

Tackling Health Inequities and Reducing Obesity Prevalence: The EPODE Community-Based Approach

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Key Words

Childhood obesity · Obesity prevention · Let's prevent childhood obesity methodology (EPODE) · EPODE for the Promotion of Health Equity

Abstract

Background: Tackling inequalities in overweight, obesity and related complications has become a top priority for European research and policy agendas. It is well-known that the health message often does not reach disadvantaged populations, a phenomenon that widens health inequalities. Ensemble Prévenons l'Obésité des Enfants (EPODE) methodology is an innovative approach to counteract obesity and improve health equity. EPODE for the Promotion of Health Equity (EPHE) has assessed the impact and sustainability of the EPODE methodology to diminish inequalities in childhood obesity prevention. The current data represent the results of the intermediate measurements that were obtained following EPHE interventions in 7 European communities across different countries. **Methods:** A total of 1,062 children aged 6–8 years and their parents from different socioeconomic backgrounds were observed for 2 years. A self-administered questionnaire was sent to parents to measure the children's energy balance-related behaviors and their determinants. The Wilcoxon signed-rank test was used to test dif-

ferences between baseline and intermediate measurements for each socioeconomic group. **Results:** We observed changes in behaviors (fruit and vegetable consumption, sugary sweetened beverage consumption, screen exposure) and their related determinants, within the low and high education groups, which were associated with identified inequity gaps at baseline. Although statistical significance was not reached in most of the cases, greater improvements in behaviors were evident within the low education groups. **Conclusions:** Our findings show that, after EPODE interventions, the low socioeconomic groups improved their behavior compared to the other socio-economic groups. This indicates that the EPODE methodology has the capacity not only to reduce obesity prevalence but also to decrease health inequities.

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Published by S. Karger AG, Basel

In order to prevent obesity and reduce health inequities, the multiple determining factors must be understood, including genetic make-up, individual behavior and the impact of the environment [1, 2]. Numerous studies show the close relationship between low income and obesity. In particular, in industrialized countries, children from lower socioeconomic groups appear at greatest risk for overweight and obesity [3].

Childhood Obesity

Childhood obesity and overweight is rising in almost all countries, with prevalence rates growing fastest in lower middle-income countries [4]. Large-scale, effective prevention of overweight and obesity remains a pressing public health priority given the adverse impact on health and quality of life in childhood [5, 6], as well as the increased risk of obesity and associated health complications in adulthood.

During the past 10 years, several studies have provided evidence that the prevention of obesity in children is possible via interventions aimed at modifying eating habits and increasing physical activity [7–9] through a variety of interventions targeting the environment, physical activity and diet.

Obesity and Health Inequities

An increasing social gradient in health is found in all European countries [2, 3], making the differences in life expectancy at birth that potentially reach 10 years for men and 7 years for women between the lowest and highest socioeconomic groups. According to WHO (in the European Charter on counteracting obesity, 2007), overweight and obesity mostly affect people from lower socioeconomic groups, and this in turn contributes to a widening of health and other inequalities.

The European Commission Communication emphasizes the variations in health-related behaviors such as quality of nutrition, level of physical activity and obesity prevalence according to socioeconomic factors within and across countries ('Solidarity in health: reducing health inequalities in the EU', background document, October 20, 2009). The European Parliament also stresses that countering the socioeconomic factors such as obesity should be considered a key aspect of measures to combat health inequality. The resolution calls on Member States to promote physical activity and good nutrition via access to obesity prevention programmes, particularly, in the more disadvantaged areas [10].

In fact, surveys conducted in some EU Member States suggests that over 20% of the obesity found among men in Europe, and over 40% of the obesity found in women, would be attributable to inequalities in socioeconomic status (SES). Evidence shows that childhood overweight and obesity in Europe is also associated with the SES of parents, especially mothers. The reverse social gradient, documented in the literature [11], also tends to be ob-

served in youth obesity. Although there are signs of stabilization in some age groups of children in some countries [12], a recent French study in 6-year-old children showed that the social gradient in obesity has increased between 2000 and 2006 [13]. The present study also illustrates such a gradient in diet quality and physical activity indicators, thereby leading to evidence the importance of targeted prevention measures from the early childhood with a clear focus on lower socioeconomic groups, in complement to prevention campaigns addressed to the general population.

In general, evidence shows that casual pathways of the social gradient in obesity can be related to a social gradient in several obesity determinants related to dietary and physical activity behaviors. The lower socioeconomic groups are more likely to exhibit a greater risk of positive energy balance, lower density of micronutrients in their diet, lower consumption of fruits and vegetables and lower levels of physical activity. This has to be considered in a broader perspective where important factors such as gender, income, education, ethnicity, social support and the living environment can play a significant role in this social gradient. It appears that interventions targeting specifically vulnerable populations tend to present difficulties in tailoring actions according to social diversity, show less participation rates and often short durations [14].

EPODE Methodology to Decrease Obesity Prevalence and Inequities

Currently, mass public health communication campaigns are sometimes criticized as potentially reinforcing health inequalities. It has been demonstrated in some cases that disadvantaged groups of population (less educated and less integrated) are more anxious and suspicious of health prevention messages [15]. Even if they perceive the messages as reliable, this may not be sufficient for them to foster the desire to change or to adopt healthier habits. Conversely, conveying positive and non-stigmatizing messages and stimuli, not necessarily focused on long-term health benefits but rather on immediate social and emotional benefits (pleasure, conviviality, sharing), are more recommended.

The EPODE nutrition education program (EPODE is the French acronym for Ensemble Prévenons l'Obésité des Enfants; the English translation means Together Let's Prevent Childhood Obesity) started 25 years ago as a long-term, whole population approach. It started in 2 pi-

lot towns in the North of France (Fleurbaix and Laventie, together about 6,500 inhabitants in 1991) and continued with community-based interventions over the next 12 years [16]. A comparison population was selected from 2 other towns in Northern France, as controls (CT) having similar demographic and socioeconomic characteristics. Results indicated that this community-based intervention program reduced childhood overweight, with a substantial decrease in the prevalence (1992: 11.4% in FLVS and 12.6% in CT, $p = 0.6$; 2004: 8.8% in FLVS and 17.8% in CT, $p < 0.0001$). It also appeared that the involvement of the whole community was necessary to reduce the prevalence of childhood obesity [16]. More importantly, this prevention program proved to be efficient across all socioeconomic levels, reducing the gap in the prevalence of childhood obesity between disadvantaged and advantaged areas from a 5-fold to a 3-fold difference, while the prevalence in the advantaged areas remained at a relatively low level [16]. EPODE methodology also ensures the sustainability of programs and is now implemented in 42 countries with encouraging results [17–20].

EPODE for the Promotion of Health Equity

In 2012, the EPODE for the Promotion of Health Equity (EPHE) project was launched and was endorsed by the European Commission. The main objective of the EPHE project was to evaluate the added value of community-based programs, based on the EPODE methodology, to reduce health inequalities linked to diet and physical activity. The EPHE interventions focused on 4 themes: the promotion of water consumption, an active lifestyle, fruit and vegetable consumption and adequate sleeping behavior [21]. This was a prospective 2-year follow-up study. It assessed the modifications of children's energy balance-related behaviors and their determinants within the family environment, as well as their sustainability over time according to their SES. A total of 1,266 children and their families were included in the EPHE evaluation study. The response rate was more than 85% in all countries.

The EPHE evaluation study showed that children from 7 European communities of relatively high SES consumed fruits and/or vegetables more frequently than their peers of lower SES. In addition, the latter group of children had a higher intake of fruit juices and/or soft drinks and had greater screen time (i.e., television, video game and computer). Moreover, important differences between the 2 socioeconomic groups were observed in the determinants

of the social and physical family environment of the child. Although a common pattern for the determinants in all behaviors was not found in all countries, parental rules and home availability (e.g., fruit, vegetables, soft drinks and availability of TV in the child's bedroom) were consistently different between the 2 socioeconomic groups. This indicates the importance of the family environment related to socioeconomic inequalities in childhood obesity. In addition, the differences in the determinants varied to a large extent across countries, thereby illustrating country-specific inequalities.

Based on baseline measurements, the EPHE communities developed community-based interventions tailored to the needs of their low socioeconomic group. In France, for example, the campaign 'water at school' was designed to improve water availability. Two-thirds of children showed a lack of water consumption [22]. The community-based programme evaluated the change of behavior when 33 cl bottles of water were distributed every morning to 120 children for 3 weeks. All the children improved their water consumption from the beginning (100%) to the end of the study (95.5%). This showed that water accessibility was the first step for sustainable change behaviors amongst children. A total of 1,061 French children and their families were observed in the intermediate (T1) and 921 in the final measurements (T2). Changes in behaviors related to inequality gaps, identified at baseline within both the low and the high education groups, were small and often not significant; this finding was similar in all participating European communities. In a few communities, some of the unfavorable behaviors and determinants were improved in both low and high socioeconomic groups. These positive changes contradict the commonly observed phenomenon that public health interventions may result from differential effects across population groups, thereby favoring increased inequalities despite being effective to the general population [23–26].

Conclusions

The community-based approach, promoted by EPODE International Network [27], is a promising approach toward preventing childhood obesity. It has the capacity to target and improve the health of disadvantaged populations through tailored interventions, and to decrease health inequities. Nevertheless, wide ranging studies using very large cohorts are required to achieve sufficient statistical power.

Funding Source

The EPHE study was supported by the European Commission (DG SANTE), Danone, Ferrero, Mars.

Disclosure Statement

The authors have no conflicts of interest to disclose.

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