Impact of a Three Years Multi-Approach Intervention on Childhood and Adolescent Obesity at School Setting

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Abstract

Background: Obesity and overweight are recognized as major global public health phenomena. Its long term consequences are many of wide variety of chronic conditions including high blood pressure, type 2 diabetes, stroke, cardiovascular disease, and certain forms of cancer; which in turn are primary drivers of healthcare spending, disability, and deaths, childhood obesity is complex and multidimensional, which has been identified as a public health priority. Objectives: To assess the impact of a multi-approach population-based childhood obesity intervention over three years at school population in Dubai. Methodology: Follow up was conducted on about 260000 students in the age range of 5-18 years (grades 1–12) over about 180 private schools in Dubai in three consequence academic years 2014-2015, 2015-2016 and 2016-2017. BMI measurement as per WHO growth charts was used at the beginning of each academic year (September). Wide variety of interventions have been designed and applied like health promotion, school nutritional education activities, Food labelling, happy schools initiatives, 10/10 initiative physical activity platform, parents awareness, students health file initiative, City Makers (blue team initiative), community participation (private –public partnership, Governmental stockholders intersect oral collaborations school canteen policy and guideline. Results: The current study revealed that about 10.1% of the total students in private schools in Dubai in the academic year 2014-2015 were obese. The study showed that the prevalence of obesity among student population at private schools in Dubai during the academic year 2015-2016 was 9.88%. The study reflected that prevalence of obesity among student population at private schools in Dubai during the academic year 2016-2017 was 8.9%. The study revealed that the trend of obesity prevalence among students population at private schools in Dubai is declining over that last three academic years (2014-2015, 2015-2016 and 2016-2017) showing that about 1.2% total reduction during the three years period of applying effective intervention program. Conclusion: Multi approach public health intervention for childhood obesity is significantly successful in producing weight reduction in the short and long term, by bringing stakeholders on board and implementing effective intervention program with wide variety of tasks. Maintaining intervention need to be revised, reassessed, monitored and there is a need for strengthening sustainable long-term approach through governmental and nongovernmental accountability.

Keywords

Obesity, Intervention, Population Based, School Setting

1. Background

Obesity and overweight are recognized as major global public health phenomena. [1, 2] Its long term consequences are many of wide variety of chronic conditions including high blood pressure, type 2 diabetes, stroke, cardiovascular disease, and certain forms of cancer; [3] which in turn are primary drivers of healthcare spending, disability, and deaths.

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Evidence shows that there are significant difficulties associated with treating obesity once it has been established. [4, 6] It is also acknowledged that obese children and adolescents may grow into obese adults, [2, 7] making the conditions very complex to manage. Due to seriousness of health impacts of childhood obesity, the management of childhood obesity has been identified as a public health priority. [8, 9] It is also recognized that obesity decreases the quality of life and life expectancy considerably [4, 8] and accounts for billions of dollars in the provision of healthcare. [9] Early intervention to obesity prevention has been identified to be the most realistic, efficient, and cost-effective approach to effective management of obesity. [4]

Childhood obesity is the complex and multidimensional which needs to be addressed by using a comprehensive approach which incorporates addressing obesity determinants such as education, social, religious beliefs, and cultural issues. Community participation has to be at the center of health promotion actions so as to enable people to identify their needs and generate their own solutions in a sustainable way. Family and community involvement in the management of childhood obesity as a neglected area of research and have called for more family-based interventions. [10] Specifically, experts suggest that intervening in the family system may provide greater change and longer sustainability of change in the child because of the ability of the family to shape child behaviors on a daily basis. [11, 12]

Effective interventions for prevention and control of childhood and adolescent overweight and obesity should be considered for different aspects. Experts recommend encouraging specific eating and physical activity behaviours through multiple approach interventions. [13-23]

The purpose of this study is to assess the state of overweight and obesity in the light of the application of a wide range of interventions targeting childhood and adolescent overweight and obesity in the last three years, in order to determine the success of these interventions and inform research and policy in the next years.

## 2. Objectives

To assess the impact of a multi-approach population based childhood obesity intervention over three years at school population in Dubai.

## 3. Methodology

Follow up was conducted on about 260000 students in the age range of 5-18 years (grades 1 –12) over about 180 private schools in Dubai in three consequence academic years 2014-2015, 2015-2016 and 2016-2017. BMI measurement as per WHO growth charts was used at the beginning of each academic year (September). Wide variety of interventions have been designed an applied like health promotion, school nutritional education activities, Food labelling, happy schools initiatives, 10/10 initiative physical activity platform, parents awareness, students health file initiative, City Makers (blue team initiative), community participation (public-private partnership, governmental stockholders intersect oral collaborations school canteen policy and guideline.

## 4. Results

The current study revealed that about 8.7% of the total students population in private schools in Dubai in the academic year 2014-2015 were obese, and about 1.4% of the total students were morbid obese. A total of 10.1% of all students were obese of different severity as reflected by table 1.
The study showed that the prevalence of obesity among student population at private schools in Dubai during the academic year 2015-2016 was 9.05% and about 0.83% of the total students were morbid obese. A total of 9.88% of all students were obese of different severity as reflected by figure 1.

The study showed that the prevalence of obesity among student population at private schools in Dubai during the academic year 2016-2017 was 8.2% and about 0.7% of the total students were morbid obese. A total of 8.9% of all students were obese of different severity as reflected by figure 2.

The study revealed that the trend of obesity prevalence among students population at private schools in Dubai is declining over that last three academic years (2014-2015, 2015-2016 and 2016-2017) showing that about 1.2% total reduction during the three years period of applying effective intervention program as shown in figure 3.
Figure 3. Obesity prevalence trend across the last three academic years of intervention (2014-2015, 2015-2016, 2016-2017).

5. Discussion

The prevalence of obesity in this study was less compared to another study results conducted in Saudi Arabia, which showed that the overall prevalence of obesity in children and adolescents from 5 to 18 years was 11.3%. Among the age group of 5-12 years, the prevalence of obesity was 11.0 in females and 7.8% in males. Among the age group of 13-18 years, the prevalence of obesity was 12.1% in female and 13.8% in males. Schools in Saudi Arabia should be an important avenue for addressing childhood obesity by following a multilevel strategy starting from home including raising the awareness of parents regarding obesity issues. It should incorporate strategies that encourage adopting healthy dietary patterns and being physically active. [24, 25]

The study showed that reduction in the prevalence of childhood obesity among student population at private schools in Dubai was 1.2% over three year of comprehensive intervention program implementation. Some other studies showed that there are no effects on anthropometric index. However, they had resulted in dietary habits or physical fitness improvement. One explanation for this can be self-reported dietary intake and physical activity data. By other words, children may not pay attention to the instruction they were given. [26-33] On reverse there was noticed reduction in this study telling that the multi approach intervention may be more effective than individual approach.

The current study showed that the multi intervention approaches through applying different intervention strategies was significantly effective in prevention and management of childhood obesity which managed to reduce obesity prevalence in 1.2% among study population over three successive years. This results was similar to many other results reflected by different international studies which were stated that as always emphasized, to be effective, physical activity should be considered as an enjoyable fun, and should be integrated into daily lifestyle. Obesity causes mental problems in children and adolescents, [34] so behaviour therapy seems to be vital. It sounds that group treatment is more successful than individual ones; [35, 36] specifically when parents are engaged. Counsellors should persuade children and adolescents to eat breakfast, to have structured meal plan to increase consumption of fruits, vegetables, and family meals, as well as to decrease the intake of sweetened beverages, calorie-dense foods, and eating out, as well as reducing the sedentary behaviours and the screen time. [37, 38] Counsellors also need to teach families about healthy shopping and cooking habits.

Current study revealed that school-based obesity prevention and control programs are suggested to be feasible and effective; because students spend a considerable part of their time in school, moreover teachers and peers can be engaged in such programs. These kinds of programs can improve health behaviours in a large target group. They are characterized by nutritional education and changes in dietary habits, as well as increase in physical activity through structured programs. Findings of various studies proposed that the effects of such interventions will be preserved for several years after intervention. [39, 40]

6. Conclusion

Multi approach public health intervention for childhood obesity is significantly successful in producing weight reduction in the short and long term, by bringing stakeholders
Conflict of Interest

The authors declare that they do not have any conflict of interest.

References


