

Relationship between nutritional habits and school performance among primary school students in Asser Region

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ABSTRACT

Background: Healthy nutrition is a necessary for people mental health, because of that nutritional habits effect on school performance. So, a high sugar intake, fat, and fast food meals have a strong relationship with low academic performance and lot of diseases like metabolic disease in other researches of pediatric age group. **Aim:** To assess nutritional habits and its relation with school performance among primary school students in Aseer region, Saudi Arabia. **Methods:** A cross-sectional study was conducted in targeting parents of primary school children in Aseer region. Data were collected using pre-structured online questionnaire. Questionnaire was available online using social media programs to be answered by students' mothers. Residence was initial question to confirm residency at Aseer region. **Results:** A total sample of 357 respondents with their children ages ranged from 6- to 18-year-old and 62.7% of their children were females. Exact 81% of the students had 3 meals daily and 88% had their breakfast before going to school. About 75% of the sampled mothers reported excellent grade for their student school performance. Also, significant association of school performance with breakfast intake and fast food was recorded. **Conclusions:** In conclusion, the study revealed that the students had an averaged eating habits regarding meals number specially breakfast and contents. Fast food was recorded among two thirds of the students which is negative finding. Also, school performance was very good and significantly associated with eating habits specially breakfast intake and fast food frequency.

Keywords: Eating behavior, nutritional habits, primary school students, scholastic achievement, school performance

Background

There are dramatic changes in the world including industrialization, urbanization, economic improvement which resulted in wide world changes in many life aspects including lifestyle. Among lifestyle changes, the nutritional habits have been changing during the last decades, characterized by an increase of fat intake, mostly in saturated fat, along with a decrease in cereals, fruits, legumes, and vegetables consumption with rapid life rhythm.^[1,2]

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There are lot of things like: obesity, income class, activities, emotional status, and etc., could effect on school performance level among primary school students (age of 6–12 years old)^[3] Many of these studies were conducted to determine effect of dietary habits on academic performance. The breakfast played a vital role in memorizing and recognition and mental toughness during the day to day activities.^[4,5] Meal skipping specially breakfast may contribute to poorer food choice throughout the rest of the day and then will affect school performance and learning abilities.^[6]

Healthy nutrition is a necessary for people mental health, because of that nutritional habits effect on school performance. So, a high

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sugar intake, fat, and fast food meals have a strong relationship with low academic performance and lot of diseases like metabolic disease in other researches of pediatric age group.^[7,8] Skipping of one main meal is common nowadays such as breakfast. A breakfast meal is very important and necessary for people cognition, learning and acquiring skills because it supplies them by many important micronutrients like (vitamins, glucose, etc) which play an important role in brain health and the quality of its power and functions.^[9]

The World Health Organization has formerly suggested that health experts be reinforced in taking an energetic part in encouraging strong nutritional activities and given that nutrition care. General practitioners (GPs) provide corresponding full health care to persons and families in their societies. GPs are therefore located in contact with people, and patients expect their physicians to provide them with health information.^[10,11]

This research aimed to study the nutritional habits and an academic performance level, we care about number of meals per a day, its pattern like skipping breakfast, and a frequency of fast food eating in primary school age in Asser region.

Methodology

A cross-sectional study was conducted in targeting parents of primary school children in Aseer region. The study was conducted during the period from 2012 to 2016 A total number of 357 respondents were included. Data were collected using pre-structured online questionnaire. The questionnaire was constructed by researchers with the help of experts and midline literature review. The questionnaire consisted of four sections. First section had children socio-demographic data, medical data, and family data. Second section covered nutritional habits including breakfast intake, meals number and contents, fast food habits. Third section covered data regarding school performance, concentration and problem-solving abilities. Last section concerned with respondents suggestions to improve their children eating habits. Questionnaire was available online using social media programs to be answered by students' mothers. Residence was initial question to confirm residency at Aseer region.

Data analysis

After data were collected it was revised, coded and fed to statistical software IBM SPSS version 20. The given graphs were constructed using Microsoft excel software. All statistical analysis was done using two tailed tests and alpha error of 0.05. *P* value less than or equal to 0.05 was considered to be statistically significant. Frequency and percent were used to describe the frequency distribution of each category for different demographic, nutritional, and school performance data. Chi square/Mont Carlo exact test and Fishers exact test were used to test for the association between students' nutritional habits and their school performance. Exact testes were used if there are small frequencies where chi square is invalid.

Results

A total sample of 357 respondents with their children ages ranged from 6- to 18-years and 62.7% of their children were females. About 43% of the children were the last in order while 26.9% were the first child. Exact of 94.4% of the children families had sufficient monthly income. About 61% of the students' fathers were university graduated and also were 51.5% of their mothers. As for parents' work, 88.8% of students' fathers were working and 54.9% of their mothers. Mothers were the main care giver among 95.8% of the students. Parents were separated among 4.5% of the sampled families. Exact 27.7% of the students had family history of obesity 24.4% were previously hospitalized [Table 1].

Table 2 illustrates the dietary habits of the sampled students with regard to their mothers' aspect. Exact 81% of the students had 3 meals daily and 88% had their breakfast before going to school. Also 82.4% of the students have snacks in between meals. About 96% of the students receive meals containing vital nutrients and 66.7% receive fruits and vegetables with meals. Exact 63.9% of the mothers reported that their students prefer having fast food but actually 34.5% of them receive fast food once weekly while about 6% receive it daily.

Table 1: Bio-demographic data of sampled school children, Saudi Arabia

Child bio-demographic data		No	%
Age in years	6-9	262	73.4%
	10-14	95	26.6%
Gender	Male	133	37.3%
	Female	224	62.7%
Child order	Last	155	43.4%
	Middle	106	29.7%
	First	96	26.9%
Family income	Insufficient	20	5.6%
	Just sufficient	284	79.6%
	Sufficient	53	14.8%
Mother education	Primary	17	4.8%
	Intermediate	18	5.0%
	Secondary	104	29.1%
	University or more	218	61.1%
Father education	Primary	12	3.4%
	Intermediate	29	8.1%
	Secondary	132	37.0%
Mother work	University or more	184	51.5%
	Not working	161	45.1%
	Working	196	54.9%
Father work	Not working	40	11.2%
	Working	317	88.8%
Child care giver	Father	7	2.0%
	Mother	342	95.8%
	Others	8	2.2%
Family data	Separated parents	16	4.5%
	Previous hospitalization	87	24.4%
	Family history of obesity	99	27.7%
	Family history of underweight	52	14.6%
	Chronic diseases	12	3.4%

With regard to school performance [Table 3], 75.1% of the sampled mothers reported excellent grade for their student school performance. Excellent concentration ability was reported by 97.8% of the students' mothers and excellent understanding ability was recorded for 98.3% of the students. Only 28% of the mothers reported that there is study difficulties for their students and 10.9% of them were noticed regarding poor performance of their students from their schools. Exact 9.5% of the students recorded school absenteeism due to food problems.

With regard to relation between dietary habits and school performance [Table 4], 77.1% of students who had their breakfast regularly recorded excellent school performance compared to 60.5% of those who did not with recorded statistical significance ($P = 0.048$). Also 79.3% of students who don't have fast food recorded excellent school performance compared to 50% of those who receive fast food daily ($P = 0.015$). Having fruits and vegetables was associated with excellent performance among 77.7% of the students compared to 69.7% of those who did not ($P = 0.063$).

Finally, on asking mothers about their suggestion to improve their children dietary habits [Figure 1], using incentives and gifts was the most recorded suggestion (26.3%) followed with giving the student different meals (variation in given meals) (17.9%), avoid having fast food (16.8%) while school role in educating students health dietary habits was suggested by 6.7% of the mothers and 10.1% failed to provide any suggestions.

Discussion

The objectives of the study is to assess nutritional habits and its relation with school performance among primary school students in Aseer region, Saudi Arabia.

In our study we have observed that with regard to relation between dietary habits and school performance 77.1% of students who had their breakfast regularly recorded excellent school performance compared to 60.5% of those who did not with recorded statistical significance ($P = 0.048$). Our study also confirmed that the regular consumption of breakfast and frequent intake of fruits, vegetables, and milk contributed to high levels of school performance to varying degrees. Conversely any frequency of soft drink, instant noodle, fast food intake, and eating confections less than seven times a week negatively affected school performance. Numerous factors are known to affect the academic performance of students. Children with an increased number of damaging eating ways, they are on risk as their health will affect badly. (Fu *et al.*, 2007). Zaini *et al.* (2005)^[12,13] stated that improved diet can improve students' nutritional positions. Sigfusdottir *et al.* (2007), Stevenson (2006) and Kim *et al.* (2005)^[14-16] and found that increased BMI, poor diet, lack of physical activity, and sociodemographic is associated with poor school performance. Inline with our study we have observed in other study also that Fruits and vegetables were related to high levels of school Performance. One study examined the effects

Table 2: Dietary habits of sampled school children, Saudi Arabia

Dietary habits		No	%
Have 3 meals regularly	No	68	19.0%
	Yes	289	81.0%
Child has breakfast daily	No	43	12.0%
	Yes	314	88.0%
Snacks between meals	No	63	17.6%
	Yes	294	82.4%
Food contains vital elements	Yes	164	45.9%
	Sometimes	184	51.5%
	No	9	2.5%
Child eats fruits and vegetables	No	119	33.3%
	Yes	238	66.7%
Child prefer fast food to homemade food	No	129	36.1%
	Yes	228	63.9%
Frequency of fast food/week	Never	150	42.0%
	Once/week	123	34.5%
	2-3/week	63	17.6%
	4-6/week	15	4.2%
	Daily	6	1.7%

Table 3: School performance of sampled school students, Saudi Arabia

School performance		No	%
School performance	Good	25	7.0%
	Very good	64	17.9%
	Excellent	268	75.1%
Concentration ability	Poor	8	2.2%
	Excellent	349	97.8%
Understanding ability	Poor	6	1.7%
	Excellent	351	98.3%
Have study difficulty	No	257	72.0%
	Yes	100	28.0%
Noticed for poor performance	No	318	89.1%
	Yes	39	10.9%
Absenteeism due to food habits	No	323	90.5%
	Yes	34	9.5%

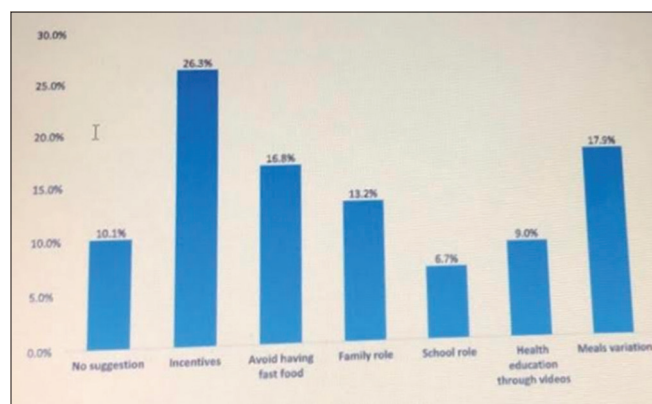
of breakfast size with or without a mid-morning snack (Benton and Jarvis, 2007).^[17] The results indicated that children who consumed a small breakfast (<150 Kcal) spent significantly more time on-task when a mid-morning snack was also eaten. This effect was not evident in children who consumed more energy at breakfast (151–230 Kcal and >230 Kcal). Correspondingly, children who consumed <150 Kcal at breakfast spent significantly more time off-task when no snack was eaten compared with children who consumed more energy at breakfast. This suggests a mid-morning snack is only beneficial for children who have skipped or eaten very little for breakfast and corrects the energy deficiency.

Online questionnaire as a method of data collection limits the statistical power as respondents are of special higher social class who are mostly educated which may affected the precision of results and conclusions. Thus, future research in a large variable

Table 4: Relation between sampled students eating habits and their school performance

Eating habits		School performance						P
		Good		Very good		Excellent		
		No	%	No	%	No	%	
Have 3 meals regularly	No	7	10.3%	12	17.6%	49	72.1%	0.495
	Yes	18	6.2%	52	18.0%	219	75.8%	
Child has breakfast daily	No	5	11.6%	12	27.9%	26	60.5%	0.048*
	Yes	20	6.4%	52	16.6%	242	77.1%	
Snacks between meals	No	3	4.8%	13	20.6%	47	74.6%	0.649
	Yes	22	7.5%	51	17.3%	221	75.2%	
Food contains vital elements	Yes	11	6.7%	22	13.4%	131	79.9%	0.111
	Sometimes	13	7.1%	42	22.8%	129	70.1%	
	No	1	11.1%	0	0.0%	8	88.9%	
Child eats fruits and vegetables	No	7	5.9%	29	24.4%	83	69.7%	0.063
	Yes	18	7.6%	35	14.7%	185	77.7%	
Child prefer fast food to homemade food	No	8	6.2%	16	12.4%	105	81.4%	0.095
	Yes	17	7.5%	48	21.1%	163	71.5%	
Frequency of fast food/week	Never	9	6.0%	22	14.7%	119	79.3%	0.015*
	Once/week	6	4.9%	21	17.1%	96	78.0%	
	2-3/week	8	12.7%	14	22.2%	41	65.1%	
	4-6/week	0	0.0%	6	40.0%	9	60.0%	
	Daily	2	33.3%	1	16.7%	3	50.0%	

*P<0.05 (significant)

**Figure 1: Parents suggestions to improve their children eating habits**

scale should be done in order to further our understanding of this relationship in detail and data need to be put into more advanced models.

Conclusions and Recommendations

In conclusion, the study revealed that the students had an averaged eating habits regarding meals number specially breakfast and contents. Fast food was recorded among two thirds of the students which is negative finding. Also, school performance was very good and significantly associated with eating habits specially breakfast intake and fast food frequency. More effort should be paid to improve eating habits of the school aged children by education their mothers or caregivers through sending messages, health education sessions and supplying them with posters through their children.

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Conflicts of interest

There are no conflicts of interest.

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