

7th International Conference on Intercultural Education “Education, Health and ICT for a Transcultural World”, EDUHEM 2016, 15-17 June 2016, Almeria, Spain

A cross-border cooperation project between Spain and Portugal to improve the quality of life of the population in Primary School

Emilia Moreno Sánchez*, Estefanía Castillo Viera & José Antonio Rodríguez-Mena

Universidad de Huelva, Facultad de CC. de la Educación, Campus el Carmen, 21071-Huelva, Spain

Abstract

We present a project designed to raise awareness among school community members, encouraging them to engage with a change in their lifestyle and promoting healthy eating habits and exercise. We propose strategies for action on risk factors for several diseases such as diabetes, cardiovascular illness or cancer amongst others, including psychological disorders related with eating habits. The project is divided into four parts to determine the current situation regarding habits of the primary schoolchildren from schools in Andalucía, Algarve and Baixo Alentejo. The aim of this project is to understand the real situation in these areas and put forward a proposal for intervention in accordance with the needs identified, which may serve as a point of reference in the drive to improve health.

© 2017 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of the organizing committee of EDUHEM 2016.

Keywords:

1. Background and current status

In this work we present the justification for a project we plan to carry out over the next school year. The approach to this work sets out from several issues detailed below. First, we believe that education (training) from childhood shapes people for life and in all aspects (physical and psychological). Success of the teaching function depends on the ability of the institution to connect with the current reality, predict future scenarios where their duties will be carried out and steer training according to social needs.

* Corresponding author. Tel.: +0034- 959219225.

E-mail address: emilia@dedu.uhu.es

To achieve these aims, the university must train both university students (through teaching-learning processes) and teachers (through self-education and/or lifelong learning) with conceptual frameworks, tools and techniques that enable them to deal with different situations. In addition to transmitting knowledge, the institution must be trained and able to train in solving problems that arise in the professional environment and to this end, it must rely on training for research focused both on training and action. This approach is what guides our professional development.

Health as the subject of this work goes beyond being a reference to disease and healthcare or hospital settings. Prevention-focused public health is currently undergoing a shift towards positive health (Botello et al., 2013). The traditional trend based on protection and emphasis on reducing risk factors is being reoriented towards a way of seeing healthcare actions linked with development of primary care and encouraging people, families and communities to increase control over their living conditions (Hernán, Lineros and Morgan, 2010). This model revitalizes the promotion of health and the idea of assets to achieve it is gaining ground. These assets are understood as any factor or resource that enhances the capacity of people and communities to maintain health and well-being (Morgan, Davies and Ziglio, 2010). In general, assets are identified on a personal level (values, strength, willpower, self-esteem), at community level (family and friendship networks, community cohesion, cultural tolerance) and at the organizational or institutional level (environmental resources to promote health), as identified by Morgan and Ziglio (2007).

Some empirical works on health habits in schoolchildren have identified a list of assets to the health of students in schools that are related with physical activity, weight, self-perceived health and happiness, as well as with family and peer relations, among others (Lindstrom and Eriksson, 2009).

From our professional scope of action, we understand that educational organizations constitute a privileged space for the promotion of healthy lifestyles.

For all these reasons, we plan to develop a training project and design an intervention with a view to improving the institutional capacity and efficiency of public administration. Our line of work sets out from the consideration that the university must keep up with social changes and the needs of the population.

This project is based on a current situation involving one of the most important challenges to public health, calling for a complex, global, interdisciplinary and multisector approach, based on scientific evidence, incorporating effective measures or good practices, with mobilization and participation of society as a whole.

In another work, we stated our concern regarding the discrimination that may occur due to age, race, ethnicity, ideology, religion, gender or matters relating to physical conditions (Moreno, Moya and Morales, 2014). Teasing and bullying of children due to their differences in physical appearance are a matter for concern, causing them to suffer. Personal psychological consequences due to being overweight have been identified, such as academic failure, social discrimination and low self-esteem (López et al., 2008).

Culture and media send powerful messages to children on body weight and ideals of physical shape. For girls, these messages include the "thin ideal" and a boost for dieting and exercise. For those who are overweight, even the possibilities of sexual harassment tend to increase (Ruiz et al., 2010). Messages for boys legitimize a wider range of acceptable body images, although they run the risk of developing eating disorders and ailments related with physical appearance, such as bigorexia (Castro López, 2013). Emphasis is placed on a "muscular and sculpted body" and pressure to mould the body and perhaps use potentially harmful dietary supplements and steroids. According to recent data (INE, 2015) this gives rise to a notable prevalence of underweight women, especially from 18 to 24 years (12.4%), compared to 4.1% of men in the same age group.

In addition to these psychological problems, the main risk of weight disorders in childhood is their association with other diseases, such as metabolic syndrome (Weiss, Dziura, Burgert & Tamborlane, 2004), inflammatory markers (Burke, 2006) or an increased risk of cardiovascular events in adulthood (Zugasti and Moreno, 2005; Almendro, López, Hidalgo, 2011; Baker, Olsen & Sorensen, 2007; Serra-Paya, Solé, & Nespereira, 2014). Overweight and obesity (abnormal or excessive fat accumulation) are risk factors for many chronic diseases, including type 2, diabetes, high blood pressure and high cholesterol (dyslipidaemia); although admittedly these disorders can occur even in situations of minor weight increases, especially if the extra weight is abdominal.

Obesity is also linked with the development of certain types of cancer (Ballard-Barbash, Berrigan, Potischman & Dowlin, 2010), as well as worsening of respiratory diseases such as asthma (Barranco, et al., 2012). The likelihood of an obese child becoming an obese adult is very high (estimates can reach up to 80%).

In a study by Schwimmer et. al. (2003), overweight boys and girls rated their quality of life with equally low scores to those of young patients with cancer or in chemotherapy treatment. The researchers selected 106 people aged from

5 to 18 years to complete a questionnaire used by paediatricians to evaluate issues related to quality of life. Subjects were asked to rate aspects such as their ability to walk, do sports, sleep well, get on with their colleagues and achieve good academic performance. The results indicated that teasing at school, difficulties playing sports, fatigue, sleep apnea and other obesity-related problems profoundly affected the welfare of overweight children. When the same survey was carried out with the families, they considered the issues cited to be a consequence of the children's obesity, with even higher scores.

The timeliness and need for this work is also underlined by the World Health Organization (WHO, 2016). This health and social problem is not new in our contexts and worldwide prevalence of obesity rose between 1980 and 2014. According to the agency, in 2014 roughly 13% of the world's adult population (11% of men and 15% of women) were obese and 39% of people 18 years of age and above (38% of men and 40% of women) were overweight.

Obesity is considered by this institution as an "epidemic in the 21st-century". Global and European health authorities have warned that by 2030 more than 60% of the European population will be obese, which translated into economic figures represents expenditure of €75 to 135,000 million euros (Barbany, Moreno, Monereo and Álvarez, 2006). The body mass indexes of the child population in Spain are higher in the Andalusia, Catalonia, Valencia and Madrid regions, as shown in table 1 (INE, 2013). The incidence in our region prompted us to propose this work in the province of Huelva, the Algarve area and Baixo Alentejo in Portugal, as cases with matching characteristics.

Table 1. Body mass index per 100 inhabitants by region (autonomous communities). Population aged 2 to 17 years. Source: Ministry of Health, Social Services and Equality

	Total	Men	Women
Baleares	26,5	22,8	29,9
País Vasco	25,5	25,9	25
Galicia	23,8	27	20,3
Andalucía	21,3	24,2	18,4
Canarias	20,6	21,3	19,9
Castilla y León	20,3	20,9	19,6
Extremadura	19,8	15,9	23,5
Castilla-La Mancha	19,6	20,7	18,4
Spain	18,3	19,5	16,9
Melilla	18	18,6	17
Asturias	17,2	15,2	19,9
Valencian community	16,2	16,8	15,7
Madrid	16,2	17,8	14,6
Navarra	15,8	15,5	16,2
Murcia	15,1	19,2	9,8
Catalonia	14,4	15,1	13,6
Aragón	13,4	11,4	15,6
La Rioja	12,4	16,4	8,2
Cantabria	9,6	13,4	5,3
Ceuta	7,9	14	0

The data presented shows that we are facing a serious problem for the quality of life of people affected, not only for children but society as a whole.

The causes of this epidemic lie in profound changes in our lifestyles. There are many factors that make up what is designated the "obesogenic environment" (Muñoz, Santos and Maldonado, 2013). Determining influences among them include the deterioration of our dietary habits and a sedentary lifestyle. In Spain, according to recent data (Health

Ministry, Social Services and Equality, 2015) four out of ten people (40'9%) declare themselves sedentary (doing no physical activity in their free time, such as walking or doing sport), one out of three men (35'3%) and nearly one out of two women (46'2%). The percentage is similar from 25 to 74 years of age, being higher in women and from younger ages.

Table 2. Sedentary lifestyle (%) ordered by sex and age. Population of 5 years of age and older (Ministry of Health, Social Services and Equality, 2015).

	Both sexes	Men	Women
Total	40,9	35,3	46,2
5-14	12,1	8,2	16,3
15-24	35,2	21,4	49,5
25-34	41,4	35,0	48,0
35-44	44,5	39,0	50,2
45-54	46,0	46,3	45,7
55-64	43,3	43,2	43,5
65-74	42,2	36,0	47,5
75-84	56,2	49,5	60,8
85+	76,9	66,2	82,6

The problem is thus multidisciplinary and multisectoral. There is no single cause and the solution involves interventions in the family, education, business, health, employment and community areas.

2. Intervention and prevention measures

Policies that promote healthy lifestyles and educational practices to encourage them are needed. All this beyond the biologically-focused and medicalized approach that may be taken when working in class, for example on the Natural Science subject "The human body," where anatomical and physiological features of the organism are studied. School processes should consider active teaching and learning strategies. Therefore, in agreement with the constructivist tendency (Carretero, 2010; Díaz-Aguado and Medrano, 1994; Porlan, 1993), we consider research to be a key factor for people to develop and rebuild our knowledge. It is essential to maintain a research perspective that allows us to determine what the most appropriate new knowledge for interaction would be in a learning and/or training context (Moreno and Márquez, 2016). The proposals we put forward in this project are along these lines, designed to involve the community in modification of children's practices and encourage healthier lifestyle options.

Back in 2004, the World Health Organization WHO Assembly published the Global Strategy on Diet, Physical Activity and Health, urging all international, national and local organizations and institutions to develop policies that would foster the creation of healthy environments. In the same vein, in 2007 the European Communities Commission (2016) adopted the European Strategy White Paper on health problems related with feeding, excess weight and obesity, as a measure to priorities actions that would help solve or minimize the problem of increasing obesity in the population in an integrated way throughout the European Union. This line of action includes proposals from the Ministry of Health of Spain, through the Spanish Agency for Food Safety and Nutrition (AESAN), which in 2005 rolled out the Nutrition, Physical Activity and Obesity Prevention Strategy (NAOS). With this they managed to mobilize not only the rest of the public administrations, but also the food industry and other public and private agents, scientific societies and consumer organizations, among others. The aim was to sensitize the population and raise awareness of the problems of excess weight and obesity. Another initiative in this regard is the ALADINO 2013 study (Diet, Physical Activity, Child Development and Obesity) carried out to estimate the prevalence of overweight and obesity in Spanish children from 6 to 9 years of age. It was designed following the COSI initiative protocol (WHO European Childhood Obesity Surveillance Initiative), January 2008 (AESAN, 2015).

On January 18, 2013 actions were taken as proposed by the Council of Ministers' Agreement and in implementation of Article 38 of Law 17/2011, of July 5th, on Food Safety and Nutrition. The Nutrition and Obesity Study Observatory was created. Some of its objectives are as follows:

- a) Periodical analysis of the nutritional status of the population and the development of obesity in Spain and its determining factors.
- b) Divulging the findings to the scientific community and society in general, as the ultimate aim is to enable decision making.
- c) Drawing up and promoting the studies and research works needed to achieve greater efficiency in the design and development of nutrition policies.

Costa, Rodríguez and Ribas (2015) conducted a comprehensive review of the literature to evaluate the effectiveness of intervention programmes carried out in the prevention and control of excess infant weight. They concluded that intervention initiatives based on nutritional counselling, promoting physical activity and adopting a healthy lifestyle were effective in fostering positive changes in the eating habits of children and adolescents. However, it was also shown that the results were limited in terms of substantial changes in anthropometric parameters. This reveals the need to continue to develop specific studies focused on children and teenagers with overweight and/or obesity in order to identify the methodological elements that might help us assess the efficacy of intervention programmes (Silva et al., 2014).

Although obesity is easily detected, the difficulties associated with it are more related to the effectiveness of prevention and intervention measures that can be carried out. According to the Call to Action to Prevent and Decrease Overweight and Obesity report (2001), some of them are as follows:

- a) Obese children need a complete medical evaluation by paediatricians to consider possible physical causes.
- b) In the absence of a physical disorder, the only way to lose weight is to reduce the amount of calories consumed and increase the child or teenager's level of physical activity.
- c) Food must be healthy, limiting fatty and sugary snacks to the minimum and making fruits, vegetables and low-fat snacks available to the child.
- d) It is necessary to increase physical activity, perhaps by walking briskly, with games or sport.
- e) Families and friends should provide support, acceptance and incentives. It must be emphasized that they are valued regardless of their weight. An overweight child probably knows better than anyone that they have a problem.
- f) Education is required with ideas and actions to set a good example. In the case of families, if the children see that their parents enjoy healthy physical activity and meals, they are more likely to do the same.

In this attempt to provide new perspectives for analysis of this issue, we understand that health prevention work, both in research and teaching, is a future challenge for public health and for all researchers undertaking it. Cities will be more liveable if the population is healthy. As it stands today, in-depth development of the theoretical foundations in health prevention is needed, above all, of the evidence in health assets and evaluation of health interventions carried out for prevention.

Families and the community in general, and in particular the media (Jimenez Morales, 2006) in a joint effort, must become actively involved in prevention of this health problem. Moreover, the school is the enabling environment for implementation of prevention programmes in which the students work on the importance of nutrition and healthy practices. This is especially relevant in communities with poorer socioeconomic conditions.

Faculty and other professionals dedicated to childhood in the early years of development can take the first steps to reveal the danger of certain foods and the need for physical activity. To this end, professional training that is equally applicable to families is fundamental. This is one of the aims underpinning the cross-border cooperation project presented.

3. Description of project to promote healthy eating habits and practice of physical activities

3.1. Groundwork

This project is part of the INTERREG V-A Spain-Portugal Programme (POCTEP) 2014-2020, designed to foster cooperation along the border between the two countries to enhance the quality of life of the population in the

cooperation area. In our case this space covers the areas of Andalusia (Huelva, Ayamonte and Aljaraque), the Algarve (Faro, Vila Real de Santo Antonio) and Baixo Alentejo (Beja).

The three regions share common demographic, population and cultural features. They are regions with natural resources which are mainly oriented towards the primary sector (European Commission, 2016).

The project stems from the organizational interest in establishing cross-border cooperation links to build and strengthen the exchange and transfer of knowledge among those of us taking part in the project and society, promoting habits for healthy living. The proposal is to generate a map of assets sustained by the potential and interests of communities as an alternative to deficit-based diagnostic approaches to health relying on the exclusive knowledge of experts (Hernán, Lineros and Morgan, 2010). The aim is to achieve a paradigm shift, resulting in a salutogenic model that places emphasis on observation and treatment of the origins of health and wellness.

3.2. Initial hypothesis

Childhood obesity is a social and health issue involving modifiable risk factors like eating habits, physical inactivity and family socioeconomic status, as well as non-modifiable risks such as genetic factors (Huffman, Kanikireddy and Patel, 2010). To this end, our initial hypothesis was set out as follows:

- H₁) Childhood obesity risk factors in Andalusia (in Huelva province), in the Algarve and Baixo Alentejo will be shown associated with sociodemographic features of the students (sex, socio-educational level of the family, nutritional status) and healthy lifestyle habits (encouraging physical activity and sport) that develop at this stage of their life.
- H₂) The identification of a map of assets among schoolchildren in the cross-border areas will allow the development of preventive health strategies to promote lower prevalence of childhood obesity.
- H₃) Implementation of healthy lifestyles avoids/reduces the prevalence of obesity in primary school children.

3.3. Objectives

To this end, we set the following objectives:

- a) To determine the obesity-associated risk factors among the Primary Education school population in the cross-border areas selected.
- b) To draw up a map of assets of the population and the primary school environment by means of the salutogenic model.
- c) To design actions for a healthy diet and exercise involving the family, schools and institutions (local authorities, mass media).
- d) To assess the impact of these actions.

3.4. Activities

The project is designed in four phases. In the first, we carry out an initial diagnosis to identify the health habits and causes influencing childhood obesity in the school population. These issues will be studied within the naturalist, interpretive paradigm, so we must take into account not only the phenomena that interest us, but also their relationship to the context in which they occur. To do so, we shall use the following techniques:

- a) Reference material: literature consulted.
- b) Prolonged work at the same place (selected locations and schools).
- c) Focus groups with professionals from the education, health and social spheres.
- d) Participant observation in classrooms, playgrounds and other school spaces and shadow observation.
- e) Document analysis (local press, demographic reports)
- f) Triangulation of instruments and information.

Content analysis is used to examine the information in this phase. From this we can extract the factors identified by the education, health and social service professionals in childhood obesity among schoolchildren.

In the second phase, an intervention adapted to the findings is designed. To do so, encounter forums will be held in Beja (Baixo Alentejo), Faro, Vila Real de Santo Antonio (Algarve), Huelva, Ayamonte and Aljaraque (Andalusia) with the aim of drafting an asset map, designing practical workshops and setting up the health observatory.

The third phase includes the implementation of the actions involved in developing intervention. At this stage, several lines of action are established:

- a) Educational Community Training (family, students, faculty and school PTAs through discussion groups, courses, forums and similar).
- b) Holding workshops (preparing recipes in school activities, encouraging consumption of seasonal products)
- c) Drawing up a map of a bicycle route for the movement of students in 4th, 5th and 6th grade from points near their homes to their primary schools, accompanied by a monitor.
- d) Creation of the Observatory for drafting data, reports and research.
- e) Setting up a website to disseminate the project activities and outcomes and for e-participation of the educational community.

In the fourth phase, we shall assess the impact of the workshops and draw up teaching guides and reports on the results of the experience for educational use.

4. Conclusions

As described in the basis of this work, it is necessary to implement projects such as the one described here to favour the creation of a health culture that ensures the participation of the entire education community in the educational environment. Given the lack of public policies regulating food sales and distribution and considering the power of the media and marketing techniques from the earliest age, the school is a very important vantage point from which to influence the development of children's health.

With this work, we aim to help establish better practices in the educational processes on food, nutrition and physical activity in a more experiential context. Through training, the aim is to encourage communication channels between stakeholders involved in education. Through the findings of this work, we intend to highlight the need to modify the curriculum, as children should be taught the importance of following healthy habits from an early age, as well as the benefits they will enjoy when they are older. In short, we believe that health should be treated as just another subject.

References

- Agencia de Seguridad Alimentaria y Nutrición (AESAN) (2015). Estudio de prevalencia de obesidad infantil "Aladino". Ministerio de Sanidad, Política Social e Igualdad. Recuperado el 13/12/2015 de http://www.observatorio.naos.aesan.msssi.gob.es/docs/docs/documentos/Estudio_ALADINO_2013.pdf
- Almendro-Delia, A., López García-Aranda, V. y Hidalgo-Urbano, R. (2011). Obesidad infantojuvenil. Un terreno abonado para la confusión. *Revista Española de Cardiología*, Vol. 64, 6, 541-542.
- Barbany, M., Moreno Esteban, M., Monereo Megías, S., & Alvarez Hernández, J. (2006). Concepto y clasificación de la Obesidad. la obesidad en el tercer milenio. España. Editorial Médica Panamericana, 93-8.
- Baker, J.L. Olsen, I.W. & Sorensen, T. (2007). Childhood Body-Mass Index and the Risk of Coronary Heart Disease in Adulthood. *The New England Journal of Medicine*; 357:2329-2337.
- Barranco, P. I. L. A. R., Delgado, J. U. L. I. O., Gallego, L. T., Bobolea, I. R. I. N. A., Pedrosa, M. A. R. Í. A., García de Lorenzo, A., & Quirce, S. (2012). Asma, obesidad y dieta. *Nutrición Hospitalaria*, 27(1), 138-145.
- Bibbins-Domingo, K., Coxon, P., Pletcher, M.J., Lightwood, J. & Goodman, L. (2007). Adolescent Overweight and Future Adult Coronary Heart Disease. *The New England Journal of Medicine*; 357:2371-2379
- Botello, B., Palacio, S., García, M., Margolles, M., Fernández, F., Hernán, M., Nieto, J. y Cofiño, R. (2013). *Gaceta Sanitaria*, 27 (3), 180-183.
- Burke, V. (2006). Obesity in childhood and cardiovascular risk. *Clinical and Experimental Pharmacology and Physiology*, 33(9), 831-837.
- Castro López, R. (2013). Diferencias de personalidad, autoconcepto, ansiedad y trastornos de alimentación en deportistas de musculación: Patrones psicológicos asociados a la vigorexia. Tesis Doctoral. <http://hdl.handle.net/10953/530>
- Comisión de las Comunidades Europeas (2016). Libro Blanco Estrategia europea sobre problemas de salud relacionados con la alimentación, el sobrepeso y la obesidad. Bruselas, 30.5.2007. COM(2007) 279 final. Recuperado el 08/05/2016 de http://ec.europa.eu/health/ph_determinants/life_style/nutrition/documents/nutrition_wp_es.pdf

- Comisión de las Comunidades Europeas (2016). Análisis DAFO y Diagnóstico de Necesidades Objetivo Temático 8. Promover la sostenibilidad y la calidad en el empleo y favorecer la movilidad laboral. Recuperado el 08/05/2016 de http://www.famp.es/racs/Lab_EU2020/doc/gobernanza/docweb/DOCUMENTO%2015.pdf
- Hernán Expósito, D. (2015). Influencia del modelo estético corporal prevalente e insatisfacción con la imagen corporal en estudiantes de escuela secundaria básica. *Revista Mexicana de trastornos alimentarios*, Vol. 6 (2): 91-98.
- Gallego, L. T., Bobole, I., Pedrosa, M., García de Lorenzo, A. y Quirce, S. (2012). Asma, obesidad y dieta. *Nutrición Hospitalaria*, vol.27 no.1
- Hernán, M., Lineros, A. y Morgan, A. (2010). Formación en salutogénesis y activos para la salud. Escuela Andaluza de Salud Pública. Granada.
- Lindstrom, B. y Eriksson, M. (2009). The salutogenic approach to the making of HiAP/Healthy Public Policy: illustrated by a case study. *Global Health Promotion*;
- Lizasoain, L., Joaristi, L., Lukas, J. F. & Santiago, K. (2007). Efectos contextuales del nivel socioeconómico sobre el rendimiento académico en la educación secundaria obligatoria en la Comunidad Autónoma Vasca (España). *Estudio diferencial del nivel socioeconómico familiar y el del centro escolar*. *Archivos Analíticos de Políticas Educativas*, 15 (8). Recuperado 14/05/2016 de <http://epaa.asu.edu/epaa/v15n8>
- López, P., Prado, J.R., Montilla, M., Molina, Z., Da Silva, G. y Arteaga, E.F. (2008). Insatisfacción corporal y baja autoestima por la apariencia física en estudiantes de la facultad de medicina de la universidad de los Andes del Estado de Mérida Venezuela. *Revista de Ciencias del Movimiento Humano y Salud*. Vol. 5 (1), 1-14. Recuperado el 14/005/2016 de <https://dialnet.unirioja.es/servlet/articulo?codigo=3579675>
- Meléndez, G. (2008). Factores asociados con sobrepeso y obesidad en el ambiente escolar. Ed. Médica Panamericana. México.
- Ministerio de Sanidad, Servicios Sociales e Igualdad (2015). Informe anual del Sistema Nacional de Salud 2012. Edición revisada junio de 2015. Ed. Ministerio de Sanidad, Servicios Sociales e Igualdad Centro de Publicaciones. Madrid.
- Morgan, A. & Ziglio, E. (2007). Revitalising the evidence base for public health: An assets model. *Global Health Promotion*, 14 (Suppl. 2), 17-22.
- Morgan, A., Davies, M., & Ziglio, E. (Eds.). (2010). *Health assets in a global context. Theory, methods, action*. New York, NY. Springer.
- Moreno, E., Moya, A. y Morales, F.J. (2014). Violence against women with disabilities: A proposal for training at the University of Huelva (Spain). *Journal for Educators, Teachers and Trainers*, Vol. 5 (3), pp. 217-229.
- Muñoz Cano, J. M., Santos Ramos A. J. y Maldonado Salazar, T. (2013). Elementos de análisis de la educación para la alimentación saludable en la escuela primaria. *Estudios Sociales. Revista de Investigación Científica*, vol.21 no.42. http://www.scielo.org.mx/scielo.php?pid=S0188-45572013000200009&script=sci_arttext
- ORGANIZACIÓN MUNDIAL DE LA SALUD (OMS) (2015). Obesidad y sobrepeso. Nota descriptiva N°311. Enero de 2015. Recuperado el 08/05/2016 de <http://www.who.int/mediacentre/factsheets/fs311/es/>
- Programa INTERREG V-A España-Portugal (POCTEP) 2014-2020,
- Serra-Paya, N., Solé, A. E., & Nespereira, A. B. (2014). Multi-Disciplinary and Uncompetitive Intervention in Public Health for the Treatment of Sedentary and Overweight or Obese Children: NEREU Programme. *Educació Física i Esports*, (117), 7.
- Schwimmer, J. B., Burwinkle, T. M., & Varni, J. W. (2003). Health-related quality of life of severely obese children and adolescents. *Jama*, 289(14), 1813-1819.
- Weiss, R., Dziura, J., Burgert, T.S., Tamborlane, W.V, Taksali, S.E., Yeckel, C.W., Allen, K., Lopes, M., Savoye, M., Morrison, J., Sherwin, R.S., and Caprio, S. (2004). Obesity and the Metabolic Syndrome in Children and Adolescents. *The New England Journal of Medicine*; 350:2362-2374.
- Zugasti, A. y Moreno, B. (2005). Obesidad, factor de riesgo cardiovascular. *Revista Española de Obesidad*, 3 (2), pp. 89–94.