

Re: Childhood obesity in Iraq: a gender perspective

**To the Editor:** I read with great interest the recently published article by Lafta and Kadhim<sup>1</sup> in the *Annals of Saudi Medicine* and I appreciated the authors' efforts and work. However, I would like to raise two points about viewing child obesity via a gender lens and interpreting the data of Table 2 in the manuscript. Both points are actually interrelated.

The authors explained the sole significant association of BMI with >2 hours outdoor playing among boys aged 10-12 years by stating that "this may be due to the tribal custom that girls spend more time indoors". I agree with the authors' intention to discuss obesity and its risk factors from a gender perspective, especially in Arab countries. Even in non-Arab cultures, Chen et al<sup>2</sup> recommended the need for gender-specific approaches to prevent childhood obesity. However, the authors' explanation was immaterial because they did not draw it from their data. The authors only found a significant association between longer outdoor exercise and BMI in the older cohort of the male sub-sample. Some studies in the Arab region proved that lack of exercise was associated significantly with obesity among children, whereas obesity in older adults is more prevalent among the least educated, nonsmokers, and those reporting a family history of obesity. For the authors to explain childhood obesity in a gender context, they have to prove that girls 10-12 years were more obese than boys, presumably because they spend fewer hours in outdoor playing than boys of the same age. On the contrary, the

authors stated that "the difference [in obesity prevalence between boys and girls] was not statistically significant".

Moreover, the authors confused the reader in determining their reference category for the odds ratio (OR) of the risk factors in Table 2. They showed that the OR of first-born vs. last-born child was 0.78,  $P=0.02$ , concluding in their result section that "first-born children [were] more frequently of normal weight than last-born children". The same was mentioned for breast fed vs. bottle fed, as well as primary school vs. college educated parents, which implies that the second category, for the first three risk factors, was the reference category where OR=1. If the authors' rule was applied for the remaining two variables in the table, outdoor playing and watching TV, then less than 2 hours of outdoor playing would be a protective factor for boys aged 10-12 years against overweight as OR was 0.47,  $P=0.004$ . Similarly, boys aged 7-9 years, who spend fewer hours watching TV, would be 2.98 times more likely to be overweight than others. Unfortunately, the reverse was stated in the results and such a discrepancy could be explained, in the best case scenario, by misplacing the categories in Table 2 for the last two variables. To conclude, the authors were imprecise and inaccurate in their interpretation and their gender approach as regards the last two variables in Table 2.

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## Reply to Re: Childhood obesity in Iraq: a gender perspective

**Dear Dr. Affi:** Thank you very much for your valuable notes, which mean that you have read the article thoroughly and we appreciate that very much.

In respect to your notes, let me explain the following:

1) It sounds as if there is a sort of misunderstanding regarding the approach of the study; we did not study obesity from a gender perspective (although we would like to do so), but rather, on the basis of some probable risk factors. Gender was used mainly for stratification in the first order and then a comparison was done between the two sexes to portray the picture clearly. The difference in prevalence of obesity between boys and girls was not significant except in one category (in 2 risk factors), and if you just take a look again you will see that we mentioned "this may be due to.....". On the other hand we do not have to prove that girls between 10-12 years are more obese than boys of the same age group because we only said that the association (of the risk factor, not of the gender) was not significant except in boys 10-12 years and we (as you cer-

tainly noticed) did not build any inference on that finding.

2) The association between outdoor exercise and obesity was not significant (a finding that may disagree with other studies as you referred) could be attributed to the fact that the data were collected through interviewing the pupils themselves and there was no standard method to estimate the amount, type and duration of the exercises. Besides, for the last few years in Iraq we have not had a trend of regular exercises due to the unfavorable security situation that you are aware of.

3) Regarding watching TV, we mentioned that the association was not significant except in one age category and I would not say that it is protective (as you did) but simply “not significant” as the confidence interval passes zero (which is 1 in case of an odds ratio); please reread the paragraph before the last in the discussion.

4) We believe that the results were clear and the statistics (which were reviewed by an excellent statistician) were precise, and if we sometimes do not find what we expect then it is simply due to the fact that findings in research work do not go always by the book.

Thanks again for your correspondence and best regards.

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### The Atkin's diet controversy

**To the Editor:** The Atkins diet was first introduced to American markets during the 1960s. It was ridiculed for more than 30 years, not only as a fad diet but as dangerous nonsense as well. Some nonrandomized studies were reported after the turn of the century<sup>1</sup> and many before that.<sup>2</sup> All those short term studies had shown that the Atkins diet and similar low-carbohydrate diets can initially bring better results than conventional low-calorie, low-fat dietary regimens. In addition to its probable favourable effect on body weight, the popularity of the Atkins diet stemmed from the freedom it offers to consume as much protein and fat (for example meat, fish, chicken, eggs and cheese) as the dieter wishes, while carbohydrate intake must be restricted to no more than 20g a day, initially.

However, numerous studies have shown that low carbohydrate diets are unlikely to produce significant long-term weight loss and may lead to serious health problems. The caution of leading medical and nutrition organizations worldwide against all low carbohydrate diets stems from the fact that these diets greatly increase fat and protein consumption, which could lead to many serious ill effects, and greatly restrict consumption of essential nutrients: minerals, trace elements and vitamins, and fiber—all of which promote improved health and help prevent many diseases.

To start with, low-carbohydrate diets force the body to use fats as the main energy source, leading to ketosis. The brain, thereby devoid of its main energy source, glucose, is forced to make use of the metabolic breakdown

products of fats and ketone bodies, leading to common side effects: nausea, dizziness, constipation, headache, fatigue, and smelly breath. In addition, ketosis leads to metabolic dehydration whereby the body consumes its own water stored within the body's broken down proteins, leading to initial additional weight loss probably over and above that caused by a conventional low-calorie, low-fat diet.<sup>3</sup>

However, being unrealistic and unconventional, the low-carbohydrate diet is neither palatable nor enjoyable enough to be followed for a long time, resulting ultimately in an insignificant difference in weight loss compared with low-calorie, low-fat diets—hence the inability to conclude with confidence whether the weight loss is actually due to the low-carbohydrate diet. This was clearly highlighted by the two longest (12 months) randomized investigations.<sup>4,5</sup> Moreover, weight loss due to low-carbohydrate dietary regimens is unsustainable when carbohydrates would and should be reintroduced as a logical return to normal dietary habits as clearly manifested by the report of the United States National Weight Control Registry,<sup>6</sup> which analyzed diets of 2681 individuals who followed a low-carbohydrate dietary regimen. The report indicated that those who maintained at least 30 lb/~13 kg weight loss after a year or more and who still follow a low-carbohydrate diet (<24% energy from carbohydrate) constituted <1% of the sample studied.

The American Heart Association was one of the pioneers in issuing a warning against high-protein, high-fat, low-carbohydrate diets as a means of losing weight.<sup>7</sup> This warning sup-

ported an earlier one:<sup>8</sup> “the very high fats of Atkins diet: 60%-68%, around 26% of which are saturates, through shifting the metabolic pathway for energy production, deliver a strong boost to free radical production, thereby increasing oxidative stress on different organs”. For example, the increased oxidative stress on the heart muscle<sup>9</sup> coupled with the low potassium in cardiac tissues resulting from the loss of minerals due to metabolic dehydration<sup>3,8</sup> could have serious, even fatal, consequences. Moreover, the increased oxidative stress coupled with reduced fiber intake of a low-carbohydrate diet increases the risk of cancer of the lungs and gastrointestinal tract.<sup>8</sup>

The Atkins diet and similar low-carbohydrate diets could have other deleterious effects as well. The high protein of a low-carbohydrate diet could lead to hyperuricemia (leading to joint pain and gout) and hypercalcuria (leading to kidney stones, hypocalcemia, and osteoporosis). Moreover, a Harvard study<sup>10</sup> showed that high protein diets may cause permanent loss of kidney function in any one with reduced kidney function, a not uncommon probability since as many as one in four Americans, for example, may already have kidney problems.<sup>11</sup>

The American Diabetes Association also cautioned against use of low-carbohydrate diets. Studies in healthy subjects and those at risk of type 2 diabetes support the importance of including foods containing carbohydrates from whole grain, fruits, vegetables and low-fat milk in the diet. The same view has been adopted by the American College of Preventive Medicine and the American Dietetic Association.<sup>12</sup>

In conclusion, it is imperative

to stress the importance of losing weight in a healthy manner that neither exerts added stress on the body's vital organs nor leads to weight snap back when carbohydrates are reintroduced in due course. In addition, it is essential to stress the point that “The greatest health benefits are derived from diets low in saturated fats and high in complex carbohydrates and fiber that increase insulin sensitivity and reduce coronary heart disease risk.<sup>8</sup>

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Awareness of avian influenza (“bird flu”) among attendees of a primary healthcare clinic in Riyadh

**To the Editor:** Avian influenza A (H5N1) viruses usually affect wild birds, but now are infecting and causing serious disease among poultry, such as chickens. Human infections with H5N1 viruses are rare, but have occurred during 2003-2006 in Cambodia, China, Indonesia, Iraq, Thailand, Turkey and Vietnam, with many cases resulting in death.<sup>1</sup>

The influenza A strain (H5N1) involved in the latest outbreak is not new. It was first isolated in South Africa in the 1960s and has since caused epidemics in poultry. However, in the spring of 1997 it caused the death of many thousands of chickens in Hong Kong, and increasingly intensive surveillance was started after a human case was recognized in June 1997.<sup>2,3,4</sup>

The risk from avian influenza is generally low to most people, because the viruses do not usually infect humans. However, confirmed cases of human infection from several subtypes of avian influenza infection have been reported since 1997.<sup>5</sup>

Countries that have experienced confirmed outbreaks of H5N1 infection among poultry and other birds in 2005-2006 include Azerbaijan, Bulgaria, Cambodia, China (including Hong Kong

SAR), Croatia, Germany, Greece, Indonesia, Iran, Italy, Kazakhstan, Mongolia, Nigeria, Romania, Russia, Thailand, Turkey, Ukraine, and Vietnam.<sup>1</sup> Most cases of avian influenza infection in humans have resulted from contact with infected poultry (e.g. domesticated chicken, ducks, and turkeys) or surfaces contaminated with secretions from infected birds. The Centers for Disease Control And Prevention (CDC) remains in communication with the World Health Organization (WHO) and continues to closely monitor the H5N1 situation in countries reporting human cases and bird outbreaks. The threat of a pandemic arising from novel influenza subtypes such as influenza A (H5N1) will be greatly increased if the virus gains the ability to spread from one human to another. Such transmission has not yet been observed. However, a few cases of limited person-to-person spread of H5N1 viruses have been reported, with no instances of transmission continuing beyond one person.<sup>1,6,7</sup>

The present study was undertaken to assess the awareness among people in Riyadh, Saudi Arabia about avian influenza A (bird flu). A cross sectional study was carried out at primary health care clinics (PHCC), King Khalid University Hospital in Riyadh, Saudi Arabia, during December 2005. An arabic questionnaire was distributed to all attendees older than 12 years of age of both sexes in the waiting rooms of PHCC. A total of 516 participants completed the questionnaires.

The questionnaires included socio-demographic data and questions designed to elicit awareness about avian influenza A. The questionnaire was tested in a pilot study and some verbal

modifications were made before implementing the study. The data were analyzed using the Statistical Package For Social Sciences (SPSS), software version 10.

A total of 516 people of both genders participated in the study. Females were 54.3%, while males were 45.7% of the participants. Most (84.1%) were in the age group 20 to <60 years. Most (96.3%) were aware of avian influenza news. Only 39.1% of participants were aware of the mode of transmission of avian influenza to humans. Sixty-one percent were worried and to some extent had a fear of avian influenza. Only 27.5% of participants were aware of measures that prevent transmission of avian influenza to humans.

The present study showed that 96.3% of 516 participants were aware of avian influenza, which might indicate how well people are alerted to mass media news. But only 39.1% of participants were knowledgeable about the mode of transmission of avian influenza, while 61% were worried about avian influenza infection of humans, and only 27.5% were aware of human preventive measures, which might indicate the need for scientific health education for the public.

While there is currently no evidence that H5N1 virus has reassorted its genetic segments with human influenza A viruses, the possibility that it might have led the WHO and CDC to launch a number of preventive initiatives and issue guidelines and recommendations for both public health practitioners and individuals.<sup>8,9,10,11,12</sup>

The recent growth in momentum for action against avian influenza has been flanked by a rise in anxiety about the pandemic

risk. These fears are perpetuated by politicians' misplaced instincts to withhold information instead of talking openly about the disease. And, worryingly, experience shows that widespread fear can lead to social and economic consequences as serious as the disease itself.<sup>13,14,15</sup> Preparedness planning continues among international public health and veterinary authorities to combat avian influenza, particularly the H5N1 strain and the possibility of pandemic human influenza,<sup>16,17,18,19,20,21,22,23</sup> but public assurance is difficult to muster when uncertainties abound and available scientific information is incomplete.<sup>13</sup>

CDC has not recommended that the general public avoid travel to any of the countries affected by H5N1. Persons visiting areas with reports of outbreaks of H5N1 among poultry or of human H5N1 cases can reduce their risk of infection by avoiding all direct contact with poultry, including touching well-appearing, sick, or dead chickens and ducks. They should avoid places such as poultry farms and bird markets where live poultry are raised or kept, and avoid handling surfaces contaminated with poultry feces or secretions. As with other infectious illnesses, one of the most important preventive practices is careful and frequent hand washing. And, as influenza viruses are destroyed by heat, all foods from poultry, including eggs and poultry blood, should be thoroughly cooked<sup>1</sup> as a precaution.

Good communication means responding to public concerns.<sup>13</sup> Both primary care and public health professionals must work to improve population health.<sup>24</sup> It is important that scientific health education programs be planned

to improve knowledge of avian influenza in the community and minimize anxiety and fear.

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## Glycemic control and treatment satisfaction in Saudi diabetic children on insulin pump therapy

**To the Editor:** Since the introduction of continuous subcutaneous insulin infusion (CSII) in the late 1970s, it has become apparent that the use of insulin pump therapy has many potential benefits for children with type 1 diabetes. Insulin pump therapy improves glycemic control, reduces hypoglycemia, decreases episodes of recurrent diabetic ketoacidosis (DKAs) and improves quality of life.<sup>1,2</sup> In this study, we assessed parent satisfaction with insulin pump therapy and compared it with conventional insulin therapy by using the Diabetes Treatment Satisfaction Questionnaire (DTSQs-parent) method.

Nine Saudi children with type

1 diabetes mellitus were started on *MiniMed 508* (Medtronic, Minneapolis, USA) insulin pump therapy at King Faisal Specialist Hospital and Research Center. All patients were on conventional insulin (CI) therapy, which included two injections of insulin per day, NPH and regular insulin before shifting them to CSII. The Diabetes Treatment Satisfaction Questionnaire (DTSQs-parent) was used before and 6 months after insulin pump initiation. DTSQs-parent included 9 questions about treatment satisfaction with a score from 0 to 6. The questions involved treatment satisfaction, treatment convenience, treatment flexibility, diabetes knowledge gained during treatment and the frequency of unacceptable high and low blood sugar levels

All patients had type 1 diabetes mellitus for a mean duration of 3.3±1.5 years. The mean age of these children was 11.4±3.2 years. They were followed on insulin pump therapy for a mean duration of 20.4±7 months. During the 6 months prior to insulin pump therapy initiation, the mean HbA1c was 10.1±1.2%, the mean blood glucose level was 233±33.6 mg/dL and the mean frequency of hypoglycemic episodes per month was 2.9±0.9. The total numbers of hypoglycemic convulsive and DKA episodes were 2 and 7 episodes, respectively. Six months post-insulin therapy, the mean HbA1c was 7.3±0.5% ( $P=0.0002$ ), the mean blood glucose level was 155±33.2 mg/dL ( $P=0.002$ ) and the mean frequency of hypoglycemic episodes per month was 1.7±0.5 ( $P=0.002$ ). There was no report of hypoglycemic convulsion or coma during CSII therapy. The treatment satisfaction score was 26.5 pre-insulin

pump therapy and improved to a mean score of 34.3 post insulin pump therapy ( $P < 0.0001$ ).

A tremendous amount of data has shown that intensive diabetes management with CSII is a durable and an effective means of optimizing glycemic control in pediatric patients and may improve their quality of life.<sup>1</sup> In this article, we report our experience with 9 Saudi children on CSII treatment, which showed that insulin pump therapy is effective in treating Saudi type 1 diabetic children and their parents were more satisfied with this modality of intensive insulin therapy compared with CI therapy. Intensified insulin therapy using external pumps provides users with flexibility in eating schedule and an ability to correct high and low blood sugar readings by adjusting the insulin boluses and basal insulin infusion rate. In this trial, the rate of hyperglycemic and hypoglycemic episodes was less on CSII therapy. Meals were covered with the ultrashort-acting insulin, which minimized the postprandial hypo- and hyperglycemia. CSII therapy also fits into children's lifestyle and different daily activities. The basal infusion rate was reduced during exercise and some children were placed on a temporary basal rate during sports. Some parents felt that they gained more information on diabetes management and diet therapy during insulin pump therapy. Other children felt that they were able to predict blood glucose level based on what they ate. They were able to control blood glucose by calculating the appropriate correction insulin bolus dose. Some children reported that frequent checking of blood glucose was more enjoyable for them because they can easily correct high read-

ings through the pump without having an injection.

In conclusion, CSII improved glycemic control in Saudi diabetic children and improved their quality of life. Parents of children on insulin pump therapy were more satisfied with this modality of intensive insulin treatment.

*We thank Professor Clare Bradley, University of London, Egham, Surrey, UK for permitting us to use the Diabetes Treatment Satisfaction (DTSQs-parent) Questionnaire in this study.*

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