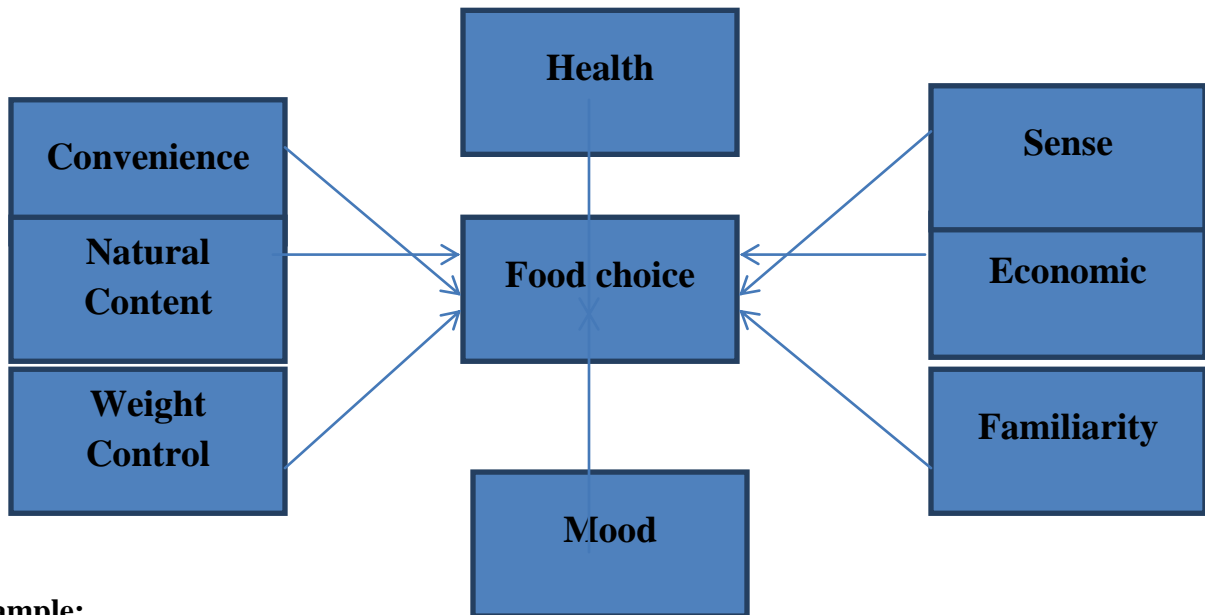
The research by A.C. Hoek, D. Pearson on Healthy and environmentally sustainable food choices: consumer responses to point-of-purchase actions concluded the responsiveness of

consumers to the investigated measures was largely influenced by product familiarity and liking of the healthy and sustainable alternative. Price was the most determinant food quality attribute for the entire sample, followed by taste, familiarity and convenience.

The study conducted by M.C. Onwezen, M.J. Reinders on The Development of a Single-Item Food Choice Questionnaire concluded that Convenience was more important in out-of-home contexts (work/school and on the move) than it was at home, whereas taste was more important at home than in out-of-home contexts. Furthermore, weight, healthiness and naturalness were less important for snack consumption than for main meal consumption.

The study conducted by E. Monteleone, S. Spinelli, C. Dinnella on Exploring influences on food choice in a large population sample: the ItalianTaste Project has explored the influences on food choice and the complex interplay of factors contributing to food preferences, Genetic, physiological, personality, sociocultural factors are considered associations among personality, attitudes, PROP, familiarity and liking

3. Conceptual Model:



4. Sample:

The data collected through online survey using Google forms which have been rolled out to youngsters at age group of 16 to 35. The data collected accounts to the total of 150 responses. The data consist of youngsters from various regions of south India especially from Tamil Nadu, Kerala and Andhra Pradesh. The data from the questionnaire was mainly for validating the factors such as health, mood, convenience, natural content, weight control, economic, familiarity and Sense that influences the food choice behavior.

5. Analysis:

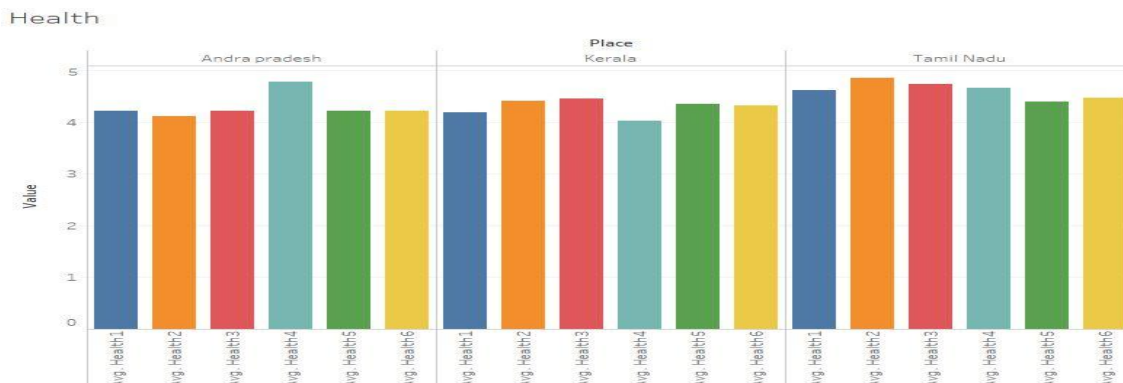
Table-1

5.1. Health influence:

The mean value of the health factor remains more or less neutral among the 3 states. The deeper look shows that youngsters of TN concern more on vitamin and nutritious food while compared to Kerala and AP (table-1). But interestingly AP youngsters considered protein as important source for choosing the food which is above the average of total health factor. Kerala youngsters considered protein as less important factor while compared to other states. In TN, youngsters favors more fibrous and roughage food while others stayed neutral on this factor. (Graph-1)

Measure Names	Place	Measure Values
Avg. Health6	Andhra Pradesh	4.222222222
Avg. Health5	Andhra Pradesh	4.222222222
Avg. Health4	Andhra Pradesh	4.777777778
Avg. Health3	Andhra Pradesh	4.222222222
Avg. Health2	Andhra Pradesh	4.111111111
Avg. Health1	Andhra Pradesh	4.222222222
Avg. Health6	Kerala	4.322580645
Avg. Health5	Kerala	4.354838710
Avg. Health4	Kerala	4.032258065
Avg. Health3	Kerala	4.451612903
Avg. Health2	Kerala	4.419354839
Avg. Health1	Kerala	4.193548387
Avg. Health6	Tamil Nadu	4.467889908
Avg. Health5	Tamil Nadu	4.394495413
Avg. Health4	Tamil Nadu	4.660550459
Avg. Health3	Tamil Nadu	4.743119266
Avg. Health2	Tamil Nadu	4.853211009
Avg. Health1	Tamil Nadu	4.623853211

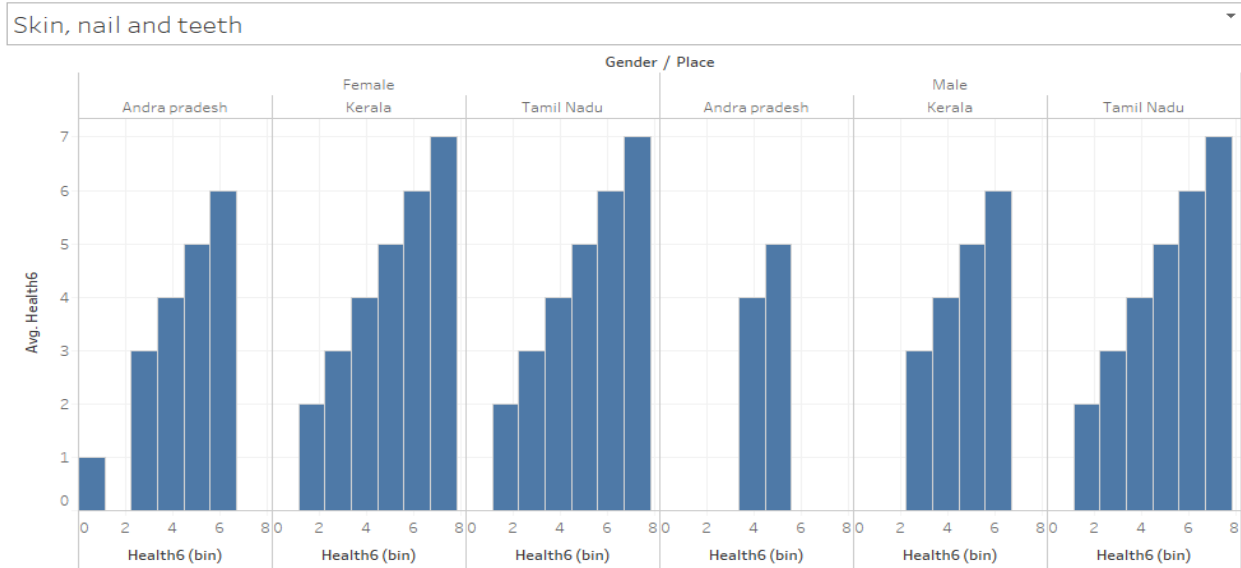
Graph-1



The interesting fact that lies with in this health factor among the youngsters of south india is the care they take on skin, teeth and nails (Health4). The TN youngsters importance to this factors remains same among males and females but in kerala females are strongly agrees to this factor

while choosing their food and also AP females also do strongly agrees to skin and teeth care while choosing their food where males mostly stayed neutral.(Graph-2)

Graph-2:



5.2. Mood Influence:

When it comes to mood factor AP youngsters leads the race where their average mood influence is greater than other state average influence (table-2). While in this factor AP youngsters didn't stay neutral to any of the stimuli where they are likely to strongly agree to all the mood variables (Graph-3). When it comes to stress variable mostly home makers and unemployed strongly disagreed to the fact but in case of employees and students they are more likely to agree that food has to keep them away from stress (Graph-4). In case of awake and alertness more number of female employees was strongly agrees to the fact than males, where they stayed neutral in this case (Graph-5). In case of students, male students are most likely to agree on this fact of awake and alertness rather than staying neutral but female students stayed neutral to this fact. Students strongly agrees that the food has to cheer them up while compared to employees, in employees more number of male stayed neutral to this variable of cheering up

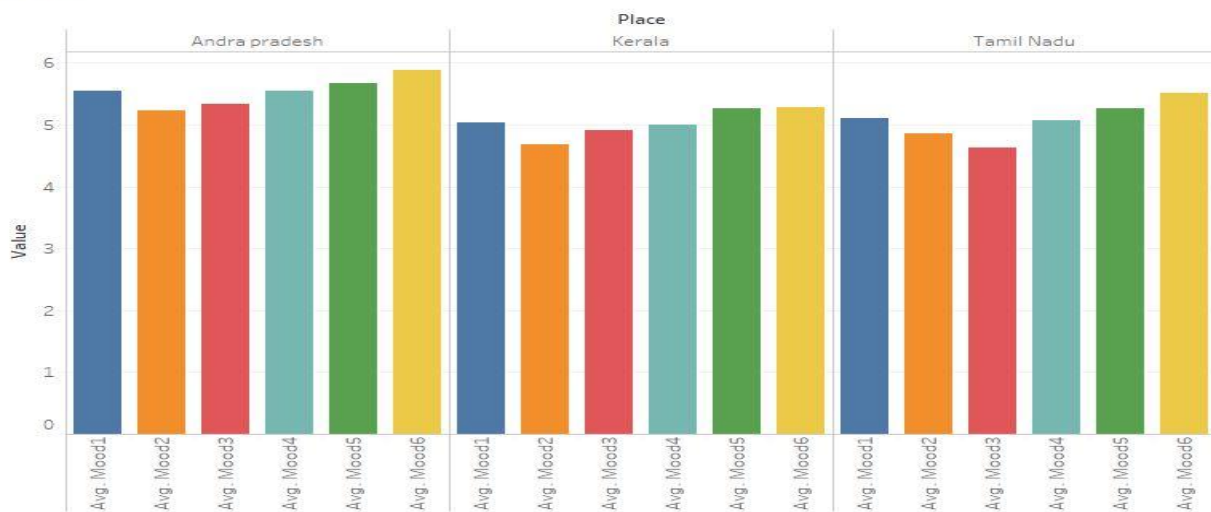
Table-2

Measure Names	Place	Measure Values
Avg. Mood6	Andhra Pradesh	5.888888889
Avg. Mood5	Andhra	5.666666667

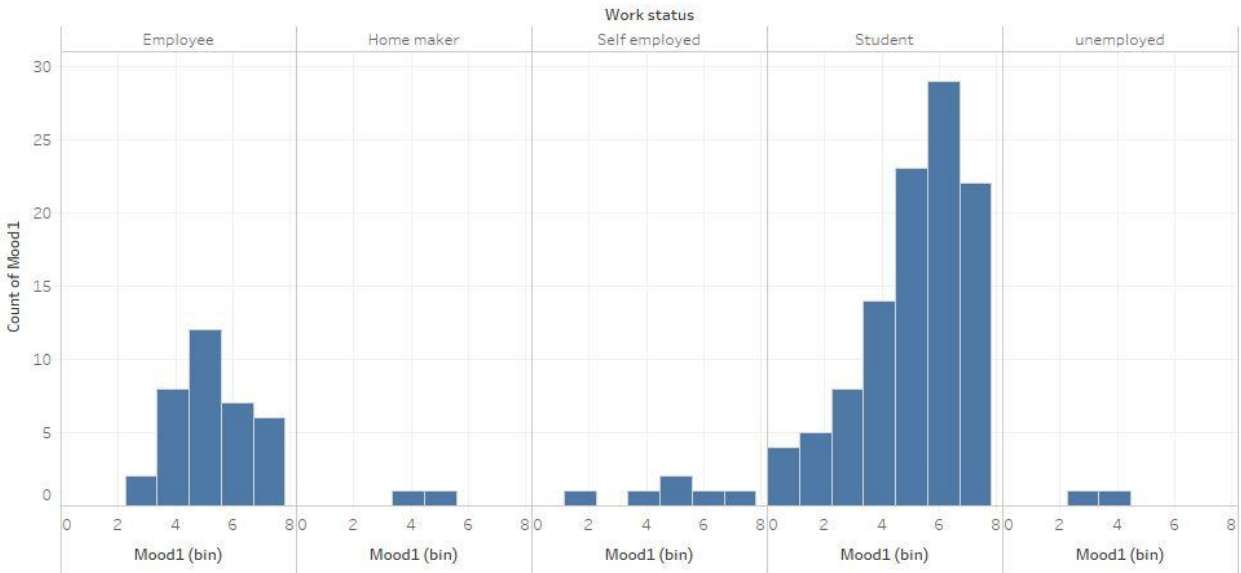
	Pradesh	
Avg. Mood4	Andhra Pradesh	5.555555556
Avg. Mood3	Andhra Pradesh	5.333333333
Avg. Mood2	Andhra Pradesh	5.222222222
Avg. Mood1	Andhra Pradesh	5.555555556
Avg. Mood6	Kerala	5.290322581
Avg. Mood5	Kerala	5.258064516
Avg. Mood4	Kerala	5
Avg. Mood3	Kerala	4.903225806
Avg. Mood2	Kerala	4.677419355
Avg. Mood1	Kerala	5.032258065
Avg. Mood6	Tamil Nadu	5.513761468
Avg. Mood5	Tamil Nadu	5.266055046
Avg. Mood4	Tamil Nadu	5.073394495
Avg. Mood3	Tamil Nadu	4.623853211
Avg. Mood2	Tamil Nadu	4.853211009
Avg. Mood1	Tamil Nadu	5.110091743

Graph-3

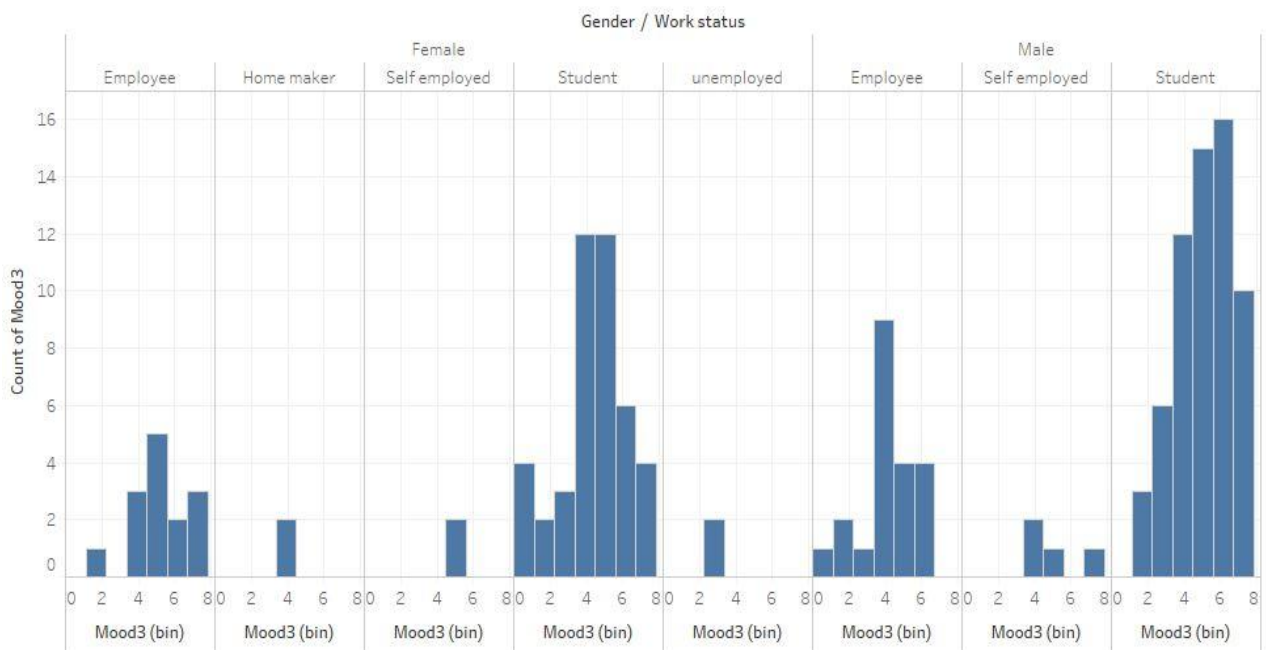
Mood



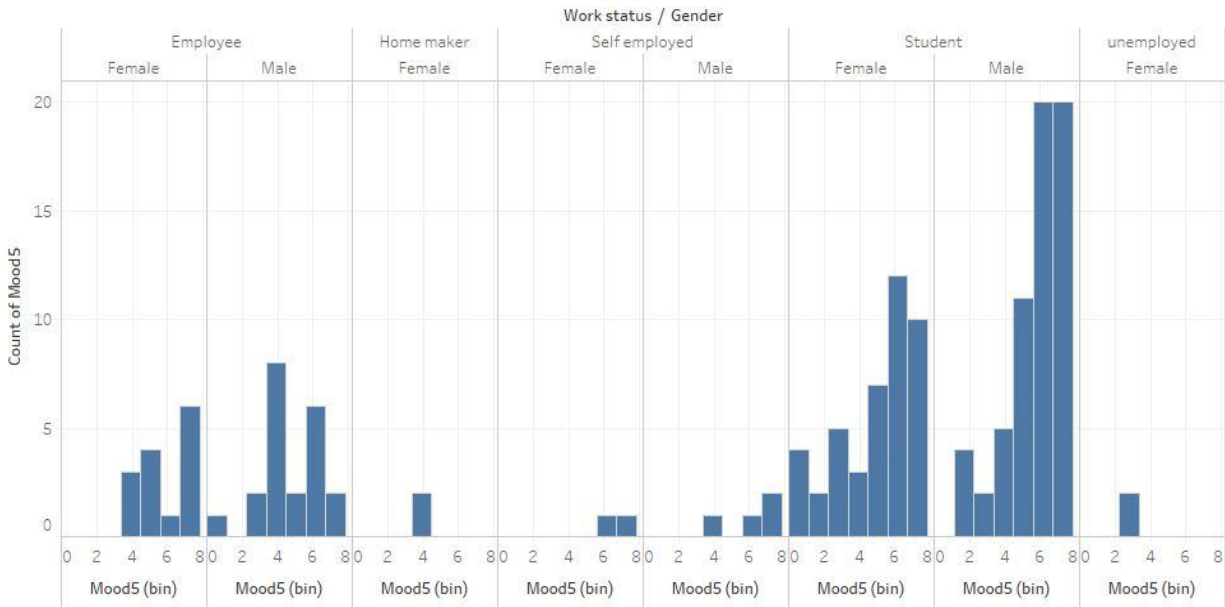
Graph-4



Graph-5



Graph-6



5.3. Convenience Influence:

Table-3

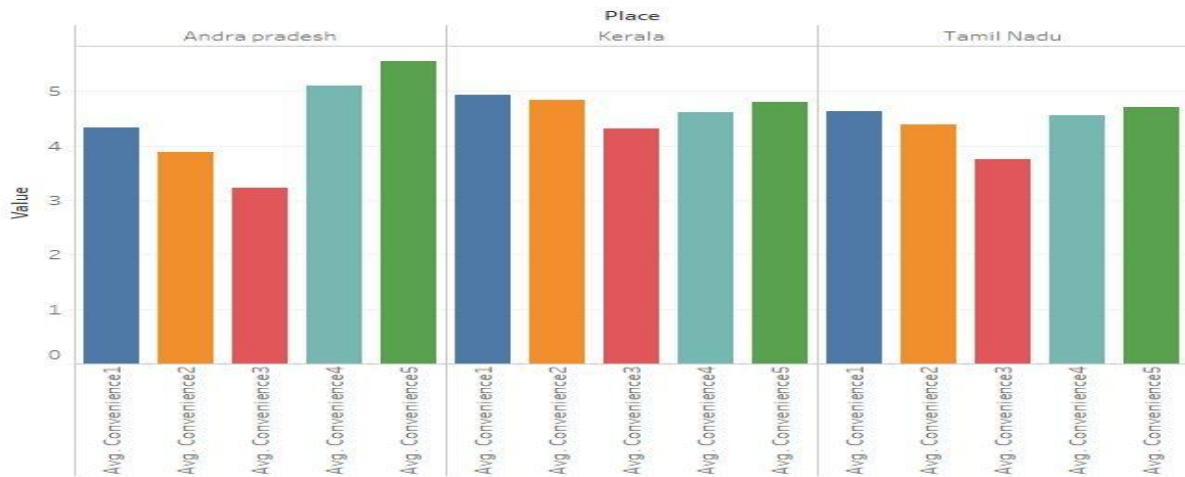
Measure Names	Place	Measure Values
Avg. Convenience5	Andhra Pradesh	5.555555556
Avg. Convenience4	Andhra Pradesh	5.111111111
Avg. Convenience3	Andhra Pradesh	3.222222222
Avg. Convenience2	Andhra Pradesh	3.888888889
Avg. Convenience1	Andhra Pradesh	4.333333333
Avg. Convenience5	Kerala	4.806451613
Avg. Convenience4	Kerala	4.612903226
Avg.	Kerala	4.322580645

In case of convenience youngsters of Kerala agrees to easy preparation of food while choosing then where TN youngsters stayed neutral and AP youngsters stayed slight disagreeing on easy preparation of food where they expect to put little effort to choose their Food (Graph-7). AP youngsters strongly agree with the fact that they would buy the food from nearby shops and Super market. TN and Kerala stayed almost neutral to this fact of buying from nearby shops. The deeper analysis shows that male students and employees strongly agrees to choose their food on easy preparation while female employees stayed neutral. Female students of Kerala strongly agree to the fact of easy preparation while compared to male students (Graph-8).

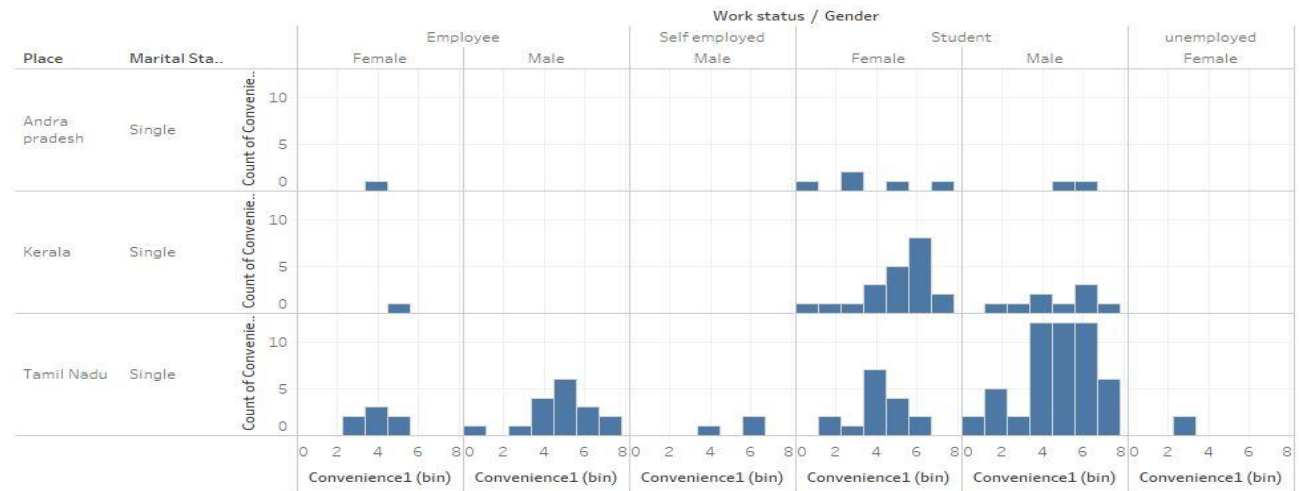
Convenience3		
Avg. Convenience2	Kerala	4.838709677
Avg. Convenience1	Kerala	4.935483871
Avg. Convenience5	Tamil Nadu	4.706422018
Avg. Convenience4	Tamil Nadu	4.559633028
Avg. Convenience3	Tamil Nadu	3.743119266
Avg. Convenience2	Tamil Nadu	4.385321101
Avg. Convenience1	Tamil Nadu	4.642201835

Graph-7

convenience



Graph-8:



5.4. Sensory Influence:

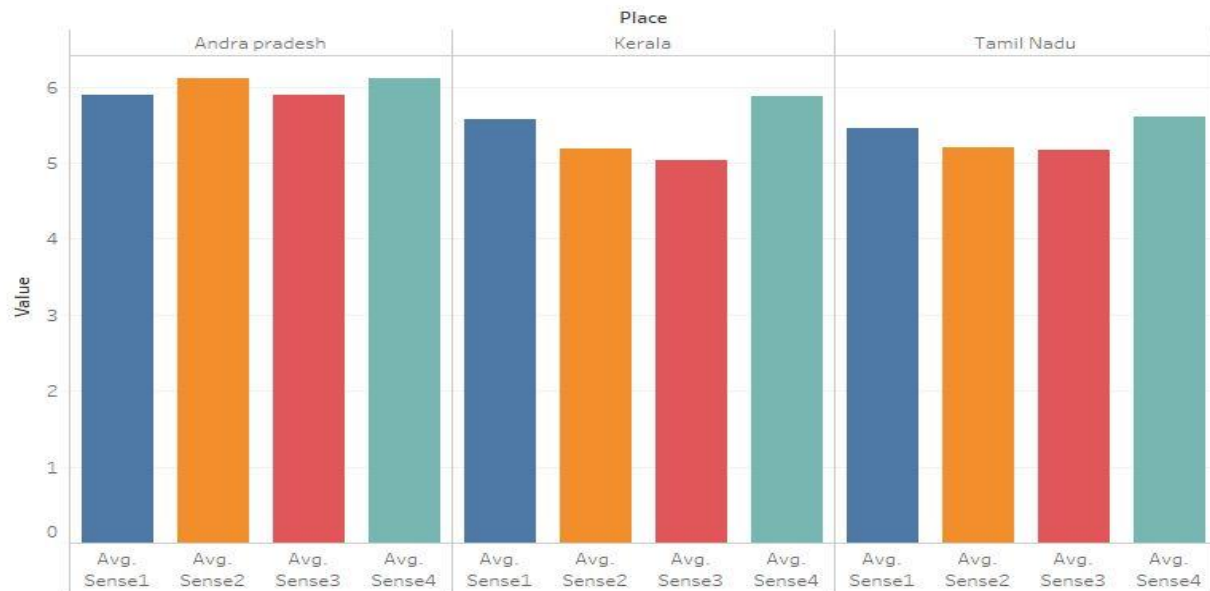
In sensory appeal such as looks, smell, texture and taste AP youngsters strongly agree with all the facts of senses while choosing their food (Table-4). In fact all the 3 states youngsters strongly agree to choose their food based on their senses but comparatively AP youngsters have more influenced by this fact (Graph-9). The TN and Kerala youngsters have similar kind of influence over the food choice by this sensory factor.

Table-4

Measure Names	Place	Measure Values
Avg. Sense4	Andhra Pradesh	6.111111111
Avg. Sense3	Andhra Pradesh	5.888888889
Avg. Sense2	Andhra Pradesh	6.111111111
Avg. Sense1	Andhra Pradesh	5.888888889
Avg. Sense4	Kerala	5.870967742
Avg. Sense3	Kerala	5.032258065
Avg. Sense2	Kerala	5.193548387
Avg. Sense1	Kerala	5.580645161
Avg. Sense4	Tamil Nadu	5.605504587
Avg. Sense3	Tamil Nadu	5.165137615
Avg. Sense2	Tamil Nadu	5.211009174
Avg. Sense1	Tamil Nadu	5.458715596

Graph-9

sense



5.5. Natural Content Influence:

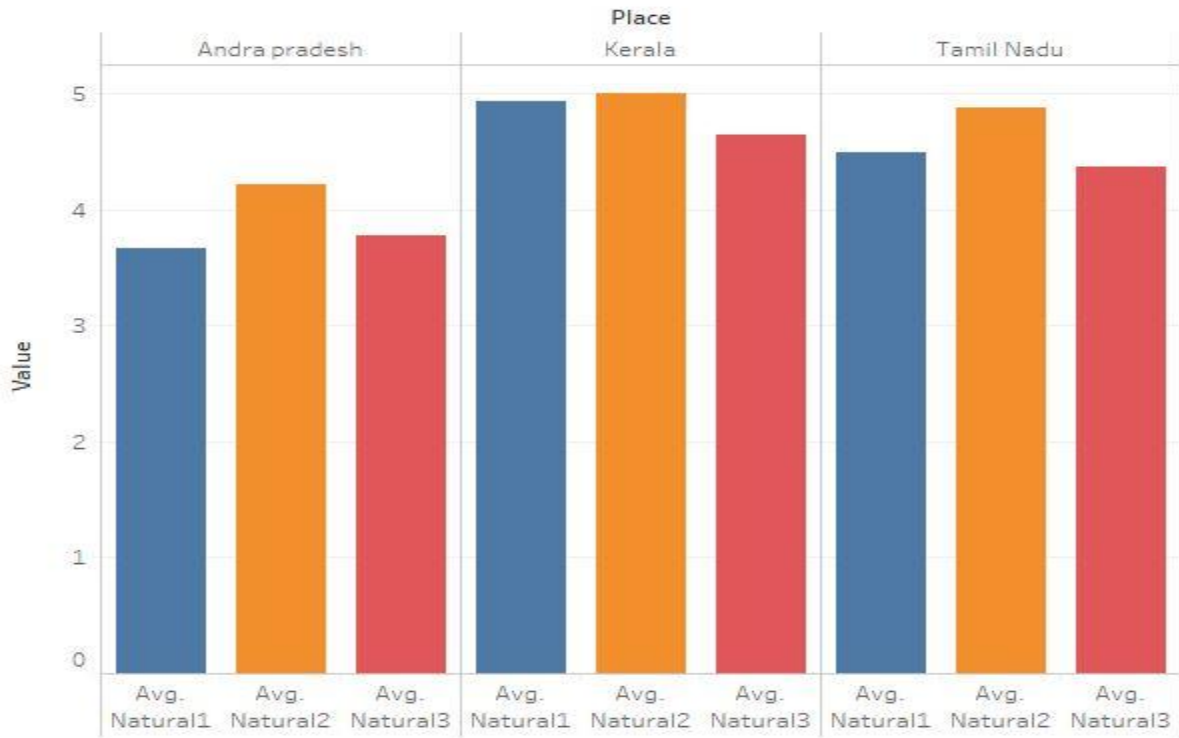
Kerala youngsters are found to be more natural conscious than other state youngsters where AP youngsters disagreed to the fact of natural consciousness (Table-5). TN youngsters remained neutral to the fact of fewer additives while keralites agrees with less additive influence to choose their food (Graph-10). Female youngsters of Kerala are found to be more natural conscious than male youngsters. In TN Male are found to be natural conscious than female where most of female remain neutral in this fact (Graph-11).

Table-5

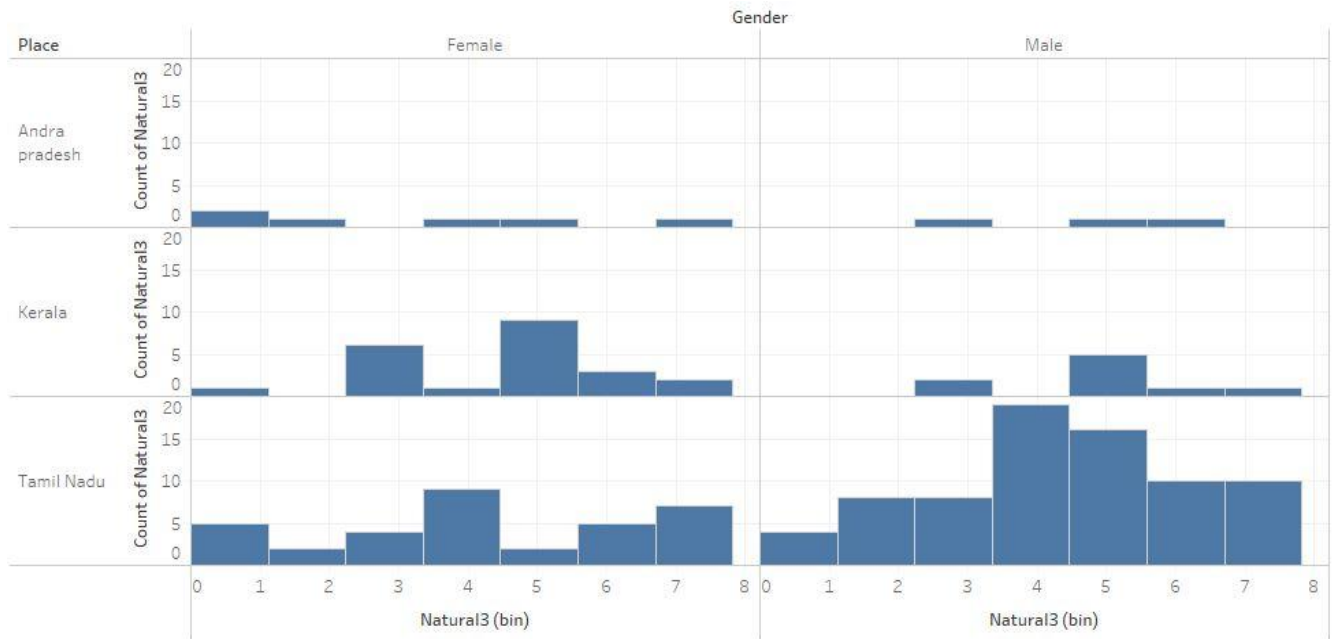
Measure Names	Place	Measure Values
Avg. Natural3	Andhra Pradesh	3.777777778
Avg. Natural2	Andhra Pradesh	4.222222222
Avg. Natural1	Andhra Pradesh	3.666666667
Avg. Natural3	Kerala	4.64516129
Avg. Natural2	Kerala	5
Avg. Natural1	Kerala	4.935483871
Avg. Natural3	Tamil Nadu	4.366972477
Avg. Natural2	Tamil Nadu	4.880733945
Avg. Natural1	Tamil Nadu	4.486238532

Graph-10

Natural



Graph-11



5.6. Economic Influence:

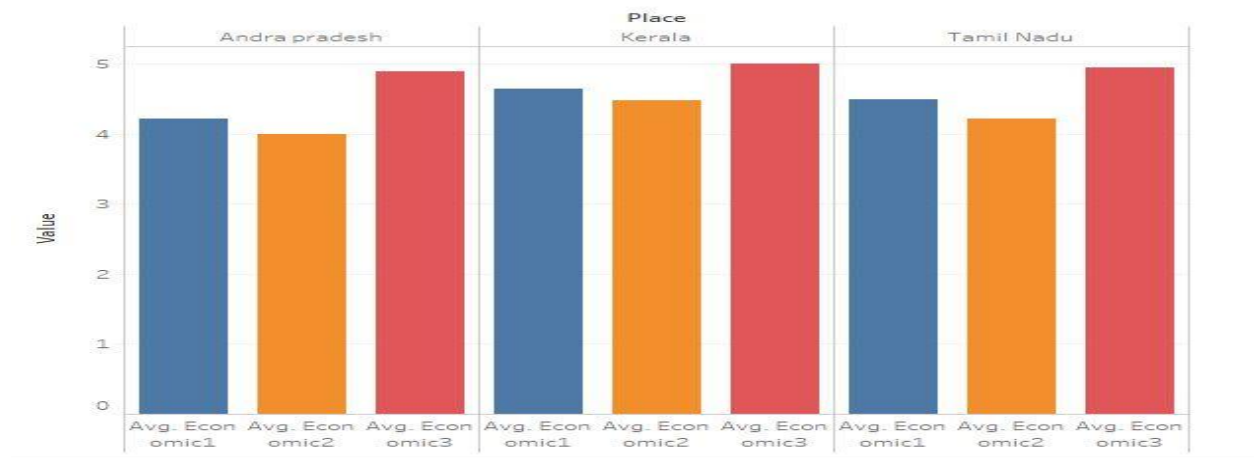
All three state youngsters were agrees to the fact that they choose the food when it values for money. AP youngsters disagree to the fact of choosing cheap food where they ready to spend more money to have their food. TN and Kerala youngsters stayed neutral to cheapness while choosing the food but they all looks for value for they spend (Table-6).

Table-6

Measure Names	Place	Measure Values
Avg. Economic3	Andhra Pradesh	4.888888889
Avg. Economic2	Andhra Pradesh	4
Avg. Economic1	Andhra Pradesh	4.222222222
Avg. Economic3	Kerala	5
Avg. Economic2	Kerala	4.483870968
Avg. Economic1	Kerala	4.64516129
Avg. Economic3	Tamil Nadu	4.944954128
Avg. Economic2	Tamil Nadu	4.211009174
Avg. Economic1	Tamil Nadu	4.495412844

Graph-12

economic



5.7. Weight Control Influence:

Table-7

Measure Names	Place	Measure Values
Avg. WC3	Andhra Pradesh	4.333333333

AP youngster choose their food on low calorie while compared to other 2 states where TN and Kerala stayed neutral on this fact of calorie and all 3 states stayed neutral on fat consumption influence on their food choice but comparatively AP has slight more influenced by less fat consumption on choosing their food. On contrasting to these two factors AP youngsters does not influenced by fact of choosing their food for controlling their weight but in case of TN and Kerala they both stayed neutral (Graph-13).

Avg. WC2	Andhra Pradesh	3.666666667
Avg. WC1	Andhra Pradesh	4.888888889
Avg. WC3	Kerala	4.258064516
Avg. WC2	Kerala	4.064516129
Avg. WC1	Kerala	4.612903226
Avg. WC3	Tamil Nadu	3.981651376
Avg. WC2	Tamil Nadu	4.146788991
Avg. WC1	Tamil Nadu	4.440366972

Graph-13

Weight control

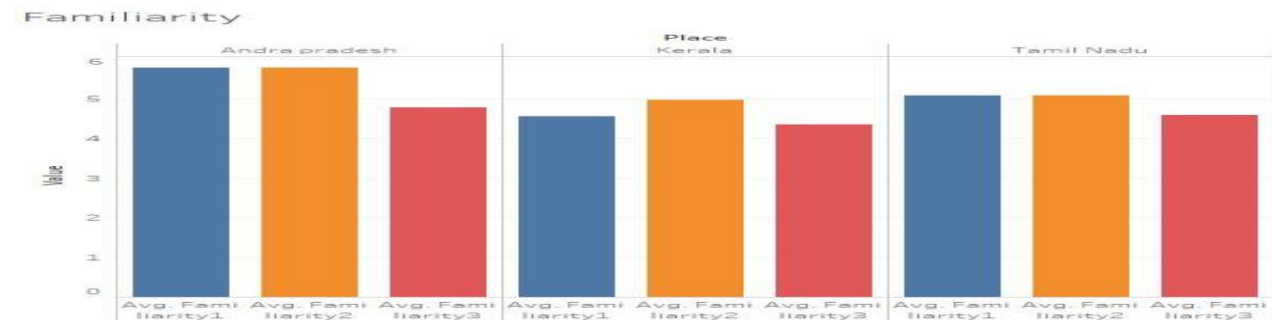
**5.8. Familiarity Influence:**

Kerala youngsters found less influenced by the familiarity fact whereas AP youngsters are found highly influenced by the familiarity of the food while choosing. AP youngsters are strongly influenced by the food they usually eat. In general all 3 state youngsters were stayed neutral to the fact that they were influenced by the food they eat in their childhood but comparatively AP youngsters were influenced slightly more than other two states (Graph-14).

Table-8

Measure Names	Place	Measure Values
Avg. Familiarity3	Andhra Pradesh	4.777777778
Avg. Familiarity2	Andhra Pradesh	5.777777778
Avg. Familiarity1	Andhra Pradesh	5.777777778
Avg. Familiarity3	Kerala	4.35483871
Avg. Familiarity2	Kerala	4.967741935
Avg. Familiarity1	Kerala	4.548387097
Avg. Familiarity3	Tamil Nadu	4.577981651
Avg. Familiarity2	Tamil Nadu	5.082568807
Avg. Familiarity1	Tamil Nadu	5.082568807

Graph-14:



5.9. Factor Analysis:

In total of 33 factors were taken in consideration and factor analysis were run on those factors using SPSS software. From the results of principle component analysis total variance was explained by 8 components i.e. 71.6% of cumulative variance was explained by these 8 components (Table-9). By the scree plot also we can observe that 8 components have Eigen value more than 1. In KMO and Bartlett’s test the sampling adequacy found to be 0.850 which is good and acceptable (Table-10). In varimax rotation the rotated component matrix show the relation between 33 factors and 8 components. The values below 0.5 were removed from the rotated component matrix table. From that (Table-11) we can observe that mood is takes as component 1 followed by health, sense, natural content, weight control, convenience, familiarity and then economic. The factors such as convenience 4 and 5, economic 3 and familiarity 3 is rejected from the table because there values fall under 0.5. From the oblique rotation we can get the component correlation matrix. From the (Table-12) we can observe that there is positive correlation between the components 1, 2, 3 and 8. The component 4 has positive correlation with 5, 6, 7 and component 5 has positive correlation with 4 and 6, component 6 has positively correlated with 4, 5, and 7.

Graph-15

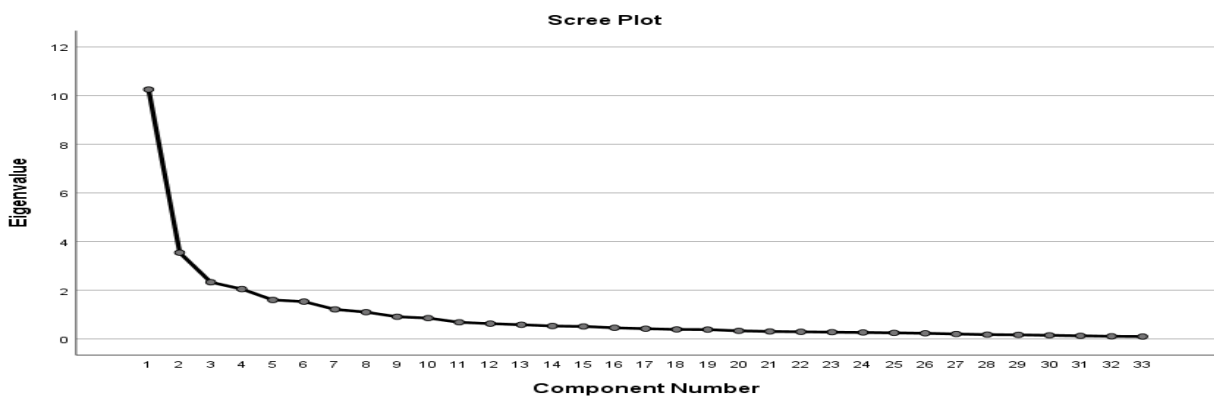


Table-9**Total Variance Explained**

Component	Initial Eigen values			Rotation
	Total	% of Variance	Cumulative %	Sums of Squared Loadings
1	10.251	31.063	31.063	6.648
2	3.546	10.745	41.808	3.482
3	2.331	7.065	48.873	4.023
4	2.050	6.212	55.085	6.562
5	1.602	4.854	59.940	2.423
6	1.534	4.648	64.588	3.299
7	1.214	3.679	68.267	6.054
8	1.101	3.338	71.605	2.984
9	.913	2.766	74.371	
10	.857	2.598	76.968	
11	.684	2.074	79.042	
12	.629	1.907	80.949	
13	.583	1.768	82.717	
14	.533	1.615	84.332	
15	.512	1.553	85.885	
16	.458	1.387	87.272	
17	.422	1.278	88.549	
18	.393	1.192	89.741	
19	.385	1.168	90.909	
20	.333	1.009	91.918	
21	.309	.935	92.854	
22	.294	.890	93.743	
23	.279	.846	94.589	
24	.266	.805	95.394	
25	.251	.760	96.154	
26	.232	.704	96.858	
27	.204	.617	97.476	
28	.178	.539	98.015	
29	.167	.507	98.522	

30	.150	.454	98.977	
31	.129	.391	99.368	
32	.109	.332	99.700	
33	.099	.300	100.000	

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table-10

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.850
Bartlett's Test of Sphericity	Approx. Chi-Square	3103.647
	df	528
	Sig.	.000

Table-11

Rotated Component Matrix^a

	Component							
	1	2	3	4	5	6	7	8
Health1		.768						
Health2		.755						
Health3		.822						
Health4		.745						
Health5		.744						
Health6		.680						
Mood1	.793							
Mood2	.772							
Mood3	.747							
Mood4	.846							
Mood5	.796							
Mood6	.796							

Convenience1								.783	
Convenience2								.770	
Convenience3								.727	
Convenience4									
Convenience5									
Sense1			.796						
Sense2			.847						
Sense3			.818						
Sense4			.752						
Natural1				.732					
Natural2				.706					
Natural3				.732					
Economic1									.725
Economic2									.654
Economic3									
WC1						.804			
WC2						.610			
WC3						.743			
Familiarity1								.815	
Familiarity2								.788	
Familiarity3									

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 8 iterations.

Table-12:

Component Correlation Matrix								
Component	1	2	3	4	5	6	7	8
1	1.000	.133	.149	-.349	-.007	-.240	-.460	.157
2	.133	1.000	.191	-.224	-.124	-.141	-.101	.194
3	.149	.191	1.000	-.297	-.037	-.085	-.311	.264
4	-.349	-.224	-.297	1.000	.131	.221	.294	-.239
5	-.007	-.124	-.037	.131	1.000	.095	-.057	-.061
6	-.240	-.141	-.085	.221	.095	1.000	.234	-.115
7	-.460	-.101	-.311	.294	-.057	.234	1.000	-.211
8	.157	.194	.264	-.239	-.061	-.115	-.211	1.000

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

6. Results:

For TN youngsters the factors that more likely to influences their food choice are Vitamin content, nutritious content, skin & teeth care and fibrous content in health. In mood they are influenced by stress, relaxation, cheering and feeling good. In Convenience TN male students are influenced by easy preparation and buying from nearby shops and super markets. In Sensory influence all the factors such as taste, smell, look and texture affects their food choice. Natural Ingredients, Value for money, familiar food and childhood food are the other factors that Tamil Nadu youngster's agrees that influences them while choosing their food. For Kerala youngster's awake and alertness, relaxation, cheering up, feels good, easy preparation, buying from nearby shop, value for money, additives, natural ingredients, smell, look, taste, texture and familiar food affects their food choice behavior. For AP youngster's Skin nail and teeth care, stress, awake and alertness, relaxation, cheering up, feels good, buying from nearby shop, and value for money, smell, look, taste, texture, calories, usual food, childhood foods and familiar food affects their food choice behavior.

7. Conclusion:

By the descriptive visualization of data we could fetch that there are some deviations among the food choices of south Indian youngsters. Not only has the place even the gender and work status have also influenced the deviation among the south Indian youngsters while choosing their food

8. Limitations:

The study has been conducted for all five states and one union territory in south India but due to lack of data from Karnataka, Pondicherry and Telangana the study could not be extended to these states so the study covered only the 3 states which are Tamil Nadu, Andhra Pradesh and Kerala. For the study like food preferences of south Indian youngsters the sample size of 150 is too low.

Appendix-1:

Health 1	Vitamins and minerals
Health 2	Keeps me healthy
Health 3	Nutritious
Health 4	Protein
Health 5	Good for skin/teeth/hair/nails
Health 6	Fiber and roughage
Mood 1	Stress
Mood 2	Cope up with life

Mood 3	Awake and alertness
Mood 4	Relaxation
Mood 5	Cheering up
Mood 6	Feel good
Convenience 1	Easy preparation
Convenience 2	Simple cooking
Convenience 3	Time consumption
Convenience 4	Buying from shops
Convenience 5	Available in supermarket
Sense 1	Smell
Sense 2	Look
Sense 3	Texture
Sense 4	Taste
Natural Content 1	Additives
Natural Content 2	Natural Ingredients
Natural Content 3	Artificial Ingredients
Economic 1	Expense
Economic 2	Cheap
Economic 3	Value for money
Wc 1	Calories
Wc 2	Weight control
Wc 3	Fat
Familiarity 1	Usual food
Familiarity 2	Familiar / Known food
Familiarity 3	Childhood Food

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