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A program for obese youth at-risk for diabetes in Qatar

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ABSTRACT

Background: Obesity is an international public health problem well documented in Qatar among children and adolescents and contributes to diabetes, a disease already highly prevalent in the country. We describe an intervention program developed for obese youth conducted by the Qatar Diabetes Association (QDA).

Methods: The QDA conducts a 3-day structured program for obese youth at-risk for developing diabetes which includes physical activities, games and workshops aimed to increase awareness and guide improved diet, activity and related lifestyle choices. Using motivational interviewing techniques, obese youth develop action plans to modify diet and exercise which were shared with parents to promote collaboration and support.

Results: In 2011, one girls' camp ($n = 15$, mean age 12 years) and one boys' camp ($n = 17$, mean age 13 years) were held. All participants were considered obese: girls mean BMI = 31 kg/m^2 (standard deviation (SD) 4.2) and boys mean BMI 35 kg/m^2 (SD = 4.7). Youth reported fast food consumption at least twice a week by 6 (40%) of girls and 10 (59%) of boys and there was low self-declared frequency of daily physical activity (1 girl and 5 boys). Many stated their weight made their life worse due to fatigue, poor agility, or difficulty finding clothes. When individualized coaching was proposed, 87% and 100% of girls and boys felt ready to devise an action plan for improved health.

Conclusion: The new national preventative healthcare mandate could facilitate modification and expansion of these QDA educational and behavioural intervention programs as part of the wider strategy to combat obesity in Qatar.

Keywords: obesity, diabetes, adolescents, youth, Qatar

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INTRODUCTION

Obesity is one of the most visible public health problems internationally. The World Health Organization (WHO) estimates that there are more than 1 billion overweight adults, of whom at least 300 million are considered obese¹. New affluence, modernization, urbanization and globalization of food markets are factors said to attribute to the problem². Considering this, it is no wonder that prevalence of obesity and overweight adults in oil and gas-rich Gulf Cooperation Council (GCC) countries such as Saudi Arabia, Bahrain, and Kuwait has been reported as high as 79%, 80% and 88%, respectively³.

Obesity is also well documented in Qatar with particularly alarming figures among children and adolescents. An assessment of growth patterns among 7,660 students found high rates of overweight and obese youth: 19.8% in boys 6–9 years and 34.6% for 10–18 years old; 18.3% in girls 6–9 years and 23.9% in those 10–18 years⁴. A study of female adolescents in secondary and high schools found 15% of girls 14–19 years were overweight (BMI >25 kg/m²)⁵. The WHO World Health Care Survey recently documented 36.5% of adolescent boys and 23.6% of girls are overweight or obese in Qatar households and nearly one-third of children under 5 are overweight⁶.

Obesity contributes to serious health conditions including diabetes, a disease already highly prevalent in Qatar^{7,8}. Features of ideal strategies to address the numerous and complex causes of youth obesity include comprehensive intervention programs that are multi-faceted and intersectoral implemented in multiple settings and include family involvement^{9–12}. The existence and nature of such programs are not well reported in the GCC region and none specifically for Qatar¹³.

QATAR DIABETES ASSOCIATION (QDA)

The Qatar Diabetes Association (QDA), a non-governmental organization and a center of Qatar Foundation, is a leader in Qatar's health field in regards to the care, management and prevention of diabetes. As part of its diabetes prevention strategy, the QDA conducts a number of annual intervention programs specifically developed for obese youth.

THE QDA ANNUAL CAMP

One such program is the "Diabetes Prevention Camp" for overweight and obese females and males who are at-risk for developing diabetes. Identification of eligible camp participants occurs during the QDA diabetes awareness campaigns, and in cooperation with the nurses at partner primary and secondary schools who record the height and weight of the student population annually. Overweight and obese students with positive family history of diabetes are then referred to the QDA for an invitation to attend these camps. Interested parents attend an orientation meeting where the program is outlined and consent is obtained for their children to participate. Separate camps are held according to gender and age group.

The camp takes place over the course of 3 days, at different locations in Doha depending on participant gender. The male camp is held at various municipal youth facilities, such as sports clubs or youth hostel, and the female camp is held between Qatar Foundation facilities and at the QDA building, which is equipped with classroom, healthy kitchen, and gym. The structured program includes physical activities (swimming, football, aerobics, and martial arts), games and workshops to increase diabetes prevention awareness, guide improved food and lifestyle choices, offer psycho-social support and enhance self-confidence. Interactive sessions include topics on healthy eating and eating-out choices, meals and snacks calorie count, a supermarket tour and group discussions on diabetes risk and development.

Supervising personnel is comprised of QDA nurses and dietitians along with non-health professional volunteer assistance to effectively organize the camp, to implement the workshops, and ensure youth safety.

PERSONALIZED ACTION PLANS

As part of the QDA camp program, each participant undergoes individualized assessment of nutritional status and dietary habits, physical activity level and readiness to change. As part of personalized action plan development, each youth participant is administered a 38-item questionnaire that has adopted items from other published work^{14,15}. Questions explore current eating and exercise behaviour, as well as belief systems towards obesity. Although not validated in this setting, its principal purpose is to

serve as a platform to assess and reinforce readiness to change through motivational interviewing. Based on this assessment a personalized action plan is designed in collaboration with each participant to follow after the camp. To support this plan, all participants have baseline height and weight measured, as well as total body water consumption, muscle and fat percentages. Body Mass Index (BMI) is determined according to the BMI-for-Age-Percentile Growth charts for their gender and age¹⁶.

Considering the multifactorial nature of the problem and the challenges to address it, the aim of the 3-day camp is to focus on providing youth participants with basic knowledge of energy needs and caloric content of ingested food that will permit them to make informed decisions regarding food choices. The camp provides the participants with a platform for empowerment through self-efficacy workshops and behaviour monitoring exercises.

INTERVENTION FOLLOW-UP STRATEGY

Participants are asked to return to the QDA for a follow-up appointment less than 6 months following the camp's conclusion where they discuss their personalized action plan progress with a nutritionist member of the camp supervising personnel and have repeat height, weight, and BMI recorded. The dietitian discusses the successes and barriers affecting the implementation of the youth's individualized plan and sets up new short term, mutually agreed-upon goals. She will also offer help and support in meeting the challenges faced and coordinate future meetings according to the progress of the participant.

QUESTIONNAIRE STATISTICS 2011

In 2011, two QDA camps for obese youth at-risk for diabetes were conducted and attended by 32 participants (Table 1). A brief summary of the results of the initial questionnaire can be seen in Table 2. The questionnaire revealed a number of factors which could be associated with obese body weight. For example, when food behaviour was assessed, 59 % of boys and 40 % of girls consumed "fast food" at least twice weekly. Most boys (94 %) and girls (60 %) reported eating fruits only four times a week or less. When physical activity attitudes were explored, the majority agreed sufficient opportunities existed to exercise but few engaged in any exercise on a daily basis (7 % and 30 % of girls and boys, respectively). Many (71 % of boys and 60 % of girls) believed their weight issues made their life worse.

Table 1. Youth participant demographics

Characteristic	Boys (n = 17)	Girls (n = 15)
Age, years	13 (0.9)	12 (0.9)
Height, cm	166 (9)	157 (5)
Weight, kg	96.9 (19.4)	77.4 (13.6)
BMI, kg/m ²	35.1 (4.7)	31.1 (4.2)

Reported as mean and standard deviation.

POTENTIAL IMPACT OF QDA CAMPS

Interventions attempting to address youth obesity are increasingly pervasive given its escalating international prevalence, but are also consistently criticized¹⁷. Deficiencies include flaws in design, shortcomings in implementation and lack of systematic and ongoing monitoring. Even when such issues are overcome, program affects are at best modest and largely unsustainable¹⁸.

Within the QDA's intervention program for obese youth, unhealthy eating patterns, sedentary lifestyles and poor body image were identified among these obese children. Using motivational interviewing techniques to predispose readiness for health behaviour change, the majority of these obese youth went on to develop action plans to modify diet and exercise which were shared with parents to promote collaboration and support.

While these observations are promising, this resource-intensive program has low reach due to its conduct in a small number of volunteers from a targeted population. Evaluative infrastructure to ascertain program impact, such as the proportion of participants who are adherent to their action plans or who are subsequently diagnosed with diabetes, for example, would magnify its value. It is additionally vital to determine short-and long-term outcomes appropriate for these youth as failure to achieve weight loss may not be a meaningful measurement until growth and development stabilize¹⁹.

Table 2. Selected items from youth questionnaire

	Boys (n = 17, %*)	Girls (n = 15, %*)
How often do you weigh yourself?		
Never or almost never	10 (59)	11 (73)
Monthly	4 (24)	4 (27)
Weekly or daily	3 (18)	0 (0)
Is your eating behaviour prompted by:		
Reward	0 (0)	1 (7)
Happiness	4 (24)	2 (13)
Worry or anger	0 (0)	2 (13)
Boredom	3 (18)	6 (40)
Sadness	1 (6)	0 (0)
Do you keep track of daily food intake?	9 (53)	5 (33)
Is most food you eat from restaurants?	3 (18)	6 (40)
Do you think you eat less than your weight shows?	9 (53)	11 (73)
Do you have opportunity for exercise?	15 (88)	10 (67)
What are your preferences for exercise?		
I like it	11 (65)	9 (60)
I force myself to do it	4 (24)	3 (18)
I don't do it	2 (12)	3 (20)
How often do you exercise?		
Daily	5 (29)	1 (7)
Sometimes	12 (71)	6 (40)
Never	0 (0)	8 (53)
Do you believe body weight has a negative impact on your life?	12 (71)	9 (60)
What is your biggest motivation for losing weight?		
Health	3 (18)	4 (27)
Fitness	5 (29)	1 (7)
Appearance	6 (35)	8 (53)
Family	3 (18)	2 (13)
How important is losing weight to you?		
Very important	11 (65)	9 (60)
Important	5 (29)	4 (27)
Neutral	1 (6)	2 (13)
Have you followed diet programs in the past?	15 (88)	10 (67)
Does anyone sabotage your effort to lose weight?	6 (35)	9 (60)
Preferences for weight loss		
Temporary diet	7 (41)	7 (47)
Long term lifestyle change (increase sport and decrease unhealthy food intake)	10 (59)	8 (53)
Are you ready to lose weight?	17 (100)	13 (87)

* Proportions are percentage of respondents answering "yes".

Obesity and diabetes are predominant co-morbidities in Qatar, and indeed, many other parts of the GCC. Recently, a six-year Qatar National Health Strategy to overhaul the health care system has been devised with key elements aimed to address these public health challenges²⁰. The importance of initiatives to target health promotion in schools, create policies to reduce fast-food consumption and to enhance physical activity and nutrition through media awareness campaigns have been identified. These are indeed among recommended components of an obesity prevention policy framework, which also include community redesign to maximize opportunities for safe and readily available physical activity and incorporation of family as the primary social institution influencing modifiable risk factors for youth obesity (and diabetes)^{21,22}.

Prior review of obesity treatment and prevention interventions have questioned the generalizability of program elements and outcomes observed in largely middle-class Caucasian children studied to date^{10,19}. This underscores importance of domestically developed programs in the Middle East which adhere to established principles, but also use culturally appropriate messages and expectations, a particular challenge given Qatar's multi-ethnic population²³. In addition to systematic longitudinal follow up of camp participants, formal QDA program evaluation could include youth preferences for programming, as well as youth and parent program satisfaction²⁴.

The QDA program is one example of efforts attempting to address aspects of youth obesity that presently operate independent of a nationally-coordinated infrastructure²⁵. An inventory of such existing initiatives underway throughout the country would be useful to inform the development of a systems-approach for Qatar's obesity prevention health strategy. Determination of short-and long-term population-based outcomes will otherwise be difficult to discern with unclear project prioritization and

fragmented efforts. Qatar is fortunate to have financial means behind the political will to combat obesity, but it will require coordinated plans among multiple health and non-health sectors.

CONCLUSION

Obesity is a modifiable risk factor for diabetes, and both are highly prevalent in Qatar. A new mandate shifting national healthcare system efforts to proactive prevention of chronic disease could facilitate deliberate modification and expansion of the QDA programs for obese youth at-risk for diabetes and support meaningful evaluation to determine its tangible contributions to the overall policy.

COMPETING INTERESTS

The authors of this study declare no conflict of or competing interests.

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AUTHORS' CONTRIBUTION

KW conceived the study. All authors contributed to the design of the study. SS and GD conducted the data collection under supervision of KN and SM. All authors participated in the data analysis and interpretation. SS and GD performed the initial manuscript draft. All authors read and approved the final manuscript.

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