

Chapter 2

An E-Health System for Treatment of Childhood Obesity: The Etiobe Platform

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ABSTRACT

Obesity is one of the greatest public health challenges of the 21st century and the most prevalent health problem among children in Europe. Treatment is complex due to the multiple causes of obesity that include many dimensions of children's lives, such as nutritional habits, physical activity, and lifestyle. E-health technologies can be useful in this area; they may improve health care delivery and acceptability, facilitate the provision of interventions to wider populations, and improve treatment efficacy by taking advantage of new technologies such as the Internet and mobile technologies. The objective of this chapter is to describe an e-health platform called ETIOBE. It comprises three complementary applications connected in real time that support different components of weight loss treatment: the Clinical Support System (CSS), the Home Support System (HSS), and the Mobile Support System (MSS). It was designed to treat childhood obesity by improving treatment adherence, promoting the mechanisms of self-control in patients, obtaining the maintenance of patients' achievements (reducing body weight), and preventing relapses by establishing healthy life habits.

DOI: 10.4018/978-1-60960-866-8.ch002

INTRODUCTION

Childhood obesity is one of the greatest public health challenges of the 21st century (Branca, Nikogosian, & Lobstein, T., 2007). In fact, it is the most prevalent health problem among children in Europe. The prevalence of obesity has tripled in many countries in the European Region since the 1980s, and now spans from 9% in the Netherlands to 30% in Greece (IOTF, 2007). The children obesity global data in Europe are nearly around 20% of the total, and the numbers of those affected continue to rise at an alarming rate to “epidemic” status (EASO, 2002). Moreover, general obesity treatment and associated health problems such as medical illness (diabetes, hypertension, etc.) and psychological problems (low self-esteem, body dissatisfaction, etc.) have a significant economic impact. In the European Union, obesity is already responsible for 2-7% of health costs (Branca, Nikogosian, & Lobstein, T., 2007).

The rapid and significant increase in the prevalence of obesity indicates that, although there may be some genetic factors, the main causes are environmental. According to the European Association of Obesity (EASO, 2002), the causes of this epidemic are basically twofold: (a) an increase in consumption of energy-dense beverages and foods (foods high in fat and sugar); this promotes excessive calorie consumption and drives a culture of continuous snacking and omnipresent, leading to “passive over-consumption” of energy, and (b) developments that restrict opportunities for physical activity, creating an almost universal sedentary state. Because causality involves many dimensions of children’s lives such as nutritional habits, physical activity, and lifestyle, treatment of this problem needs to include not only medical factors, but also

As the International Obesity TaskForce warns, governments should address childhood obesity by improving the evidence base for treatments (EASO, 2003). A growing number of children in western countries need more effective therapeutic

management to control their obesity and to reduce their risks. Furthermore, treatment in early years is crucial because child obesity is a powerful predictor of adult obesity (Guo, Wu, Chumlea & Roche, 2002). This problem is overwhelming the capacities of European public health systems to the point where many children in need do not receive effective treatments or prevention tools in their struggles against obesity.

Children in western cultures are living in an environment that encourages the overconsumption of energy-dense foods. The main objective of the treatment and prevention of obesity is to protect children from the “obesogenic environment” (including factors that tend to make people fat) that surrounds them. However, such strategies are difficult to apply in a clinical context wherein professionals must manage many patients daily. E-health technologies are being proposed as one solution to this growing problem.

BACKGROUND

E-health technologies constitute an innovative approach to improving health service delivery and acceptability (Stinson, Wilson, Gill, Yamada, & Holt, 2009). They facilitate the provision of interventions to wider populations and improve treatment efficacy by utilizing new technologies, such as the Internet and mobile technologies. It has been suggested that e-health interventions make health-related goals more attainable because they (a) break treatment goals into smaller, more manageable pieces, (b) automatically assess success, and (c) modify previously attained goals in response to program success (Norman et al., 2007). The use of e-health technologies in children can be even more powerful than in adults; because most children are proficient in using the Internet and mobile devices for entertainment, e-mail, chat and instant messaging, they show high levels of acceptability of their usage in treatment. Furthermore, one of the clear benefits of Information and

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