

Prevalence and correlates of overweight status among Saudi school children

Abdulrahman A. Al-Muhaimeed,^a Khadiga Dandash,^a Mohammed Saleh Ismail,^b Nazmus Saquib^c

From the ^aDepartment of Family and Community Medicine, Qassim University, Buraidah ^bDepartment of Food Science and Human Nutrition, Qassim University, Buraidah, and ^cCollege of Medicine, Sulaiman Alrajhi Colleges, Bukariyah, Qassim, Saudi Arabia

Correspondence: Nazmus Saquib MD · College of Medicine, Sulaiman Alrajhi Colleges, PO Box 777 Bukariyah, Qassim 51941, Saudi Arabia · M: + 966533445899 F: +966-16-3169090 · a.saquib@sr.edu.sa

Ann Saudi Med 2015; 35(4): 275-281

DOI: 10.5144/0256-4947.2015.275

BACKGROUND AND OBJECTIVES: There are limited data on changes in the prevalence of overweight among the Saudi school children and on associated risk factors. We compared recent prevalence data (2012) with early data (1994-98) and assessed risk factors.

DESIGN AND SETTING: Data from a cross-sectional study of children in primary schools in two cities in Al-Qassim province.

PATIENTS AND METHODS: Parental questionnaires were used to collect sociodemographic data and information on the child's diet/exercise behavior. Children's weight and height were measured. Current and previous data on overweight prevalence were compared and risk factors were assessed in a multiple logistic regression model.

RESULTS: The sample consisted of 874 randomly chosen school children, aged 6-10 years; analysis was based on 601 with complete data. Current overweight prevalence was 16.9% and was higher in girls than in boys (29.7% vs. 11.7%, *P* value <.0001). Prevalence has risen in the last 15 years (overall: 16.9% vs. 10.1%; boys: 11.7% vs. 8.5%; girls: 29.7% vs. 11.5%; all *P* values <.05). Those who ate restaurant food ≥ 2 times/week were 2.4 times more likely (95% CI=1.26, 4.64) to be overweight and those who engaged in sports ≥ 2 hours/day were 0.5 times less likely to be overweight (95% CI=0.25, 1.20).

CONCLUSION: The overweight prevalence in primary school children in Saudi Arabia has risen significantly. The focus should be on developing obesity prevention programs for this population.

Childhood obesity in Saudi Arabia is a major public health concern.^{1,2} The prevalence varies across the regions of the country, with the central region having the highest prevalence (overweight=21%, obesity=9%).³ Although a general rise in prevalence was reported in the past (from 3.4% in 1988 to 24.5% in 2005), the data pertained to boys only and referred to an earlier period (1988 -2005).^{4,6} The data needs to be updated and include both sexes.

Saudi school children who are overweight or obese are at increased risk for chronic diseases such as diabetes and cardiovascular diseases.^{7,8} The metabolic syndrome in this population is as high as 18%, and their blood pressure and lipid ratio (triglyceride to high-density lipoprotein) exhibited a dose-response relationship with their quartiles of waist circumference and body mass index (BMI).⁹ What is alarming is that not only are these children at cardio-metabolic risk at present, but many

will develop chronic disease early in their adulthood. Therefore, tackling this childhood obesity problem in Saudi Arabia ought to be a public health priority; education and early prevention programs (e.g. school or community based interventions) are critical to address the obesity epidemic.

Lifestyle is a major component of any successful obesity prevention program, and there is an urgent need to find the lifestyle-related factors, specific to the Saudi context, before developing such a program. For example, local and western fast food chains are widespread in Saudi Arabia and are a popular hang-out place for its citizens with family. Therefore, eating out is likely to be an important lifestyle-related risk factor for childhood obesity. Data is limited in this regard since almost all published reports of childhood obesity in the country contain only prevalence data and not an associated risk-factor analysis.^{1,4,5,10} The few studies that assessed risk

factors reported a 35-75% higher odds of obesity among the children who reported an eating out frequency of three or more times per week.^{11,12} They also found a significant association with consumption of sugar-sweetened carbonated beverages.¹³ Very little is known about the association of physical activity and obesity among Saudi school children.¹⁴

This report uses data from a cross-sectional study conducted among the primary school children (age: 6-10 years) of Al-Qassim province (i.e. central region) of Saudi Arabia. The objectives were to determine the prevalence of overweight (overall and sex-specific) and compare it with the corresponding estimates from earlier published data. An additional objective was to examine the association between children's overweight status and parental (e.g. sociodemographic) and child (e.g. dietary and physical activity habit) characteristics.

PATIENTS AND METHODS

We adopted a multi-stage random sampling procedure to identify a sample for study. Primary schools from two cities (with the largest populations) in Al-Qassim province, Buraidah and Unaizah, were selected. An updated list of all public primary schools was used in the sampling frame; 34 schools were randomly selected from a total of 340 schools (29 for Buraidah and 5 for Unaizah according to population proportion). Thereafter, a class list was created for each targeted grade (from grade I-IV) in the selected schools. Ten classes from each grade were randomly selected

(40 classes). All students in the selected classes were invited to participate (≈ 1000 , with an average 25 students per class). They were given a form, along with a questionnaire, to be taken to their parents at home. The form included a brief description of the study, an invitation to participation, an informed consent, and a request to fill out the accompanying questionnaire, which included questions about their sociodemographic characteristics and the dietary, physical, and disease-related information on their children. The students were asked to return the informed consent and the completed questionnaire to the school social workers.

The inclusion criteria for children in this study were having Saudi nationality, a provincial residency permit, and an age between 6 and 10 years. The exclusion criteria were being disabled (physically or mentally), having a diagnosis of chronic disease, psychiatric illness, or immune-compromised disorder. The sample size (i.e. 874) was sufficient to survey a population of schoolchildren (age: 6-10 years; 15% of total population of Al-Qassim; $n=150\,000$) with a 90% confidence and with a 3% margin of error (required $n=744$). Although the number of boys and girls in Saudi primary schools are comparable, the low enrollment of girls in this study was because of insufficient female research staff. The study was conducted in 2012, and the duration of sampling and data collection was six months. The study protocol was approved by the ethical review committee at Qassim University.

After consent, children provided anthropometric measurements. Height and weight were measured following standard protocol (e.g. bare feet and light clothes), and the scales were recalibrated after each measurement. Body mass index (BMI) was calculated as weight (in kg) divided by height (in meters and squared). The parents provided information on the following areas: (a) age, education, occupation, residence, family size, and socioeconomic status, (b) general health status, past history of illnesses, present medical conditions (if any), and medication use for these conditions, (c) engagement and time spent in sports, use of electronic gadgets (e.g. personal computer, play station, television) and time spent in these activities, and (d) home breakfast, snacking and number of main meals per day, and restaurant eating. The questionnaire (**Supplement**) was piloted on a small group of students before it was administered in the study.

A PubMed search was conducted (December 20, 2014) to identify earlier published data comparable to this study in terms of geography (i.e. central re-

• What is already known about this subject

- The prevalence of childhood obesity is high in Saudi Arabia.
- There is regional variation in childhood obesity in the country.
- Some evidence suggests that the prevalence among boys has increased in the previous two decades.

• What this study adds

- This study shows that the rise in the prevalence of childhood obesity was evident in both girls and boys.
- The influx of childhood obesity happened irrespective of age, meaning that increases were present in each age category.
- This study identifies that frequent restaurant eating is a major lifestyle correlate of obesity among children.

gion) and sample age (6-10 years). The combination of MESH terms 'obesity' and 'Saudi Arabia' together with the filters (such as 'human' and 'children') returned a total of 97 records; 75 were excluded after primary screening (adults: 29, adolescent=23, patients=12, review=5, pregnant women=6). Of the 22 eligible, nine obtained their samples from the central region. Seven^{1,3,6,13,15-17} were further excluded (sample with older kids or absence of key information necessary for comparison) leaving two records^{18,19} from The National Study for Diabetes Mellitus (data collection 1994-98). The estimates were extracted from these papers; one provided overweight prevalence by age group 18, and the data for 6-12 years (overall and sex-specific) were chosen for statistical comparison with the corresponding data from the present study (age: 6-10 years). Another report¹⁹ provided prevalence data by age, but did not provide the cell size; hence only a graphical comparison was made between that and the current study.

Prevalence of overweight was calculated according to the cut-off values provided in Cole et al.²⁰ The BMI cut-off values were age and sex-specific [age 6 (M=17.5, F=17.3), age 7 (M=17.9, F=17.7), age 8 (M=18.4, F=18.3), age 9 (M=19.1, F=19.0), age 10 (M=19.8, F=19.8)]. These estimates were graphed and compared against the corresponding reference estimates.

For the risk factor analysis, a list of a priori variables were selected from the literature review: the child's age and sex, mother's age, education, and employment status, family socioeconomic status, home breakfast, snacking, frequency of meals and restaurant-eating, television viewing, daily walk, and engagement in sports.^{11,12} The nature of these variables were either binary or multinomial. These variables in overweight and the normal weight children were compared by chi-square tests.

A multiple logistic regression model was used to build the adjusted model for being overweight. All variables were considered as candidates. A stepwise selection process was chosen to determine the most parsimonious model for the outcome. Odds ratios were the measure of estimation and the associated 95% confidence intervals were reported. All tests were two-sided with an alpha level of 0.05 and the analyses were carried out with SAS 22.

RESULTS

Seventeen percent of the sample (n=874) were overweight; the prevalence was higher in girls than boys (29.7% vs, 11.7%, P value <.0001); there was a mono-

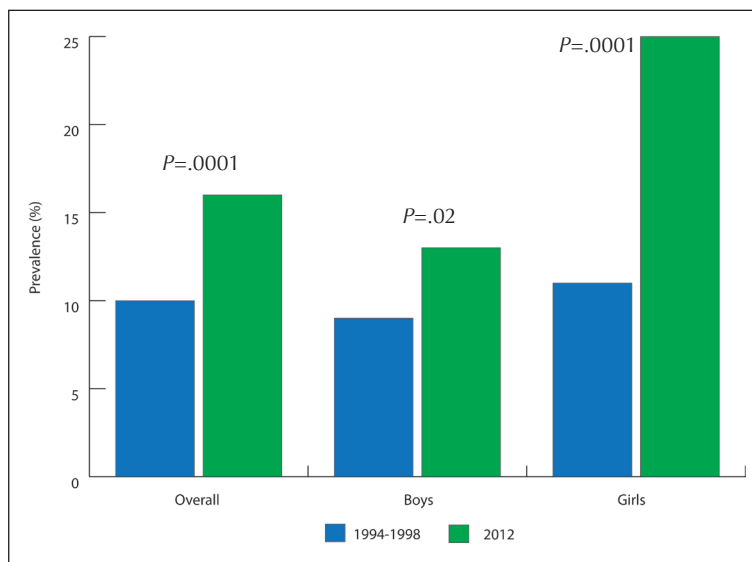


Figure 1. Overweight prevalence (overall and sex-specific) among primary school children in the central region of Saudi Arabia: comparison of data between two studies that collected data in 2012 (n=874; boys=618, girls=256, age=6-10 years) and 1994-98 (n=5238, boys=2683, girls=2555, age=6-12 years), respectively.

tonic increase in prevalence by age in boys but not in girls.

The overall prevalence in this study was significantly higher than its corresponding reference estimate (16.9% vs. 10.1% P value <.0001); the similar was true for boys (11.7% vs. 8.6%; P value=.02) and for girls (29.7% vs. 11.5%, P value <.0001) (Figure 1). The overweight prevalence for each chronological year was also higher than its corresponding reference estimate, irrespective of sex (Figure 2A & 2B).

Parent characteristics, except mother's age, were not significantly associated with children's overweight status (Table 1). However, there was a non-significant increase in the prevalence of overweight status by mother's employment and education status as well as by the family's socioeconomic status. Restaurant-eating was significantly associated with overweight; children who ate out at least twice a week exhibited a higher prevalence of overweight (28.9%) compared with those who did not eat out (13.3%); home-breakfast, snacking, or number of meals were not significantly associated with overweight status (Table 2).

Engagement in sports was significantly associated with overweight status; prevalence was considerably lower among those who reported engagement in sports more than two hours per day (8.8%) compared with those who did not take part in sports (20.1%). Television-watching or daily walking did not have a significant association with overweight status (Table

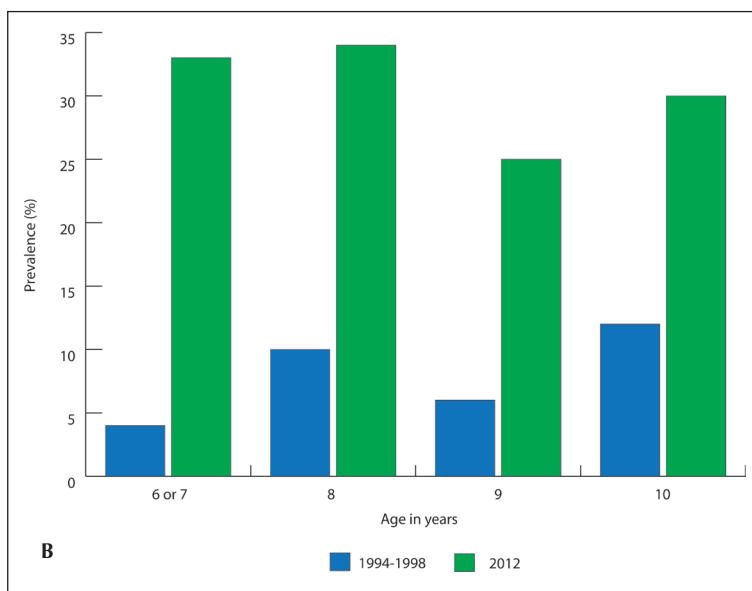
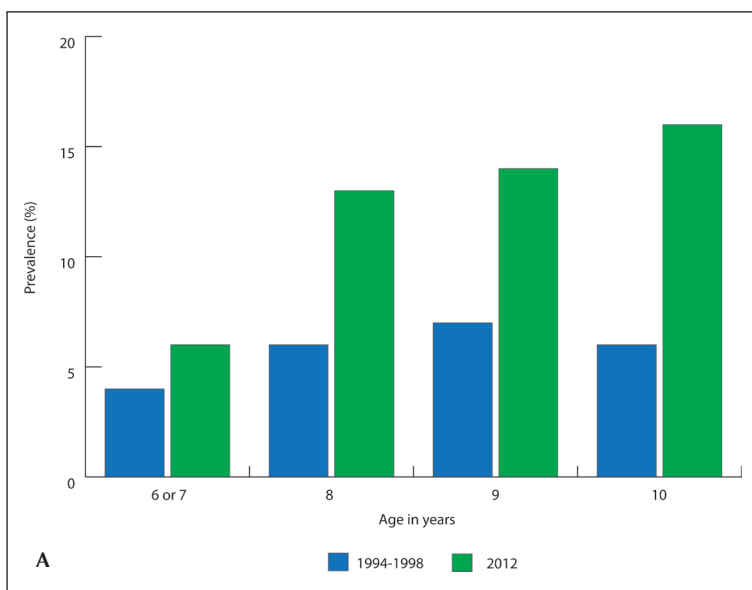


Figure 2. Overweight prevalence by age among boys (a) and girls (b) in the central region of Saudi Arabia: comparison of data between two studies that collected data in 2012 (n=874) and 1994-98 (n=5238), respectively.

2).

A multivariate logistic model showed that children’s age, sex, frequency of eating out, and engagement in sports were significantly associated with overweight status. For example, a ten-year old child was twice as likely to be overweight compared to a six to seven year old child. Also girls were twice as likely to be overweight as boys. Similarly, children who ate in the restaurant ≥ 2 times per week were twice more

Table 1. Selected sociodemographic characteristics of a sample of primary school children (n =601; age=6-10 years) in Al-Qassim, Saudi Arabia.

Variable	N	Overweight status		P value
		No (n=503)	Yes (n= 98)	
Child’s age (in years)				
6-7	171	91.2	8.8	.003
8	139	84.2	15.8	
9	121	82.6	17.4	
10	170	76.5	23.5	
Sex				
Male	417	88.0	12.0	<.0001
Female	184	73.9	26.1	
Mother’s age (in years)				
30 or less	106	87.7	12.3	.03
31-40	274	86.9	13.1	
41-50	94	79.8	20.2	
Missing	127	76.4	23.6	
Mother’s education				
Less than secondary	330	85.5	14.5	.34
Secondary	114	83.3	16.7	
Above secondary	157	80.3	19.7	
Mother’s employment				
Housewife	475	85.1	14.9	.08
Office worker	126	78.5	21.4	
Socio-economic status				
Low	62	88.7	11.3	.07
Middle	426	84.7	15.3	
High	113	77.0	23.0	

likely to be overweight compared to children who did not eat in the restaurant. Conversely, children who engaged in sports >2 hours per day had a 50% less chance to be overweight than those who did not engage in sports (Table 3).

Table 2. Selected lifestyle characteristics of a sample of primary school children (n =601; age=6-10 years) in Al-Qassim, Saudi Arabia.

Variable	N	Overweight status		P value
		No (n=503)	Yes (n=98)	
Have breakfast at home				
No	359	84.4	15.6	.57
Yes	242	82.6	17.4	
Eat between meals				
No	100	83.0	17.0	.83
Yes	501	83.8	16.2	
Number of meals/day				
2	80	87.5	12.5	.43
3	378	82.3	17.7	
≥ 4	143	85.3	14.7	
Restaurant eating				
0/week	264	86.7	13.3	.005
1/week	261	84.3	15.7	
≥ 2/week	76	71.1	28.9	
Television watching (daily)				
None	44	86.4	13.6	.17
Up to 2 hours	203	86.2	13.8	
2.1- 3.9 hours	234	79.5	20.5	
≥ 4 hours	120	86.7	13.3	
Walk daily				
A lot	149	89.3	10.7	.06
Moderate	323	83.0	17.0	
Little	129	79.1	20.9	
Engage in sports				
0 hour/day	164	79.9	20.1	<.0001
<2 hours/day	162	89.5	10.5	
2 hours/day	150	75.3	24.7	
>2 hours/day	125	91.2	8.8	

DISCUSSION

The main findings of this study were that the prevalence of overweight among school children has increased significantly in the central region of Saudi Arabia over the last 15 years. The actual difference between these two times points was likely to be higher for two reasons: girls, who exhibited a higher overweight prevalence than the boys, were under-represented in this study ; secondly, this study had a sample of younger age (6-10 years) than the age group of the reference study (6-12 years) whose overweight prevalence was used for comparison. The overweight prevalence also increased significantly both in boys and in girls between these two time points. Further, the increment was also evident across the age spectrum, irrespective of sex, although a statistical comparison was not possible due to the unavailability of the cell size by age for the reference study.

Most Saudi studies with school children found a higher overweight prevalence among girls,^{1,14,18} while reporting a higher obesity prevalence among boys.^{1,10,17} In this study, the overweight prevalence among girls

Table 3. Adjusted associations of overweight in a sample of primary school children (n =601; age=6-10 years) in Al-Qassim, Saudi Arabia.

Variable	N	Odds ratio	95% CI	P value
Child's age (years)				
6-7	171	Reference		.08
8	139	1.88	0.91, 3.86	
9	121	2.07	0.99, 4.30	
10	170	2.40	1.23, 4.69	
Sex				
Male	417	Reference		.002
Female	184	2.26	1.33, 3.80	
Restaurant eating				
0/week	264	Reference		.03
1/week	261	1.30	0.78, 2.16	
≥2/ week	76	2.41	1.26, 4.64	
Engagement in sports				
0 hour/day	164	Reference		.002
<2 hours/day	162	0.62	0.31, 1.21	
2 hours/day	150	1.75	0.94, 3.24	
>2 hours/day	125	0.54	0.25, 1.20	

was twice as much as that of boys. Some of this sex difference could be due to adiposity related to hormonal change in menarche 21 (sample age: 6-10), but this information was not collected in the study. Another factor that might have played a role was the sex difference in engagement of sports; 55% of the girls were reported to have not engaged in sports as compared to only 15% of the boys (data not shown).

The significant association of frequent restaurant eating (≥ 2 times per week) with overweight found in this study is supported by findings from earlier studies.^{11,12} Most food in restaurants are high caloric and fried, fatty, or sweet in nature, and there are limited options for healthy food. Children are not likely to make a healthy food choice unless they are made aware of the benefit of such a choice and the danger of unhealthy food habits. This study also shows the benefit of engaging in daily sports for at least two hours to avoid childhood obesity. In light of these results, primary schools could be an ideal target for obesity prevention program among Saudi children. This program needs to be comprehensive and multi-component in nature, and should focus on the school environment itself (e.g. playground)^{22,23} its food services (e.g. school cafeteria),²⁴ and classroom curriculum.²⁵ Such school-based intervention programs have been proven effective in improving the knowledge, attitude, and behavior of the students regarding obesity.

This study has notable strengths. It had a sufficient sample size and the sample was randomly selected. Hence, the results of the study should be representative of the school children of central region of Saudi Arabia. The comparison made between the results of this study and those from the previous study is valid, since both studies used the same age and sex-specific cut-off points for the determination of overweight. Also, this study evaluated a comprehensive list of covariates for model selection.

A limitation of this study was that recruitment of girls was lower than boys; hence, there was an imbalance in the ratio of male to female participants. This might have impacted the accuracy of the overweight estimate for the girls. The lifestyle data on the students and the sociodemographic data of the parents were

missing for 31% of the students who did not return the questionnaire that was supposed to be completed by their parents; these students were slightly younger, leaner, and more likely to be boys, and the absence of information for these students has likely left some impact on the statistical modeling of the data. Finally, participants in this study came from one province only, so the results may not be generalizable to the entire country.

In summary, this study indicates that overweight prevalence among Saudi children is alarmingly high and that the current estimate for the country's central region for 6 to 10 year-old children is significantly higher than what was previously known for this age group. It is likely that this increase in prevalence has happened in other age groups of children as well. Given this evidence, the public health focus should be on developing obesity intervention programs for school children in order to address the obesity epidemic in Saudi Arabia.

Conflict of interest

The authors have no competing interests to declare.

Authors' contributions

All authors were involved in the design of the study, data collection and analysis plan. KD and MSI assisted with the data collection plan and supervised field data collection. ARM and NS conducted the data analysis and drafted the initial manuscript. All authors reviewed, edited and approved the final the manuscript.

Funding

This study was made possible by a research grant from the Deanship of Research, Qassim University, Saudi Arabia, (SR-D-010-256) and was conducted with permission from the Ministry of Education, Kingdom of Saudi Arabia.

Acknowledgments

The authors are fully responsible for the contents of the study; views expressed are not necessarily those of the Ministry of Education, Deanship of Research or Qassim University. We are indebted to the staff of the schools involved for their cooperation and assistance in data collection. We thank Juliann Saquib for editorial assistance in manuscript preparation.

REFERENCES

1. El Mouzan MI, Foster PJ, Al Herbish AS, et al. Prevalence of overweight and obesity in Saudi children and adolescents. *Annals of Saudi medicine*. 2010;30(3):203-208.
2. Al-Othaimen AI, Al-Nozha M, Osman AK. Obesity: an emerging problem in Saudi Arabia. Analysis of data from the National Nutrition Survey. *Eastern Mediterranean health journal = La revue de sante de la Mediterranee orientale = al-Majallah al-sihhiyah li-sharq al-mutawassit*. 2007;13(2):441-448.
3. El Mouzan MI, Al Herbish AS, Al Salloum AA, Al Omar AA, Qurachi MM. Regional variation in prevalence of overweight and obesity in Saudi children and adolescents. *Saudi journal of gastroenterology : official journal of the Saudi Gastroenterology Association*. 2012;18(2):129-132.
4. al-Hazzaa HM. Anthropometric measurements of Saudi boys aged 6-14 years. *Annals of human biology*. 1990;17(1):33-40.
5. Al-Hazzaa HM. School backpack. How much load do Saudi school boys carry on their shoulders? *Saudi medical journal*. 2006;27(10):1567-1571.
6. Al-Hazzaa HM. Prevalence and trends in obesity among school boys in Central Saudi Arabia between 1988 and 2005. *Saudi medical journal*. 2007;28(10):1569-1574.
7. Sun SS, Liang R, Huang TT, et al. Childhood obesity predicts adult metabolic syndrome: the Fels Longitudinal Study. *J Pediatr*. 2008;152(2):191-200.
8. Baker JL, Olsen LW, Sørensen TI. Childhood body-mass index and the risk of coronary heart disease in adulthood. *N Engl J Med*. 2007;357(23):2329-2337.
9. Al-Hussein FA, Tamimi W, Al Banyan E, Al-Twaijri YA, Tamim H. Cardiometabolic risk among Saudi children and adolescents: Saudi childrens overweight, obesity, and lifestyles (S.Ch.O.O.Ls) study. *Annals of Saudi medicine*. 2014;34(1):46-53.
10. Al-Dossary SS, Sarkis PE, Hassan A, Ezz El Regal M, Fouda AE. Obesity in Saudi children: a dangerous reality. *Eastern Mediterranean health journal = La revue de sante de la Mediterranee orientale = al-Majallah al-sihhiyah li-sharq al-mutawassit*. 2010;16(9):1003-1008.
11. MUSAIGER AO, Al-Mannai M, Zagzoug N. Association between food intake frequency and obesity among adolescent girls in Saudi Arabia. *International journal of adolescent medicine and health*. 2014;26(1):145-147.
12. Amin TT, Al-Sultan AI, Ali A. Overweight and obesity and their relation to dietary habits and socio-demographic characteristics among male primary school children in Al-Hassa, Kingdom of Saudi Arabia. *Eur J Nutr*. 2008;47(6):310-318.
13. Collision KS, Zaidi MZ, Subhani SN, Al-Rubeaan K, Shoukri M, Al-Mohanna FA. Sugar-sweetened carbonated beverage consumption correlates with BMI, waist circumference, and poor dietary choices in school children. *BMC public health*. 2010;10:234.
14. Al-Hazzaa HM, Al-Rasheedi AA. Adiposity and physical activity levels among preschool children in Jeddah, Saudi Arabia. *Saudi Med J*. 2007;28(5):766-773.
15. Alam AA. Obesity among female school children in North West Riyadh in relation to affluent lifestyle. *Saudi medical journal*. 2008;29(8):1139-1144.
16. Abalkhail B. Overweight and obesity among Saudi Arabian children and adolescents between 1994 and 2000. *Eastern Mediterranean health journal = La revue de sante de la Mediterranee orientale = al-Majallah al-sihhiyah li-sharq al-mutawassit*. 2002;8(4-5):470-479.
17. Al Alwan I, Al Fattani A, Longford N. The effect of parental socioeconomic class on children's body mass indices. *Journal of clinical research in pediatric endocrinology*. 2013;5(2):110-115.
18. El-Hazmi MA, Warsy AS. The prevalence of obesity and overweight in 1-18-year-old Saudi children. *Annals of Saudi medicine*. 2002;22(5-6):303-307.
19. El-Hazmi MA, Warsy AS. A comparative study of prevalence of overweight and obesity in children in different provinces of Saudi Arabia. *Journal of tropical pediatrics*. 2002;48(3):172-177.
20. Cole TJ, Bellizzi MC, Flegal KM, Dietz WH. Establishing a standard definition for child overweight and obesity worldwide: international survey. *Bmj*. 2000;320(7244):1240-1243.
21. Abraham S, Boyd C, Lal M, Luscombe G, Taylor A. Time since menarche, weight gain and body image awareness among adolescent girls: onset of eating disorders? *Journal of psychosomatic obstetrics and gynaecology*. 2009;30(2):89-94.
22. Bartholomew JB, Jowers EM. Increasing frequency of lower-fat entrees offered at school lunch: an environmental change strategy to increase healthful selections. *Journal of the American Dietetic Association*. 2006;106(2):248-252.
23. Manios Y, Kafatos A, Mamelakis G. The effects of a health education intervention initiated at first grade over a 3 year period: physical activity and fitness indices. *Health education research*. 1998;13(4):593-606.
24. Birnbaum AS, Lytle LA, Story M, Perry CL, Murray DM. Are differences in exposure to a multicomponent school-based intervention associated with varying dietary outcomes in adolescents? *Health education & behavior : the official publication of the Society for Public Health Education*. 2002;29(4):427-443.
25. Anderson AS, Porteous LE, Foster E, et al. The impact of a school-based nutrition education intervention on dietary intake and cognitive and attitudinal variables relating to fruits and vegetables. *Public health nutrition*. 2005;8(6):650-656.

SUPPLEMENT MATERIAL FOR: Prevalence and correlates of overweight status among Saudi school children

Al-Muhaimeed AA, Dandash K, Ismail MS, Saquib N. Prevalence and correlates of overweight status among Saudi school children. Ann Saudi Med 2015; 35(4): 275-281. DOI: 10.5144/0256-4947.2015.275

Supplement: Arabic version of the questionnaire.

استمارة الحالة الاقتصادية

الكود ()	خاص بالباحث
	الكود ()
	الإسم:
	-1 المدرسة:
	-2 الصف الدراسي
	الاول الثاني الثالث الرابع
	-3 العمر: عام رقم هاتف ولي الامر (اختياري):
	-4 الجنس: ذكر (1) انثى (2)
	-5 العنوان: بريدة (1) عنيزة (2)
	-6 عمر الأب: عام
	-7 تعليم الاب:
	أمى (1) ابتدائية (2) متوسطة (3) ثانوية (4)
	دبلوم (5) جامعي (6) ماجستير (7) دكتوراة (8)
	-8 وظيفة الاب:
	إداري (موظف) (1) فني (2) موظف بمؤهل عالي (3)
	عسكري بالشرطة او الجيش (4) معلم (5) ضابط (6)
	مهندس (7) طبيب (8) تاجر (9) أخرى (10)
	-9 عمر الأم: عام
	-10 تعليم الام:
	أمية (1) ابتدائية (2) متوسطة (3) ثانوية (4)
	دبلوم (5) جامعية (6) ماجستير (7) دكتوراة (8)
	-11 وظيفة الام:
	ربة منزل (1) معلمة (2) موظفة بمؤهل متوسط (3)
	موظفة بمؤهل عالي (4) طبيبة (5) أخرى (6)
	-12 عدد أفراد الأسرة: فرد
	-13 إجمالي الدخل الشهري للأسرة: ريال سعودي

14-	()	صلة القرابة بين الاب والام:	اقارب (1)	غير اقارب (2)
15-	()	نوع السكن:	شقة ايجار (1)	شقة ملك (2)
16-	()	المستوى الاجتماعي و الاقتصادي للأسرة:	منخفض (1)	متوسط (2)
17-	()	هل الطفل يواظب على الذهاب للمدرسة	لا (1)	نعم (2)
18-	()	مستوى الطفل الدراسي	ضعيف (1)	جيد (2)
			جيد جدا (3)	ممتاز (4)

المقاييس الجسمية

19-	()	الوزن	كجم
20-	()	الطول	سم
21-	()	محيط الذراع	سم
22-	()	سمك طبقة الدهون	مم
23-	()	نسبة الدهون	%
24-	()	نسبة الماء	%
25-	()	نسبة العضلات	%

استمارة الحالة الصحية

-26	()	-26	()	ما نوع الرضاعة التي حصل عليها طفلك؟	طبيعية	(1)	صناعية	(2)
-27	()	-27	()	في حالة طبيعية : مدة الرضاعة ؟ ----- شهر				
-28	()	-28	()	في حالة صناعية: في أي شهر بدأت؟				
				الأول (1)	الثاني (2)	الثالث (3)	الرابع (4)	
-29	()	-29	()	هل طفلك (حفظه الله) يعاني من اي مرض؟	لا	(1)	نعم	(2)
-30	()	-30	()	في حالة نعم: ما هو المرض؟				
				جهاز هضمي	(1) كبد	(2) سكري	(3) كلى	(4)
				قلب	(5) اخرى	(6)		
-31	()	-31	()	الطفل يعاني من اي اعاقات بدنية؟	لا	(1)	نعم	(2)
-32	()	-32	()	الطفل يعاني من اي مشاكل نفسية او عصبية؟	لا	(1)	نعم	(2)
-33	()	-33	()	هل احد الابوين او الاخوة مصاب باي مرض؟	لا	(1)	نعم	(2)
-34	()	-34	()	في حالة نعم: ما هو المرض؟				
				جهاز هضمي	(1) كبد	(2) سكري	(3) كلى	(4)
				قلب	(5) اخرى	(6)		
-35	()	-35	()	هل الطفل يتناول اي ادوية؟	لا	(1)	نعم	(2)
-36	()	-36	()	هل الطفل يتناول اي مقويات؟	لا	(1)	نعم	(2)
37	()	37	()	في حالة نعم ما نوعها؟	فيتامينات	(1)	أملاح	(2)
38	()	38	()	هل الطفل اجري اي عملية جراحية؟	لا	(1)	نعم	(2)
39	()	39	()	في حالة نعم منذ متى؟ ----- عام				
40	()	40	()	هل الطفل مصاب بالبدانة؟	لا	(1)	نعم	(2)
41	()	41	()	في حالة نعم منذ متى؟ ----- عام				
-42	()	-42	()	هل احد الابوين او الاخوة مصاب بالبدانة؟	لا	(1)	نعم	(2)
-43	()	-43	()	هل الطفل يعاني من اي حساسية؟	لا	(1)	نعم	(2)
-44	()	-44	()	هل تشعرين ان وزن طفلك طبيعي؟	لا	(1)	نعم	(2)
-45	()	-45	()	هل طفلك يصاب ببعض الامراض التي تمنعه من الذهاب للمدرسة؟	لا	(1)	نعم	(2)
-46	()	-46	()	في حالة نعم هل تشعرين ان مناعته ضعيفة؟	لا	(1)	نعم	(2)

47- هل الطفل اجتماعي ؟	لا	(1) نعم	(2)	()	-47
------------------------	----	---------	-----	-----	-----

استمارة النشاط ونمط الحياة

48- هل الطفل يمارس اي رياضة	لا	(1) نعم	(2)	()	-48
49- في حالة لا ما السبب	الكسل	(1) غير معتاد	(2)	()	-49
50- في حالة نعم ما نوع الرياضة؟	كرة قدم	(1) جري	(2)	()	-50
	كاراتيه	(5) العاب قوة	(6)	()	
	تنس طاولة	(3) سباحة	(4)	()	
	اخرى	(7) عدة العاب	(8)	()	
51- في حالة نعم عدد ساعات الممارسة اليومية	نصف ساعة	(1) ساعة	(2)	()	-51
	ساعتين	(3) ساعة ونصف	(4)	()	
52- أين يمارس طفلك نشاطه الرياضي؟	في البيت	(1) في الشارع	(2)	()	-52
	في النادي	(3) في المدرسة	(4)	()	
53- هل لدى طفلك دراجة ؟	لا	(1) نعم	(2)	()	-53
54- في حالة نعم: ما هي المدة التي يقضيها في ركوب الدراجة يوميا ؟	ساعة/يوم			()	-54
55- كيف يذهب الطفل للمدرسة؟	على الاقدام	(1) سيارة	(2)	()	-55
	أخرى	(3) بالدراجة	(4)	()	
56- معدل المشي اليومي للطفل	قليل	(1) متوسط	(2)	()	-56
	كثير جدا	(3) كثير	(4)	()	
57- معدل نشاط الطفل في البيت ومع الاسرة؟	كسول	(1) مقبول	(2)	()	-57
	نشيط	(3) متوسط	(4)	()	
58- هل يوجد جهاز تلفاز أو كمبيوتر في غرفة طفلك ؟	لا	(1) نعم	(2)	()	-58
59- هل يوجد بالبيت بلاي ستاشين ؟	لا	(1) نعم	(2)	()	-59
60- كم ساعة يقضيها الطفل في مشاهدة التلفزيون يوميا	----- ساعة			()	-60
61- كم ساعة يقضيها الطفل في استخدام الكمبيوتر يوميا	----- ساعة			()	-61
62- كم ساعة يقضيها الطفل في الالعاب الالكترونية يوميا	----- ساعة			()	-62
63- هل الطفل يتناول طعامه امام التلفزيون او اثناء اللعب	لا	(1) نعم	(2)	()	-63
64- هل الطفل يقضي معظم وقته في				()	-64

العب (3)

المشي (2)

الجلوس (1)

استمارة العادات الغذائية

65-	()	عدد الوجبات اليومية التي يتناولها الطفل	اثنان	ثلاث	اربع	خمسة
66-	()	الوجبة التي غالبا ما يرفض الطفل تناولها وتجدين صعوبة في اطعامه اياها؟	لا يوجد	(0) الافطار	(1) الغذاء	(2) العشاء (3)
67-	()	في حالة نعم من وجهة نظرك ما هو السبب (باختصار)؟				
68-	()	ما هي الوجبة الرئيسية في اليوم بالنسبة لطفلك؟	الافطار	(1) الغذاء	(2) العشاء	(3) كلها (4)
69-	()	هل يتناول طفلك وجباته الغذائية في مواعيد ثابتة؟	لا	أحيانا	(1) نعم	(2)
70-	()	هل الطفل يتناول وجبة الافطار؟	لا		(1) نعم	(2)
71-	()	في حالة لا ما السبب؟ (يجب اختيار اجابة واحدة فقط)	قلة الشهية	(1) التأخير	(2) عدم التعود	(3) إتباع حمية (4) غير ذلك (5)
72-	()	في حالة نعم: اين يتناولها؟ (يجب اختيار اجابة واحدة فقط)	البيت	(1) المدرسة	(2) المقصف	(3) أخرى (4)
73-	()	في حالة نعم ما هي الاطعمة التي يفضلها في الفطور (يجب اختيار اجابة واحدة فقط)	جبن	(1) بيض	(2) فلافل	(3) سوسيس (4)
			هامبرجر	(5) كبده	(6) دجاج	(7) قشدة (8)
			اخرى (ما هي؟) -----		(9)	
74-	()	هل يتناول الطفل أي خضروات أو فواكه طازجة في الصباح؟	لا	(1) أحيانا	(2) نعم	(3)
75-	()	هل طفلك يتناول السلطة الخضراء؟	لا	(1) 1-2 اسبوعيا	(2) 2-3 اسبوعيا	(3) أكثر من 4 اسبوعيا (4)
76-	()	هل طفلك يتناول الفاكهة او العصائر الطبيعية؟	لا	(1) 1-2 اسبوعيا	(2) 2-3 اسبوعيا	(3) أكثر من 4 اسبوعيا (4)
77-	()	هل طفلك يشرب كمية كافية من الماء يوميا؟	لا	(1) نعم	(2)	
78-	()	هل طفلك يشرب الحليب او اللبن يوميا؟	لا	(1) نعم	(2)	
79-	()	هل طفلك يتناول الاطعمة السريعة	لا	(1) أحيانا	(2) نعم	(3)

80-	()	في حالة نعم كم مرة في الأسبوع؟	مرة	مرتين	ثلاث	أكثر من ثلاث
81-	()	هل الأسرة تتناول بعض الوجبات بالمطعم او ما شابه؟	لا	(1)	نعم	(2)
82-	()	في حالة نعم كم مرة اسوعيا؟	اقل من مرة	مرتين	ثلاث	أكثر من ثلاث
83-	()	هل طفلك يتناول الدجاج بالجلد؟	لا	(1)	نعم	(2)
84-	()	هل طفلك يتناول الدجاج البروستد؟	لا	(1)	نعم	(2)
85-	()	في حالة نعم كم مرة اسبوعيا	اقل من مرة	مرتين	ثلاث	أكثر من ثلاث
86-	()	هل طفلك يحب تناول الاطعمة المحمرة؟	لا	(1)	نعم	(2)
87-	()	هل طفلك يتناول اللحوم الدسمة؟	لا	(1)	نعم	(2)
88-	()	هل الطفل يتناول اطعمة بين الوجبات؟	لا	(1)	نعم	(2)
89-	()	في حالة نعم ما هي هذه الاطعمة؟ (اجابة واحدة)	فاكهة وعصير	(1)	شيبسي	(2)
		مشروبات غازية (3) حلويات (4) شيكولاته	شيكولاته	(5)	اخرى	(6)
90-	()	هل طفلك يشرب المشروبات الغازية؟	لا	(1)	نعم	(2)
91-	()	في حالة نعم: كم مرة يوميا	اقل من مرة	مرة	مرتين	أكثر من مرتين
92-	()	الكمية في المرة الواحدة	اقل من عبوة	عبوة	عبوتين	أكثر من عبوتين
93-	()	الانواع المفضلة (اجابة واحدة)	بيبيسي (1) كوكاكولا (2) سفن اب (3) سيراييت (4) ديو (5) ميراندا (6) اخرى (7)	بيبيسي (1)	كوكاكولا (2)	سفن اب (3)
			ديو (5)	ميراندا (6)	اخرى (7)	سيراييت (4)
94-	()	هل طفلك يشرب مشروبات الطاقة	لا	(1)	نعم	(2)
95-	()	في حالة نعم كم مرة يوميا	اقل من مرة	مرة	مرتين	أكثر من مرتين
96-	()	هل الطفل يحب تناول الحلويات	لا	(1)	نعم	(2)
97-	()	في حالة نعم: عدد مرات تناولها في الاسبوع	اقل من مرة	مرة	مرتين	أكثر من مرتين
98-	()	هل طفلك يحب تناول الشوكولاته	لا	(1)	نعم	(2)
99-	()	في حالة نعم: عدد مرات تناولها في الاسبوع	مرة	مرتين	ثلاث	أكثر من ثلاث
100-	()	هل طفلك يشرب الشاي؟	لا	(1)	نعم	(2)
101-	()	هل طفلك يشرب القهوة؟	لا	(1)	نعم	(2)
102-	()	هل طفلك يتناول التمر؟	لا	(1)	نعم	(2)
103-	()	عدد مرات تناول المكسرات اسبوعيا	لا يتناولها	اقل من مرة	مرة	مرتين
			أكثر من مرتين			