Dietary Diversity Score and its Associated Factors in Salem and Namakkal Districts

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Abstract

Dietary diversity is defined as the amount of various foods or food groups that are consumed over a period of specific reference time. Increasing the variety of foods and food groups in the diet helps to ensure adequate intake of essential nutrients. The present study was undertaken to assess the dietary diversity score and its associated factors. A total number of 32 households were selected from both urban and rural areas of Salem and Namakkal districts. A community-based cross-sectional study was conducted between 23rd August 2018 and 10th September 2018 with the help of questionnaire which contained general information, socio economic status and 24 hour recall method. Dietary diversity score was computed for 10 food groups that were commonly consumed by Indians. Among the total number of 32 households, the average dietary diversity score of the participants was 7. Majority of the households (53.1%) were spending about 3000 to 5000 INR per month for purchasing food. The results revealed that the monthly income, expenditure on food, dietary pattern and occupation of the household had a positive influence with Household Dietary Diversity Score (HDDS).

Keywords: Dietary Diversity, FANTA, HFIAS, Priority Households

1. Introduction

Dietary diversity refers to the variety of foods consumed by individuals or households[1,2]. It can also be explained as the inclusion of number of variety of foods and food groups over a given period of time which has been recognized by nutritionists. When measured on a household level, dietary diversity is related to socio economic position of the household and food security and when measured on a individual level it is related to dietary quality and nutritional status[3]. This relationship makes dietary diversity relevant for food security, which requires access to nutritionally adequate diet[4]. Dietary diversity might not only be linked to dietary quality, but also imply dietary quantity. The requirement of nutrients by the body cannot be met from a single food group however it is met by the addition of variety of foods in diet. Since dietary diversity is a qualitative measure of food consumption which reflects the house hold accessibility to variety of foods and also it is an indicator for nutrient adequacy of the diet of individual or household. Hence, a dietary diversity questionnaire can be used as a rapid, user-friendly and easily administrable low cost assessment tool[5].

In order to measure the dietary diversity level, HDDS (Household Dietary Diversity Score) is used. It is a proxy measure of the household access to food or proxy measure of the socioeconomic level of households[6]. It was

developed by Food and Nutrition Technical Assistance (FANTA) and actively promoted by USAID. Moreover, this index is the basis for the recent FAO 'Guidelines on measuring household and individual dietary diversity'[7]. The HDDS was developed to measure household food and designed to be an easy to use and quick to implement index, making it ideal for impact evaluation of development programmes[8].

Since not many studies have been in the study area so far targeting the dietary diversity of the smart card holders, this study was undertaken to determine the dietary diversity score of the household and its associated factors.

2. Methodology

A total of 32 priority household smart card holders were selected as respondents from Salem and Namakkal districts. Every person belonging to Priority Households receive 5 kg of food grains per month at subsidized prices from the ration shops not exceeding Rs. 3 per kg of rice, Rs. 2 per kg of wheat, Rs. 1 per kg of coarse grains for a period fixed by the central government and thereafter, at such price may be fixed by the central government from time to time. Data was collected between 23rd August and 10th September by questionnaire method with structured questions. Socio-demographic characteristics of the household, economic status of the household, food purchasing pattern of the household, food frequency intake of the household and 24 hour dietary recall method were collected from the household head. A 24-hr recall method was used to assess the dietary diversity score of the households and it was measured with a tool called Household Food Insecurity Access Scale (HFIAS) which is developed and referred by FANTA. The questionnaire has been included with 12 food groups suggested by FANTA which is then reduced to 10 food groups based on the local availability. The HDDS scores were divided into three categories, where the lowest HDDS was represented by 1–5 scores, moderate HDDS by 6–7 scores and the highest HDDS by 8–10 scores. Bivariate analyses such as correlation and linear regression were computed to assess the association between the study variables and household dietary diversity score. P value <0.05 was used as standard to judge the association as statistically significant.

3. Results and Discussion

Table 1. Socio demographic characteristics of the households

VARIABLE	CATEGORY	FREQUENCY (n=32)	PERCENTAGE (%)
Total number of family members	≤ 4	22	69
	≥ 5	10	31
Dietary pattern	Vegetarian	9	28
	Non-vegetarian	23	72
Gender of the household Head	Male	12	37.5
	Female	20	62.5
Comunity of the households	BC	68	18.75
	MBC	18	25
	SC/ST		56.25
Literacy Level of the household head	Upto primary	15	46.8
	Above primary	17	53.2

The total number of the family members was categorized as, up to 4 members (69%) and above 5 members (31%). Majority of the households are female headed households (62.5%). All the households belonged to the religion of Hinduism (100%) and 18.75%, 25%, 56.25 % (Table 1) of the selected households belonged to BC, MBC, SC and ST respectively. About half (53%) of household heads were educated above primary level and 46.8% completed up to primary level. Economic status of the selected households is given in (Table 2).

Table 2. Economic status of the households

Variable	Frequency (n = 32)	Percentage (%)
Primary source of income		
S E	14	43.7
W L	18	56.3
Estimated monthly income (in rupees)		
< 13000	15	46.9
13000-18000	9	28.1
>18000	8	25
Money spent on food (in rupees)		
<3000	6	18.75
3000-5000	17	53.1
>5000	9	28.1

Salaried Employment/Wage Labour

Household income as a proxy indicator for socio economic status has been found to be strongly associated with access to adequate food intake/food security[9]. More than half of the household heads (56.3%) were wage laborers, 46.9% of the households were earning below 13,000 INR. It is clear from the report that, larger segment of participants (53.1%) spent about 3000 to 5000 INR per month for food (Table 2).

All households included in this study purchased their food primarily from the market. Majority of the households (81.2%) purchased milk and milk products on a daily basis.

Among the non-vegetarian households, 96.8% and 65.7% of respondents purchased animal products and vegetables weekly respectively. All the households (100%) purchased pulses on monthly basis. And products such as cereals, fruits, oils and fats and sugars were purchased on monthly basis by 87.25%, 59.4%, 84.35% and 90.6% respectively.

All the households consumed cereals on a daily basis (Table 4). Majority of the households (84.3%) consumed pulses, milk and milk products on a daily basis. Moreover 87.5% of respondents consumed animal products on weekly basis. In addition to their staple food, majority of the respondents (93.75%) ate vegetables daily in their diet. Among the respondents, only 18.75% took fruits on daily basis. Majority of the respondents included oil-based items on a daily basis. However, only 12.5% of them ate nuts on daily basis. Approximately one third of the respondents consumed sugar products daily. Majority of the participants (78.12%) consumed beverages like tea, coffee, juices etc. daily whereas 9.37% consumed it weekly once.

About 10% of the selected households had low dietary scores; however half of the respondents (59.3%) were in the moderate HDDS group (Table 5). One third of the selected households had the high scores. Almost all the households included cereals, pulses, vegetables, milk and

Table 3. Food Purchasing Pattern of the Households (n = 32)

Food items	Cereals (%)	Pulses (%)	Animal products (%)	Milk products (%)	Vegetables (%)	Fruits (%)	Oils &fats (%)	Sugars (%)
Daily	9.37	-	-	81.2	34.3	-	-	-
Weekly	-	-	96.8	6.25	65.7	40.6	9.37	15.6
Monthly	87.25	100	3.125	12.5	-	59.4	90.6	84.35
Annually	3.125	-	-	-	-	-	-	-

Table 4. Frequency of food consumption among the households

Food groups	Percentage (%)				
	Daily	Weekly	Monthly	Occasionally	Nil
Cereals	100	-	-	-	-
Pulses	84.3	9.37	6.25	-	-
Milk Products	84.3	3.12	3.12	9.37	-
Animal Products	3.12	87.5	6.25	3.12	-
Vegetables	93.75	6.25	-	-	-
Fruits	18.75	46.87	21.8	9.37	3.12
Fats and Oils	96.8	-	3.12	-	-
Nuts	12.5	21.8	12.5	21.8	31.25
Sweets	15.625	31.25	18.75	31.25	3.12
Beverages	78.21	9.375	6.25	3.12	3.12

milk products, fats and oils in their daily diet. Moreover fruits and animal products were not eaten by the selected households on daily basis.

Table 5. Dietary diversity score of the households

Dietary diversity score	Frequency (n = 32)	Percentage (%)	Mean score
1 – 5 (Low)	3	9.37	
6 – 7 (Moderate)	19	59.3	7
8 – 10 (High)	10	31.25	

Table 6. Correlation and linear regression on factors associated with household dietary diversity score

Variables	r Value	p Value
Family size ≤4 ≥4	0.226	0.214
Dietary pattern Vegetarian Non vegetarian	0.660	0.000
Gender of the household head Female Male	0.26	0.886
Primary source of income S E W L	0.579	0.001
Literacy Level of the household head Above primary Up to primary	0.173	0.345
Estimated monthly income (in rupees) < 13000 13000-18000 >18000	0.842	0.000
Money spent on food (in rupees) <3000 3000-5000 >5000	0.905	0.000

Family size, gender and Literacy level of the head of the household were not significantly related with dietary diversity score of household (Table 6). This result is on par with the study done by[10,11]. Literacy level of the head of the

household did not significantly relate to the DDS and this result is also on par with the study by[12]. Among the socio economic variables, occupation, the total income and amount spent on food of the households showed a positive and significant (p<0.05) correlation with dietary diversity score. This result is similar to a study done by[13], Punjab Agricultural University on the Interrelationship among dietary diversity, socio economic factors and food security in rural households. Since p value was <0.05, it implies that the calculated regression coefficient was significant and any variance in independent variable (occupation, dietary pattern, income, expenditure) contributed to change in dependent variable. Therefore, variance in occupation, dietary pattern, income and expenditure on food really contribute to change in Household Dietary Diversity Score (HDDS).

5. Conclusion

The study demonstrated that dietary diversity of the selected Priority Households (PHH) was generally good, since the mean HDDS was 7. However, the respondents were noted to be consuming predominantly cereal based diet. The study revealed that family size, gender of the household head and literacy level of the household head were not as influencing factors of dietary diversity score. The findings from the present study highlighted that the monthly income, expenditure on food, occupation of the household and dietary pattern were found as the reliable factors that significantly influenced the Household Dietary Diversity Score (HDDS) in the study area positively.

6. References

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