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Editorial

The Development of School-Based Intervention for Childhood Obesity

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Editorial

Childhood obesity is rising to be a serious public health problem worldwide [1–3]. Although obesity-related morbidities occur more frequently in adults, cardiovascular risk factors can also be identified in early life and obesity has been noted as a major determinant of serum lipids, lipoproteins and blood pressure levels. It has been shown that the cardiovascular risk factors clustered in obese children. Childhood obesity is associated with several short-term medical consequences such as blood lipid profile, altered glucose metabolism, obstructive sleep apnoea and long-term effects such as higher risk of hypertension, diabetes, cardiovascular disease and osteoarthritis in adulthood. Childhood obesity has also been linked with psychosocial ramifications such as poor self-image, lowered self-esteem, eating disorders and poor quality of life [4-7].

Many intervention programs have been developed for childhood obesity prevention. School is a very important avenue for delivery of programmers. Children spend many hours in school, and physical education classes are an important channel through which important behaviour change to reduce childhood obesity can be addressed [8,9]. The school-based interventions including education and physical activity provide a unique opportunity to enhance the current health status of children during their critical periods of growth and development. School-based interventions also have the potential for establishing healthy dietary and exercise patterns that may persist in adulthood and reduce chronic disease risk. School-based programmes are also cost-effective, so researchers and medical practitioners recommend that school-based interventions be developed [10, 11].

Recent studies showed that school-based intervention programme that focused on dietary or physical activity behaviour produce a significant and clinically meaningful reduction in body mass index status of children both in preventing obesity as well as treating obesity, but the effect sizes were still small. This might be due to not targeting potentially effective working mechanisms that are substantially related to the energy balance-related behaviours. By specifying what works and what does not work in energy balance-related behaviour interventions, we can prompt future intervention developers to add effective intervention components and remove/adapt ineffective intervention components. This will not only increase the effectiveness and clinical relevance of these interventions, but also reduce their costs [12,13].

Many studies have indicated the implementation of school-based physical activity intervention could reduce the percentage of body fat content, but also some studies indicated that there's no change for the percentage of body fat after the intervention [14]. Happy 10 is a classroom-based physical activity intervention for Chinese primary-school students. This study is designed to evaluate effectiveness of the Happy 10 intervention in promoting physical activity level among children and to examine its influence on physical growth and development, as well as on obesity control. The findings of the study have confirmed that Happy 10 is a useful classroom-based physical activity intervention [15].

Most of the school-based childhood obesity interventions which were based on some behavioural theory and the most popular theory was social cognitive theory, targeted both physical activity and nutrition behaviours, also there were some interventions that focused on only one dimension such as TV watching or restricting drinking of carbonated drinks or increasing physical education time in the school. While multifaceted, comprehensive programmes are more beneficial, single component programmes also show promise such as the British study reducing carbonated drinks [16]. However, it cannot be clearly said that single-component interventions are any better than multi-component interventions. Hence, it's essential to invest in both multi-component and single component programmes. The duration of school-based interventions ranged from 12 weeks to one academic year or longer. Generally speaking, interventions without a behavioural theory have been longer in duration. From a practical point of view, middle range interventions work well and future interventions must aim at developing such interventions. Most of the interventions have focused on individual level behaviour change approaches and few have tried to address broader policy and environmental level changes. Most of the interventions have focused on short term changes right after the intervention and it is essential to have measures at least at 6 months after the intervention to see for the retention of behaviour change [17]. On the whole, interventions have resulted in modest changes in behaviours and mixed results with indicators of obesity thereby necessitating more effective use of theoretical approaches. TV watching seems to be the most modifiable behaviour, followed by physical activity and nutrition behaviours [18].

With the prevalence of childhood overweight and obesity continuing to rise, the prominent is not only health problems, as well as economic problems. Obesity not only affects the learning ability, increases the risk of cardiovascular disease in adulthood, but also increases the healthcare spending [19]. World widely, health care costs due to obesity resulted 2% to 7% of total national health care spending, the highest reached 7.0% for the United States [20]. Because of the increasing rates of obesity in children and adolescents in the last two decades, the medical costs increased significantly [21]. How to choose the economical and effective interventions for

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childhood obesity? This need to develop economic assessment studies for providing a theoretical basis for developing a reasonable policy for the decision-making departments of government. Economic assessment of childhood obesity interventions includes three basic methods, the cost - effectiveness analysis (cost-effectiveness analysis, CEA), cost - utility analysis (cost-utility analysis, CUA), and cost - benefit analysis (cost-benefit analysis, CBA).

Early childhood obesity interventions focused on intervention effect evaluation, but fewer economic assessment. economic assessments for school-based interventions are carried out basically for interventions over several aspects. In recent years, a growing number of intervention studies using the cost-effectiveness analysis of school-based childhood obesity interventions economic assessment, developing some different prediction models to calculate the Quality-adjusted life year gained (QALY) or Disability-adjusted life year (DALY). How to estimate QALY or DALY gained after the intervention as accurately as possible is the key point of cost-effectiveness analysis.

Presently, there are still fewer studies about the cost-effectiveness of school-based obesity prevention interventions, economic assessment on school-based obesity prevention interventions will become more and more important, and also the school health promotion interventions are more likely to be both effective and sustained.

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