

ORIGINAL ARTICLE

MOTHERS' KNOWLEDGE AND PRACTICE REGARDING HEALTHY NUTRITION AMONG BLIND CHILDREN IN MOSUL CITY

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Summary

Background: Nutrition an integral part of child growth and development.

Aim: Comparison regarding mothers' knowledge and practice between blind and non-blind child.

Patients and Methods: A case control study design of 120 mothers (40 mother of blind child and 80 mother of non-blind child). It was adopted in UmAl-Rbean Development Foundation for Blind and purblind during.

Results: revealed that 108 (90%) agree that with food we can control most of our disease. Diet-disease relationship reported by mothers were obesity 92 (77%) and hypertension 66 (55%) with P-value 0.017. Mothers' knowledge regarded true fact (playing sport and eat and drink, and do not be extravagant were 120 (100%) and 76 (63.3%) respectively. Mothers reported that 72 (60%) of study sample eat protein twice a day, 92 (76.7%) eat carb frequently aday, 54 (45%) eat fat once a day, 68 (56.7%) eat fruit and vegetable twice a day. Drinking plenty of water seen among blind child 18 (45%) while drinking of water with meal seen among non-blind 66 (82.5%). Drinking of tea commonly among non-blind 72 (90%) and specially with meal 28 (38.9%).

Conclusion: The study concluded that mothers of non-blind children more knowledgeable than mothers of blind children. Eating carb and fat twice a day commonly seen among blind child mean while eating protein and fruit and vegetable twice a day more prevalent among non- blind child.

Recommendation: Exclusive education program to mother of blind child to improve their knowledge and enhance health practice toward their child nutrition.

Key words: Good Diet; Mother's Awareness; Blind Child Nutrition

Introduction

Food recognizes important for human beings in health and disease (1). The most common requirement for healthy growing child per day are following: fresh fruit and vegetable 3-5 servings, Whole Grains 6-11 servings, protein 2-3 servings, dairy products 2-3 servings (cups) and water 6-8 glasses (1, 2).

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Knowledge is the corner stone to adapting healthy behavior that required awareness, motivation and acceptance (3). Practicing healthy diet habit are affected by many factors such as social, cultural, religious in addition to other factors such as age, parity, education, income and employment status of the women (4). Mothers play an important role in child's nutrition which required for growth in addition to physical and psychological development. Women in developing countries are still have primary responsibility for feeding children, without adequate nutrition knowledge and optimal feeding practices poor nutritional status among children can arise even in households with adequate income, food, good sanitation and availability of health services in quality and quantity (5). The improvement of the economic income of the family would enable the women to get better health care for her and their families (6), at same time women work reduce the time that spend preparing healthy food for children, their child feds by others and spend less time eating meals with them that lead to inability to control obesity later on childhood (7). Women employment rate was increase as a result of change in society and family structure to support their families in the face of the low economic conditions (8). Child's feeding at school age become as social activity, they spend more time at school and learn eating habits from their peers specially in absence of family control to their nutrition (2). Healthy life habit including family meal time which referee to regular food intake in quality and quantity and reflect that on regular checking of child weight this help to do not adapting negative association with food. One third of child food consume at school so that encourage healthy snacks such as fresh daily product and eliminate sugary treats such as flavored milk, desserts, ice cream, chips and possessed food (9). Childs' drink has a role in gaining weight, dental damage and poor nutrition if not control well such as soda, caffeine and sugar loaded juice, therefore, it is very important to encourage child to drink enough amount of water and healthy beverage such as milk and natural fruit juice (10). Fast food is the unhealthiest food product in addition to other sugar-sweetened beverages. It is very important to substitute healthier choices such as chicken and vegetable rather than soda and the fries, which had little nutritional value if possible (2). As a result of modernization and adapting western life style with decrease physical activity, in addition to changes in family structure and employment pattern in Mosul city specially after 2003 make women to spent less time with their child and increase opportunity of fast food make child to serve large amount of fat and calorie resulting in increased cases of overweight and obesity among children the aim of presented study was to assess the knowledge and practice of child's mothers regarding their nutrition.

Patients and methods

A case control study design was carried out at Um Al-Rabeen institution for blind and purblind child. The study extended for four-month duration from 1st Oct– 1st Nov. 2021 among 120 mothers (40 blind's child mother and 80 non-blind's child mothers), interviewed face to face ask them by using standardized data collection form consist from four items.

- First part: Demographic characters (age in years, sex male and female, education level of the mother (illiterate, primary, secondary))
- Second part: Mothers' knowledge regarding child nutrition (Is food related to our health? Do you agree that with food we can control most of our diseases? Do you have an idea of healthy food? Do you look for the nutritional value of your child meal?). Child's mother beliefs about diet -disease relationship (obesity, hypertension, diabetes, underweight, hyperlipidemia, heart disease and arthritis). Child's mother responses to true fact consider it as a life style (playing sports, eat and drink, and do not be extravagant, avoid hot food and drink, the stomach is the home of disease, do not eat unless you are hungry and eating while you are sitting).
- Third part: Behavior of mother to nutrition of their children. (Frequency of eating proteins, carbohydrates including sweets, fats, fruits and vegetables, fast and canned foods). How often does the child drink water? and timing of drinking water in relation to meal. How often does the child drink tea? and timing of drinking tea in relation to meal.
- Statistical analysis: Data were tabulated, categorized, and analyzed using Minitab (version 16) software program. Simple percentage were used and put in suitable tables and figures. Using X^2 to study the association between two variables with p value equal to or less than (0.05).

Results

Demographic characters of participant seen in (Table 1), as 86 (72.0%) of age of participant more than 10 years with no differences between blind and non-blind child. Primary education more prevalent among study sample, it was 50 (41.6%). Illiterate mother of blind and non-blind child was 6 (15%) and 16 (20%) respectively.

Table 1. Study demographic characters of participant.

Category	Blind=40		Normal=80		Total=120		P- value
Age of children							
Under10	12	30	22	27.5	34	28	0.839
Over 10	28	70	58	72.5	86	72	
Sex of children							
male	16	40	26	32.5	42	35	0.566
female	24	60	54	67.5	78	65	
Educational level of Mothers							
Illiterate	6	15	16	20	22	18.4	0.967
Primary	18	45	32	40	50	41.6	
Secondary	12	30	24	30	36	30	
University and high education	4	10	8	10	12	10	

Table 2 revealed that 100.0% of child' mothers agreed that food was related to our health, 108 (90%) agree that with food we can control most of our disease. P-value not significant.

Table 2. Mothers' Knowledge regarding their child food.

Mothers' Knowledge regarding food*	Blind=40		Normal=80		**Total=120	
	No.	%	No.	%	No.	%
1- Is food related to our health?	40	100	80	100	120	100
2- Do you agree that with food we can control most of our diseases?	32	80	76	95	108	90
3- Do you have an idea of healthy food?	36	90	74	92.5	110	91.7
4- Do you look for the nutritional value of your child meal?	26	65	74	92.5	100	83

*Multiple response, ** P- Value = 0.837, using χ^2 test

Most common disease had relation to bad diet reported by mothers were obesity 92 (77%) and hypertension 66 (55%) meanwhile arthritis and heart disease reported by 46 (38%) and 28 (23%) respectively. P-value 0.017. These finding seen in (Table 3).

Table 3. Mothers' beliefs about diet -disease relationship.

Diseases*	Blind=40		Normal=80		Total=120	
	No.	%	No.	%	No.	%
Obesity	34	85	58	72.5	92	77
Hypertension	24	60	42	52.5	66	55
Diabetes	6	15	26	32.5	32	27
Underweight	18	45	32	40	50	42
Cholesterol	22	55	8	10	30	25
Heart disease	16	40	12	15	28	23
Arthritis	28	70	18	22.5	46	38

*Multiple response, ** Using χ^2 test, p value = 0.017

Playing sport and eat and drink, and do not be extravagant were 120 (100%) and 76 (63.3%) respectively. Last item reported was eating while you are sitting 4 (3.3%), Table 4.

Table 4. Child's mother responses to true fact consider it as a life style.

Category*	Blind=40		Normal=80		Total=120	
	No.	%	No.	%	No.	%
1- Playing sports	40	100	80	100	120	100
2- Eat and drink, and do not be extravagant	24	60	52	65	76	63.3
3- Avoid hot food and drink	10	25	12	15	22	18.3
4- The stomach is the home of disease	2	5	8	10	10	8.3
5- Do not eat unless you are hungry	0	0	8	10	8	6.7
6- Eating while you are sitting	4	10	0	0	4	3.3
*Multiple response						

Behavior of mother according to nutrition of their children revealed that 20 (50%) blind children eat protein twice daily, 28 (70.0%) eat carb frequently and 16 (40%) eat fat twice a day. While drinking of water at thirst and with meal commonly seen among normal child, they were 68 (85%) and 66 (82.5%) respectively. Normal child eats fruit and vegetables twice a day 50 (62.5%) and blind child was 18 (45%), Table 5.

Table 5. Daily macronutrient and beverage intake among children.

Frequency of eating /day		Blind=40		Normal=80		Total=120	
		No.	%	No.	%	No.	%
Protein	Once	8	20	10	12.5	18	15
	Twice	20	50	52	65	72	60
	Frequently	10	25	12	15	22	18.3
	Occasionally	2	5	6	7.5	8	6.7
Carb	Once	0	0	2	2.5	2	1.6
	Twice	12	30	14	17.5	26	21.7
	Frequently	28	70	64	80	92	76.7
Fat	Once	10	25	44	55	54	45
	Twice	16	40	28	35	44	36.7
	Frequently	12	30	2	2.5	14	11.6
	Occasionally	2	5	6	7.5	8	6.6
Fruits and Vegetables	Once	12	30	8	10	20	16.7
	Twice	18	45	50	62.5	68	56.7
	Frequently	4	10	18	22.5	22	18.3
	Occasionally	4	10	4	5	8	6.6
	Not Eat	2	5	0	0	2	1.7
Water	Plenty	18	45	12	15	30	25
	At thirst	22	55	68	85	90	75
Drinking water in relation to meal	Before meal	2	5	4	5	6	5
	With meal	16	40	66	82.5	82	68.3
	After meal	22	55	10	12.5	32	36.7

Eating fast and canned food daily was 112 (93.3%) commonly seen among normal child 78 (97.5%), Table 6.

Table 6. Eating fast and canned food / day among study sample.

Fast and canned food	Blind=40		Normal=80		Total=120	
	No.	%	No.	%	No.	%
Yes	34	85	78	97.5	112	93.3
No	6	15	2	2.5	8	6.7

Drinking tea was 94 (78.3%), and frequently seen among normal child 72 (90%). Drinking tea with meal among normal child 28 (38.9%) to a lesser extent among blind 8 (36%), Table (7).

Table 7. Drinking tea among study sample in relation to meal.

Drinking tea	Blind=40		Normal=80		Total=120	
	No.	%	No.	%	No.	%
Yes	22	55	72	90	94	78.3
With meal	8	36	28	38.9	36	38.3
Once	6	27.2	18	26	24	25.5
Twice	8	36.3	26	36.1	34	36.2
No	18	45	8	10	26	21.7

Discussion

Nutritional education is a cornerstone in assisting mothers in feeding their children and overcoming barriers in order to prevent malnutrition and its consequences. The present study revealed that Mothers' grand general Knowledge regarding their child food was excellent as one hundred percent agreed that food had relation to our health among both group case and control and 91.7% of studied mothers had idea about healthy diet.

A cluster survey in Congo 2011, revealed that maternal education is associated with low prevalence of simultaneous multiple-malnutrition (11). A similar finding was seen in Zambia 2019, among 270 mothers, showed that good knowledge score was significantly related to Age, level of education and occupation (12). Unlike study in Ghana 2005, on 55 well-nourished and 55 malnourished mother–child pairs showed that mother's practical knowledge about nutrition more important than formal maternal education for child nutrition outcome (13), another study among Japanese student 2020, found that no relationship between maternal nutritional knowledge and adolescents' nutrient intake (14). A community-based study in Nepal 2018, demonstrate mothers of young child had poor knowledge of healthy and unhealthy diet (15).

The present study showed that blind's child mother more knowledgeable than non-blind's child mother regarding association between non- communicable disease and bad nutrition, P-value was statistically significant.

This finding was consistent with a cross-sectional study was conducted in Zimbabwe 2017, among 241 of preschool children's parents agreed that bad nutrition had bad effect on health and predispose to many non-communicable diseases such as heart disease, diabetes, over weight and obesity at same time the participant did not know eating at least 5 servings of fruits and vegetables is beneficial in maintaining healthy body weight (16). A study in London 1998, among 92 mother reported that with good nutrition can prevent non-communicable disease such as overweight, heart disease, tooth decay, Acne and cancer (17). While in Nepal 2018, child's mother didn't had idea with healthy diet and physical activity can avoid the occurrence of cardiovascular disease (15).

In the present study, both groups one handed percent agreed that playing sport considered as a life style, 63.3% eat and drink, and do not be extravagant. At same time, avoid hot food and drink and eating while you are sitting more frequently seen among mothers with blind child it was 25% and 10% respectively.

In Nepal 2018, child's mothers had poor knowledge regarding importance of leisure time physical activity to improve their child health (15). Many health concerns such as obesity are also associated with eat and drink but don't be extravagant, The Quran gives succinct advice when it comes to eat and drink (18). A case report for gentleman aged 50 years old in 2017, presented with retrosternal chest pain revealed that eating hot foods and beverage leading to dysphagia and retrosternal burning sensation (19). Lying down after taking meal is bad habit as a cross over study design among 6 patients 2002, showed that orocecal transient time in postprandial position is significantly longer than that in sitting position (20).

The study showed that 20 (50%) and 52 (65%) of studied child both blind and non-blind eat protein twice daily, 28 (70%) and 64 (80%) eat carbohydrate frequently per day, 10 (25%) and 44 (55%) eat fat once daily, 18 (45%) and 50 (62.5%) eat fruit and vegetable twice daily, respectively.

Harvard nutritional guideline 2021, for child growth and development reported that child require the same healthy foods adults such as proteins, whole grains, vitamins and minerals, fresh fruits and vegetables, drinking of 6-8 glass of water, avoid drinking tea and replaced with healthy remedy beverage (2). Study in London 1998, among 92 mother about macronutrient to their child depict that the children's intakes of macronutrients were typical for the U.K guideline. (37% fat, 50% carbohydrate and 13% protein by energy; 12 g/day fiber), while median fruit, fruit juice and vegetable intake amounted 2.5 servings/day (17). Also in Turkey 2014, study was carried out among 132 boys and 170 girls, total 302 mothers of the students revealed that mother provides healthy, fresh and varied food in terms of nutritional value (9). In Zimbabwe 2017, a cross-sectional study among 241 parents of preschool children to show frequency of eating nutritional group per day revealed that about half of the households consumed vegetables (47.9%) but a high sugar and oil consumption (99.2%) (16).

Eating fast and canned food daily was 112 (93.3%) and commonly seen among normal child 78 (97.5%).

Our study is consistent with study in Malaysia 2015, that there is increasing trend in fast-food consumption due to availability, affordability and accessibility of product (21). Another study in Malaysia 2016, assessed eating habits and dietary intakes of 2797 Malaysian children aged 2 to 12 years, 9.7% of child ate fast food on a weekly basis (22). Indian survey 2017, among 13,274 schoolchildren in the age group 9-7 years, showed that low frequency of taking macronutrient (vegetable, fruit, pulsus and protein) and half of children consumed packaged food or beverages at least once a day, the school was a source a of them such as chocolates, chips juice-based beverages (23). The consumption of sweetened beverages is a known common risk factor for the development of obesity and dental caries in children (24).

Plenty of drinking water seen among blind child 18 (45%) and specially after meal 22 (55%), drinking water at thirst seen among non-blind child 68 (85%) and specially with meal 66 (82.5%).

Maintaining adequate fluid intake and optimal hydration is essential for physiological and behavioral growth of child (10). Most common healthy drinks for toddlers, preschoolers and older children are water, milk or unsweetened, fortified soy beverage and should be available and accessible most of the time (25). A study among 32 mother in Australia 2011, found that water is most preferable beverage to youngest child, but due to certain socio-cultural factors provision of soda, Pepsi, and other sweetened beverage as a reward to older child on doing good behavior or on going shopping, in eating dinner in restaurant or invitation in party (26). Cross-sectional surveys involving 6,469 children (4-17 years) from 13 European countries, two third of them did not drink adequate water per day and sugar-sweetened beverages and fruit juices to total fluid intake in children exceeded that of water. The study concluded that should offer water to children regularly throughout the day without relying on one's own thirst (10).

Drinking tea was 47 (78.3%) and frequently seen among normal child it was 36 (90%). Drinking tea with meal among normal child 14 (38.9%) to lesser extent among blind 4 (36%).

Although tea provides some short term advantages to the child such as: relaxing, soothing body and abdominal aches, lowering body temperature if the child has a fever, treating cough and cold and keeping the child hydrated, but is not recommended for children due to its natural caffeine content (27). The American Academy of Pediatrics

declare that adolescents between 12 and 18 age may take 100 mg caffeine (around one or two cups of tea) in a day but for children below 12 years of age, there is no safe threshold (28). The trend of caffeine consumption increased significantly among children aged 2-18 years (N = 1,810) from the 1970s through the 1990s in USA 1994 and same time associated with a decrease in dairy consumption (29). Drinking high amounts of sweetened caffeinated drinks can lead to cavities, diuretic effect lead to sleep-disrupting, anger, violence, especially among child with preexisting anxiety disorder and mental disorder (30), in addition, to nervousness, restlessness, hyperactivity (31). A review of safety ingestion of highly caffeinated energy drinks including tea in USA 2017, it had been associated with elevated blood pressure, altered heart rates, and severe cardiac events in children and adolescents especially those with underlying cardiovascular diseases (32). For that reason a researcher in University of Utah 2021, encourage to consume a healthy alternative tea options (herbal tea) chamomile tea, ginger tea and fennel tea (if there are no allergy to them) instead of getting addiction to tea (33, 34) and offer other alternative to tea as freshly-prepared homemade fruit juices and milk instead to help them to be well hydrate and provide vital nutrient to the body (27) instead of beverages (35).

Limitation

Small sample size cannot generalize the result to population.

Conclusion

The study concluded that mothers of non-blind children more knowledgeable than mothers of blind children. Eating carbs and fat twice a day is commonly seen among blind child meanwhile eating protein and fruit and vegetable twice a day is more prevalent among non- blind children.

Recommendation

- 1- Exclusive education program to mother of blind child to improve their knowledge and enhance health practice toward their child nutrition.
- 2- Encourage further research to such important strata in community with large sample size.

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Conflicts of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Adherence to Ethical Standards

Ethical and scientific approval was received from Nineveh Health Directory/ MoH/ Iraq licenses' Number session 221 held on the date 19 Sep 2021 of the numbered research project 116/21.

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