PRACTICES OF KNOWLEDGE AND PURCHASING FOODS CONTAINING DIETARY FIBRE ADOPTED BY FAMILY MEAL MANAGERS IN ANAMBRA STATE

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Abstract

The major purpose of this study was to investigate the selection practices of dietary fibre adopted by family meal managers with a view to evolving strategies for improving such practices. Two research questions were answered. Area of the study was Anambra State. The population of family meal managers was infinite. Multistage sampling technique was adopted in selecting 500 households giving a sample size of 500 family meal managers. Questionnaire and Focus Group Discussion (FGD) were used as instruments for data collection. Data collected were analyzed using mean and standard deviation while the FGD results were analyzed qualitatively. The findings of the study revealed four selection practices adopted by family meal managers in the state which include buying foods rich in dietary fibre from fly infested areas, buying foods late in the evening and buying tinned fruits and vegetables. Others include they are not aware that dietary fibre can reduce the risk of diseases and disorders such as diverticular disease or haemorrhoids, and may also have a protective effect on colon cancer. Based on the findings, recommendations for improving the practices were made.

Dietary fibre is not a 'nutrient'; it is nevertheless an important component in diets. The fact that it passes through the body without being absorbed is the main reason why fibre is so important (Lepton 2003).Dietary fibre or 'roughage' comprises the edible parts of plant that cannot be digested or absorbed in the small intestine and passes into the large intestine intact. This includes non-starch polysaccharides (e.g. cellulose, hemicelluloses, gums, pectin), oligosaccharides, lignin and associated plant substances (waxes, suberin). The term dietary fibre also includes a type of starch known as resistant starch (found in pulses, partly-milled seeds and grains, some breakfast cereals) because it resists digestion in the small intestine and reaches the large intestine unchanged. (Vahouny, 1982).

Dietary fibre is found in fruits (pears, strawberries, blackberries, raspberries, currants, oranges), vegetable (brussel sprouts, artichoke, onion, garlic, corn, peas, green beans, broccoli), pulses (lentils, chickpeas, beans) and whole grains (all bran and oat bran cereals, whole and mixed grain breads).Dietary fibre is often categorized according to its solubility into soluble or insoluble. Both types of fibre are found in different proportions in fibre-containing foods. Good sources of soluble fibre are oats, barley, fruit, vegetable and pulses (beans, lentils, chickpeas). Wholegrain cereals and whole meal bread are rich sources of insoluble fibre. (Onyechi, 2007).

Numerous studies have examined the role of dietary fat, protein and carbohydrate on energy intake control, whereas fewer studies have focused on the role of dietary fiber (Barkeling 1990, Burton-Freeman1997; Foltin 1992; Hill and Blundell 1986; Rolls 1995). The significance of low intake of fiber is that it is associated with increased risk for obesity (Alfieri,1995; Burkitt and Trowell; 1975, Van Itallie, 1978).

This study focuses on the knowledge and purchasing practices of dietary fibres by family meal managers in Anambra State. In the diets of humans, fiber sources include fruits, vegetables, grain products, legumes, nuts and concentrated plant sources such as oat and wheat bran. The benefits of consuming foods rich in fiber are numerous, ranging from improved large bowel function to slowed digestion and absorption of carbohydrate and fat and reduced risk for certain diseases (Ali 1982, Schneeman and Tietyen 1994). The recommended daily intake of fiber for healthy adults is between 20 and 35 g/d; however, much lower intakes of fiber have been reported (Pilch, 1987).

Purpose of the Study

The major purpose of the study was to investigate the knowledge and purchasing practices of dietary fibre in family meal management in Anambra State with a view to evolving strategies for improving such practices. Specifically, the study determined the following:

1. Purchasing practices of dietary fibre adopted by family meal managers in Anambra State.
2. Strategies for improving on the purchasing practices of dietary fibre adopted by family meal managers in Anambra State.

Research Questions

1. What are the selection practices of dietary fibre adopted by family meal managers in Anambra State?
2. What are the strategies for improving the selection practices of dietary fibre adopted by family meal managers in Anambra State?

Methodology

This study employed a survey research method. The area of the study was Anambra State in the Eastern part of Nigeria. The population of family meal managers was infinite. Multistage sample size was 500 family meal mangers sampling technique was employed to determine the sample for the study. The three Local Government Areas under the study namely Onitsha North, Onitsha South and Ogbaru Local Government Areas were randomly selected from others. The three L.G.As. were stratified into 9 (3each). From each strata 50 households were selected. Ten percent of each strata of the population was proportionally sampled. This yielded a total of five hundred (500) subjects who formed the sample for the study. Structured questionnaire and Focus Group Discussion (FGD) were used in this study. Questionnaire was used for literate and interview schedule for non-literate respondents. Four point scale response was used for data collection. The instrument was face validated by three Home Economics lecturers. The reliability of the instrument was determined using the cronbach Alpha procedure as it dealt with multiple scored items. A reliability coefficient of .89 was obtained. Distribution and collection of the instrument were by hand. Three trained research assistants were used for data collection. Out of the 500 copies of the questionnaire distributed to the respondents, 400 were duly completed and returned. This represents 80% return rate. Three FGD sessions were also organized. The discussion was brief to prevent the participants becoming bored. Mean scores were used for answering the research questions.

Findings

1. **Research Question 1:** What are the selection practices of dietary fiber adopted by family meal managers in Anambra State?

Table 1: Mean Scores of the Responses of Family Meal Managers in Knowledge and Purchasing Practices of Dietary Fibre in Anambra State

S/N	Knowledge and purchasing practices of dietary fibre adopted by family meal managers	X	SD	RMKS
1.	Preparing a list of food items needed	2.38	0.56	**Never practiced**
2.	Selecting fruits and vegetables sold in shops	2.28	0.63	**Never practiced**
3.	Buying fruits and vegetables on the ground.	3.00	0.70	Always practiced
4.	Buying fruits and vegetables in the shelves.	2.70	0.70	Always practiced
5.	Buying tinned fruits and vegetables	3.80	0.40	Always practiced
6.	Buying fruits and vegetables that are cheaper	2.65	0.63	Always practiced
7.	Buying only fresh foods	2.00	0.45	**Never practiced**
8.	Checking expiry date of tinned foods before buying	2.37	0.73	**Never practiced**
9.	Buying foods rich in dietary fibres from fly invested shops	2.28	0.63	**Never practiced**
10.	Checking NAFDAC number before buying	2.35	0.50	**Never practiced**
11.	Buying foods late in the evening when it is cheaper	3.07	0.85	Always practiced
12.	Eat foods rich in dietary fibres	2.05	0.72	**Never practiced**
13	Inclusion of fiber in the diet promotes satiation and prolongs satiety, aids in long-term compliance to low energy diets.	2.38	0.69	**Never practiced**
14.	Fibre encourages "healthy" food choices and eating habits	2.13	0.56	**Never practiced**
15.	Improving bowel function, dietary fibre can reduce the risk of diseases and disorders such as diverticular disease or haemorrhoids, and may also have a protective effect on colon cancer	2..21	0.65	**Never practiced**
16	Use of dietary fibre can help people with diabetes improve and control their blood glucose levels.	2.34	0.62	**Never practiced**
17	Inclusion of dietary fibre in meals prevents coronary heart disease.	2.09	0.45	**Never practiced**
18	Dietary fibre provides bulk in the diet, without added calories, it can have a satiating effect on appetite; helping in	2.22	0.65	**Never practiced**

	weight management.			
19	Buy water soluble fibres include pectin, mucilages,gums and hemicelluloses.	2.22	0.55	**Never practiced**
20	Buy water insoluble fibres include lignin and cellulose.	2.13	0.48	**Never practiced**

N=400 SD= Standard deviation

Table 1 shows that 4 out of 20 selection practices identified are always adopted by the family meal managers in Anambra State. This is because the means ranged from 2.65 to 3.80 were above the cut off point of 2.50. The SD of all the items ranged from 0.40 to 0.85. This indicates that the respondents were not too far from the mean of each item and were close to one another in their opinions.

1. **Research Question 2:** What are the strategies for improving the selection practices of dietary fiber adopted by family meal managers in Anambra State?

Table 2: Strategies for Improving the Knowledge and Purchasing Practices of Dietary Fibre by Family Meal Managers in Anambra State

S/N	Strategies	X	SD	RMKS
1.	Nutritionists should create the awareness of the importance of dietary fibre to good health to the entire populace.	3.57	0.61	A
2.	Nutritionists should encourage families to eat dietary fibres for "healthy" food choices and eating habits	3.50	0.55	A
3.	Home Economists should encourage families to use dietary fibre for people with diabetes to improve and control their blood glucose levels.	3.23	0.60	A
4.	Home Economists should encourage families to use dietary fibre in meals to prevent coronary heart disease.	3.57	0.67	A
5.	Home Economists should encourage families to use dietary fibre in meals to reduce obesity.	3.50	0.54	A
6.	Home Economists should organize educational campaigns directed by family meal managers	3.56	0.59	A
7	Government should subsidize prizes of food items.	3.60	0.54	A
8.	Food handlers should be enlightened on the dangers of buying food from dirty places.	3.57	0.85	A

Table 2 shows that the respondents agreed with all the strategies identified with their means above the cutoff point of 2.50. The SD

ranged from0.54 to 0.67 showing the closeness of the opinions of the respondents.

Discussion

The findings of this study on the knowledge and purchasing practices revealed that family meal managers in Anambra State practice 4 out of 20 selection practices identified in the study. These knowledge and purchasing practices they adopted are mainly unhygienic selection practices while the remaining 16 practices, which they neglected, are good hygienic practices (see table 1).These unhygienic knowledge and purchasing practices which these family meal managers adopt like buying fruits and vegetables on the ground, buying ingredients late in the evening when it is cheaper, buying foods rich in dietary fibres from fly invested shops make food unsafe for consumption (UN, 2003).

This confirms the findings made by WHO (1996) on hawked foods that some countries reported contamination of foods from raw foods. The FGD with these family meal managers on the knowledge and purchasing practices they adopted reveals the reason behind these unhygienic selection practices. They opined that those foods placed on the ground are cheaper because the traders who sell them do not pay rent for shops. They also disclosed that foods are cheap in the evening.

These unhygienic knowledge and purchasing practices are totally not in agreement with the recommendations of WHO (2002), FAO (2002) and FAO (1995) that foods used in meal preparation must be free from pathogenic micro-organisms to avoid food poisoning. Selection of fruits and vegetables should be done from clean places on shelves, boxes or baskets.

The findings revealed that respondents make little or no planning before embarking on their food selection. This is not in consonance with the observations of Anyakoha and Eluwa (1999) who noted that preparing a list of food items needed before going to the market helps the family meal managers to select and do wise purchases. This is not in line with FAO (2002) who recommended that fruits and vegetables that are infested with flies should not be purchased. Ezeoguine (2002) observed that there is proliferation of dumpsites and mounds of refuse heaps that attract flies all over Nigeria especially in some urban areas.

The findings revealed that some respondents buy tinned fruits and vegetables. This is in line with Hylander and Rossner (1983) who established benefits of consuming a diet rich in dietary fiber. One of these benefits is associated lower risk for certain diseases such as obesity.

The findings revealed that some respondents never practiced eating foods rich in dietary fibres because of ignorance. This is in line with De Vries (2003) who stated some good sources of soluble fibre as oats, barley, fruit, vegetable and pulses beans, lentils, chickpeas. Wholegrain cereals and whole meal bread are rich sources of insoluble fibre.

Most have examined the usefulness of fiber in enhancing compliance with diets designed for weight loss by reducing hunger i.e., low or very low calorie diets(Astrup 1990, Heini. 1998, Mickelson 1979, Pasman 1997, Ryttig 1985). With the exception of Heini (1998). Lack of effect reported in the study by Heini and co-workers may have resulted from the use of hydrolyzed guar gum, which would have removed the viscosity effect of the fiber, an important component of fiber-related satiety. The usefulness of long-term fiber supplementation to induce or maintain weight loss under unrestricted conditions is not clear (Evans and Miller 1975, Hylander and Rossner 1983).

The study revealed that some respondents never practiced using dietary fibre in foods which help diabetic patients improve and control their blood glucose levels. This is in line

with Bessesen (2001) and Ene-Obong (2001) who enumerated the roles of dietary fibres in human as follows: by improving bowel function, dietary fibre can reduce the risk of diseases and disorders such as diverticular disease or haemorrhoids, and may also have a protective effect on colon cancer, slow digestion and absorption of carbohydrates and hence lower the rise in blood glucose, blood cholesterol- results of epidemiological studies identified another role for dietary fibre in the prevention of coronary heart disease (CHD) that of improving blood lipid profiles, fibre can have a satiating effect on appetite; helping in weight management. In order to have all the benefits of fibre it is important to vary the sources of fibre in the diet. Diets with fruits, vegetables, lentils/beans and whole grains not only provide dietary fibre but as well many other nutrients and food components essential to good health (Ali 1982).

There are several ways in which dietary fiber may affect obesity development (Ali, 1982). Because obesity represents the long-term result of an imbalance between energy intake and energy expenditure, the most obvious link between dietary fiber and obesity development is through its effects on energy intake control mechanisms. The ingestion of fiber has been hypothesized to suppress energy intake by inducing satiation and satiety (Blundell and Burley 1987). Satiation is defined as the satisfaction of appetite that develops during the course of eating and eventually results in the cessation of eating. Satiation can be quantified by the duration of a meal and/or the size of the meal. In contrast, satiety is the state in which further eating is inhibited and occurs as a consequence of having eaten. The intensity of the satiety response to a meal/food(s) is measured by the duration of time between meals/eating occasions and/or the amount of food consumed at the next meal (Blundell, 1996). Together, satiation and satiety are integral processes controlling food intake and feeding behavior. The means by which dietary fibers influence satiation and satiety are related to their inherent chemical and physical properties, particularly their bulking and viscosity-producing capabilities. Adding fiber to the diet adds bulk, which in turn alters energy density and palatability. The addition of fibers that form viscous colloidal dispersions when hydrated affects multiple aspects of gastrointestinal (GI) function, such as gastric emptying, small bowel transit time, and the digestion and absorption of nutrients, particularly fat and carbohydrate (Schneeman and Tietyen 1994,Vahouny, 1988). Hence, dietary fiber has the ability to modify cephalic-, gastric- and intestinal-phase processes of ingestion, digestion and absorption, providing it numerous opportunities to influence satiation and satiety.

There is sufficient evidence to suggest that through the action of fiber at different levels of the GI tract, the inclusion of fiber in the diet should promote food intake control. Numerous studies have investigated the effect of fiber on satiation and satiety as well as subsequent food/energy intake. For the most part, these studies have been short-term feeding trials using a preload-type design to investigate effects of fiber isolates, fiber-supplemented foods or mixed meals containing fiber-rich foods. The results from these trials vary, depending on the population being studied, the type, dose and mode of fiber administered as well as the timing of food intake assessment relative to treatment. Despite the differences in approach, a significant number of studies have demonstrated suppressed hunger and greater satiety with fibers that have the viscous-producing property, whereas satiation and gastric fullness may be more closely related to the bulking effects of fiber (Burley 1987and 1993, Burton-Freeman, personal communication, Cybulski 1992, Di Lorenzo 1988, French and Read 1994, Gustafsson 1995, Leathwood and

Pollet 1988, Rigaud 1997, Tomlin 1995). The subsequent effect on food intake has been more variable because in some cases, food intake at a test meal was reduced, in other cases, it was not. Although much of the discrepancy in results may be ascribed to differences among studies, different responses related to gender and body weight status (i.e., obese vs. normal weight) may also be responsible. With regard to gender, work in our laboratory indicates that women may be more sensitive to dietary manipulation with fiber than men, which is consistent with a previous report by Burley (1993). Moreover, we have found that the subjective satiety response to dietary manipulation in men and women is supported by differences in the CCK response, suggesting that signals for satiety differ between genders (Burton-Freeman et al. 1998 and personal communication). The relationship of body weight status and fiber effect on energy intake suggests that obese individuals may be more likely to reduce food intake (Evans and Miller 1975, Porikos and Hagamen 1986) with dietary fiber inclusion. However, many more studies will be required to establish this relationship firmly by comparing directly the effects of fiber between normal weight and obese subjects. Nonetheless, the data highlight the importance of understanding how fiber or the different types of fiber may influence food consumption behavior in different groups of people. This information is valuable for developing and successfully implementing dietary strategies aimed at food intake and body weight control.

The result of the findings on the strategies for improving knowledge and purchasing practices of dietary fibre by family meal managers revealed that the subjects agreed with all the eight items identified as shown in table 2.The respondents supported the idea of creating the awareness of the importance of dietary fibre to good health to the entire populace as shown in majority of the items. This is in consonance with the opinions of Bessesen and Ene-Obong (2001) who noted that knowledge of the roles and sources of dietary fibres to health is very important. There are many well-established benefits of consuming a diet rich in dietary fiber. One of these benefits is the associated lower risk for certain diseases such as obesity. The relevance of fiber in obesity development is centered on fiber's role in food intake control.

Conclusion

Lack of proper awareness of the knowledge and purchasing practices of dietary fiber is the major reasons why family meal managers neglect the dietary fibers and family members suffer from Colon and Rectal cancers, constipation, coronary heart diseases.

Recommendations

From the findings of the study, it is hereby recommended that:

1. Foods used in meal preparation must be free from pathogenic micro-organisms to avoid food poisoning.

2. Selection of fruits and vegetables should be done from clean places on shelves, boxes or baskets.

3. Family meal managers should plan before embarking on their food knowledge and purchasing practices.

4. Fiber offers many health benefits and prevention of weight gain and promotion of weight loss is another feather in its cap.

5. Modest increases in intakes of whole-grains, beans, vegetables and fruits can help you easily achieve the recommended range of dietary fiber intake each day.

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