

<https://doi.org/10.1186/s12889-025-21382-7> On the rise. Noting that the tendency for them to grow into obese adults and the relationship of obesity to many non-communicable diseases, the My Body is Fit and Fabulous at School (MyBFF@school program) was designed to combat obesity among the schoolchildren. The program was piloted in 2014 in Putrajaya, Malaysia. There were several challenges during the pilot study which included strain in manpower, limited variation of physical activity, nutrition, and psychology modules, time-constraint after school hours, co-curriculum marks, contamination effect, and school selection. The main MyBFF@school in 2016 addressed the challenges and improvised the design which were elaborated in subsequent articles in this supplement. This cluster randomized controlled trial was conducted in three states; Federal Territory of Kuala Lumpur, Selangor and Negeri Sembilan in 23 primary and 15 secondary schools were selected through proportionate random sampling. The MyBFF@school intervention package consisted of physical activity, nutrition and psychology components were carried out for six months. Data were collected at baseline, mid (month-3) and end (month-6) of the study period. The effects of the program on body composition, clinical, physical fitness, nutrition, and psychology were assessed in primary schoolchildren aged 9 to 11 years old (children age group) and secondary schoolchildren (adolescent) aged 13 to 16 years old. The prevalence of overweight and obesity at screening (N=22,816) were 29.4% in primary and 26.8% in secondary schoolchildren. Outcomes of the trial is presented in this supplement. In summary, the MyBFF@school program is a school-based intervention for overweight and obese children and adolescent. It is a combination of physical activity, nutrition and psychology components. We present in this supplement, the rationale, methodology and the outcomes of this randomized control trial of the MyBFF@school program.

Keywords Obesity, Overweight, Schoolchildren, Children, Adolescent, Intervention



Background

The obesity trend across the world is increasing at an alarming rate [1]. More than 1.9 billion (39%) adults 18 years and above were overweight, whereas over 650 million (13%) were obese as reported by World Health Organization (WHO) [2]. Data from WHO also showed that approximately 170 million children aged less than 18 years old are currently prone to overweight. As for children aged less than 5 years old, the trend of overweight and obese was reported to increase from 32 million globally in 1990 to 41 million in 2016 [3]. In addition, the prevalence of overweight and obesity among children in developing countries is 30% higher than in developed countries [4].

In Malaysia, the National Health and Morbidity Survey (NHMS) 2019 found that the national prevalence of overweight and obese children aged 10–17 years was 29.8% (14.2% of girls and 15.7% of boys) [5]. Looking at the trend of obesity alone, the prevalence of obesity for children aged below 18 years old increased from 11.9% in 2015 [6] to 14.8% in 2019 [5]. According to the Global Obesity Observatory, the prevalence of overweight and obesity in the neighboring countries of Malaysia were: Singapore, 13% (2017); Indonesia, 14.8% (2015); Thailand, 16.3% (2016); Philippines, 9.1% (2015); Vietnam 22.5% (2018); Myanmar, 7.6% (2016); Laos, 11% (2015); Brunei, 35.2% (2014); Timor-Leste, 4.4% (2015) and Cambodia, 3.7% (2013) [7]. This made Malaysia as the second highest with childhood obesity prevalence in South East Asia region. Childhood obesity can track into adulthood [8]. As obesity is related to a number of non-communicable diseases [9], certain types of cancer [10] and mental health issues [11], addressing this early may minimize the risk [12]. In fact, the Academy of Medical Sciences reported approximately 73% of annual deaths in Malaysia is due to non-communicable diseases which are highly associated with obesity [13]. This raises concern and urgency to intervene in childhood obesity.

There are a number of obesity intervention programs worldwide [14–20]. The results however, are mixed. One of the successful interventions includes peer educators initiative adopted from Social Cognitive Theory (SCT) in which schoolchildren deliver educational material to their counterparts. This initiative resulted in positive behavioral changes both among the schoolchildren and the peer educators, as well as enhancing their awareness on obesity [21]. Similar approach was proven as an effective tool in promoting good health behavior and attitudes [22]. There was also a significant increase in physical activity level due to the implementation of integrated interventions which took up both obesity and eating disorder issue [21]. In contrast, some programs were unsuccessful due to short intervention period [23],

methodological limitations such as lack of quantitative assessment, and the use of BMI alone as an indicator for obesity [24, 25]. School-based program is noted to be one major key to a successful intervention. This is further concurred by several international guidelines on childhood obesity intervention [26–28].

The MyBFF@school intervention program was designed to combat overweight and obesity in Malaysian schoolchildren which consisted of multi-components i.e. physical activity, nutrition and psychology. A pilot study was conducted in Putrajaya, Malaysia (MyBFF@school 2014) with a total of 425 participants. A total of 237 schoolchildren were from 11 primary schools (aged 9 to 11 years) and 188 schoolchildren from secondary schools (aged 13 to 16 years) [29]. The program was run just after school hours, so as not to interrupt the existing school curriculum. From the Working Group Discussions (WGD) between the research assistants (RA), and the teachers as well as with the students, a number of challenges encountered during the pilot study were tackled when the main MyBFF@school study was conducted in 2016 (MyBFF@school 2016).

Firstly, the importance of getting a specific personnel to run the program at school [9, 22, 24, 25(a), 12(s), 7(sst)].

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Data availability

All relevant data are within the paper.

Declarations

Ethics approval and consent to participate

This study was approved by the Medical Research and Ethics Committee (MREC), Ministry of Health Malaysia (NMRR-13-439-16563). Written informed consent was obtained from parents or guardians, and assent form was signed by the participating child.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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