

Childhood obesity in South Africa: Are we sitting on a time bomb?

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ABSTRACT

South Africa has not escaped the worldwide increase in childhood obesity and current statistics in this regard does not create a very positive picture for the youth of this African country. The fact that the presentation of physical education in South African schools is lacking and is currently in an unacceptable state of affairs, complicate the situation even further and the two physical education models used to date in South African schools, pre- and post-apartheid, were neither successful. If research statistics are taken into account and also the current state of physical education in the schools, the answer to the question whether we are sitting on a time-bomb in South Africa with regards to obesity in our youth, is a definite a **yes!** Despite all the challenges however, it is possible to overcome childhood obesity in South Africa. There are many success stories all over the world from which valuable lessons can be learned and which can be used as motivation. It is extremely important that quality physical education be implemented in all South African schools and offered by well trained teachers as soon as possible. The engagement of the community and the parents are also of cardinal importance, because without the help and support of parents and the community, it is almost impossible to install healthy dietary habits and regular participation in daily physical activity in children. Also very important is the use of evidence-based physical activity intervention to combat childhood obesity, especially in a country like South Africa which is a country with extreme diversity and last but not the least, is to start at a young age in order to be able to establish a culture of a lifelong healthy lifestyle among the children of South Africa.

Keywords: Obesity; Children; Youth; Physical Education; South Africa

1. Introduction

Current statistics on the increasing prevalence of childhood obesity world-wide, reads like a horror story and is of great concern, because obese children are at higher risk of experiencing a range of health-related illnesses than the rest of the paediatric population. Obesity is currently the world's most dominant metabolic disease and with regard to obesity in children it is important to understand that it is a very complex and difficult issue and environmental factors such as diet, physical inactivity and metabolic status are some of the major contributors to obesity, and in turn are influenced by genetic traits (Weinsier *et al.*, 1998). Childhood obesity also gives rise to a complex interplay between co-morbidities, detrimental psychosocial aspects, a reduction in life expectancy and is linked with both economic and societal burdens (Adamo *et al.*, 2011). The increasing prevalence of childhood obesity and

the corresponding reduction in physical activity in the youth has also led to a heightened interest in strategies designed to prevent and manage the condition (Elliott *et al.*, 2004). Unfortunately South Africa has not escaped this worldwide increase in childhood obesity and current statistics in this regard does not create a very positive picture for the youth of this African country.

As a developing country, South Africa is also currently undergoing an epidemiological transition and this process is associated with a variety of health risks in the youth of the country (Cameron, 2005; Goedecke *et al.*, 2006). According to the South African Health Review (1997) approximately half the population currently resides in urban areas, which has led to a significant reduction in their level of physical activity and it is cause for concern, because there is clear evidence in the research that a favorable relationship exists between physical inactivity and a host of factors affecting children's physical health, including cardiovascular disease, diabetes, blood pressure, bone health, and obesity. Olshansky *et al.* (2005) is of the opinion that because of increased incidents of obesity, current generations in the United States and the United Kingdom can expect a shorter life span than previous generations and furthermore have suggested that the youth of today may, on average, live less healthy and possibly even shorter lives than their parents.

This article will firstly answer the question whether South Africa are currently sitting on a ticking time bomb with regard to childhood obesity and secondly the whole issue on how to solve the problem, if it exists, will be addressed and also what measures can be put in place to combat childhood obesity in South Africa.

2. Historical overview of physical education in South Africa

It is important to start this article with a historical overview of physical education in South African schools, as it plays a crucial role in the current state of affairs with regard to physical inactivity in South African children. In a number of countries, there is clear evidence that physical activity among youth has declined in recent decades and the corresponding increase in obesity prevalence may be the direct result of this decline (Luepker, 1999). There is also a widespread recognition of the cost of declining levels of physical activity for the burden of disease and there is particular recognition of the price paid by children for society's chronic diseases of lifestyle. According to Chin *et al.* (2012) several factors have contributed to the reduction in physical activity in the youth and this include, among others, the elimination of physical education programs in the schools. It is therefore very important to give a historical overview of physical education in South African schools to provide better understanding for this African country with its unique character and challenges. If we can have a better understanding of a country and its history, then it will also be possible for us to offer better solutions to the problems and challenges.

Physical education in South Africa has a long history and according to Van der Merwe (1999) was offered from the early 1800's in South African schools. Since the early days, serious effort was made in offering the subject but this was, however, limited to the white

schools as a result of apartheid legislation in those years. The late 1930's were considered the formative years of physical education in South Africa with a strong European influence on the model used to offer the subject in schools. Unfortunately, this model failed, because the apartheid legislation only focused on a small minority and the largest section of the population received little or no attention with regard to facilities, equipment and well trained teachers to offer physical education. In 1994 the political landscape changed dramatically after the first democratic elections in South Africa and shortly after the ANC government came into power, the new South African school law was implemented in 1996 (Department of Education, 2000). With the new system physical education as individual subject disappeared from the syllabus and became part of one of the five focuses of Life Orientation (Department of Education, 2002a). This model has been applied in South African schools since 2005 and from 2008 became a compulsory subject in all grades in South African schools. Since 2008 physical education is one of the five focus areas of the learning area Life Orientation, a compulsory subject at school for all grades in South African Schools (Van der Merwe, 2011; Department of Education, 2008). Although physical education is not a separate subject and only one part of the subject Life Orientation, the subject is well structured with very good outcomes and assessing criteria (Van der Merwe, 2011). Physical education has a two hour per week time-slot and is formally assessed and examined as part of the subject Life Orientation. Currently the physical education assessment contributes to 25% of the Life Orientation mark, with a further distribution in physical education of 15 marks out of a total of 25 for participation and 10 out of 25 for performance (Department of Education, 2008).

Therefore, physical education holds a high status in South Africa as an outcome of the compulsory school subject Life Orientation in all grades and for all children and young people in South African schools, but this change also resulted in a unique set of problems and challenges and physical education in South African Schools is currently faced with similar problems and challenges to those experienced on the international front. Aspects such as poor status or esteem, very poor and/or no equipment, apparatus and facilities, as well as poorly trained, and in many cases untrained teachers to teach a subject such as physical education, are only a few that can be mentioned (Van der Merwe, 2011; Van Deventer, 2004).

Currently physical education receives great support from international organizations, such as the United Nations (UN), United Nations Educational, Scientific and Cultural Organization (UNESCO) (The Charter for Physical Education and Sport of 1978) and the World Health Organization (WHO). Furthermore, the Berlin Agenda and Plan of Action was drawn up during the world conference on physical education in Berlin in 1999, which emphatically states that it is the basic right of every child and young person throughout the world to be able to play and participate in physical activities and play (Doll-Tepper, as quoted by ICSSPE, 1999). In 2005, the previous South African minister of basic education declared that sport is for everybody, also for children with learning disabilities as well as for girls. Furthermore, she declared that physical education and sport can help combat obesity and that it is the responsibility of the National Department of Education to ensure sufficient facilities, equipment and well trained teachers for the implementation of school sport and Physical

Education (Pandor, 2005). This declaration is in keeping with the Berlin “Call for Action” (Doll-Tepper, as quoted by ICSSPE, 1999) and is strongly supported by the Durban “Declaration of Intent” on Physical Education, Sport Science and Recreation, which was issued in August 2010 after the SASReCon conference in Durban, South Africa (SASReCon, 2010).

Regardless of the aforementioned, the presentation of physical education in South African schools is lacking and, as previously mentioned, is currently in an unacceptable state of affairs. It is still going to take many years before all the challenges have been met and overcome and the deficit erased for the complete presentation of the subject in South African schools. Factors such as a lack of funds as well as human and physical resources will for many years to come offer the greatest challenges and in conjunction with the shrinking budget and the current crisis in which our country’s basic education finds itself, the matter is further complicated. It is of cardinal importance that the South African government realize that the quality of physical education can positively contribute to the health as well as the social and economic environment of the country and its people. Specifically in the field of health, physical education is an important investment and in the long-term, the implementation of physical education can strongly influence the lives of the children of this country.

In summary, during Apartheid, the physical education curriculum in South Africa was perpetuated by race, class, gender and ethnicity. Even since 1994 in the post-Apartheid South Africa, the opportunities for children to engage in physical activity at school in South Africa, are dwindling due to increased pressures to increase student achievement. Therefore, the two models used to date in South African schools, pre- and post-apartheid, were neither successful and it is of cardinal importance that a model is applied in South African schools that is successful and which addresses the needs of our current generation of children and adolescents in South Africa. Children and youth spend a great deal of their time within the school setting and schools therefore play a key role in shaping healthy behaviours including greater physical activity and improved dietary habits (Chin *et al.*, 2012).

3. Current state of obesity and inactivity in the youth of South Africa

Over the past century, a lot of the nutrition research with regard to children and youth in the developing or third world countries, focused on poverty and malnutrition, but currently there is growing evidence of a major shift in research towards childhood overweight and obesity (Jacobs & De Ridder, 2012; Wang *et al.*, 2002). According to Chin *et al.* (2012) today’s children and youth represent the largest cohort group in the history of humankind with 2.2 billion children and 1.5 billion youth currently worldwide. Of this number, 1.9 billion children and 1.3 billion youth reside in developing countries (United Nations Children’s Fund, 2005; World Bank, 2007). It is therefore very important that urgent attention must be given to the prevalence of obesity in children, not only in the first world countries, but even more so in the developing or third world countries of which South Africa is one.

The Youth Risk Behavior Survey conducted in 2002 in South Africa, founded that over 17% of South African adolescents were overweight, and 4.2% were obese (Reddy *et al.*, 2003). In a study by Steyn *et al.* (2005) the statistics indicated that 17.1% of South African children aged between one and nine living in urban areas are overweight or obese. Armstrong *et al.* (2006) indicates a prevalence of 14% and 17.9% of overweight and 3.2% and 4.9% with regard to obesity among 6- and 13-year old boys and girls. In her study Kemp *et al.* (2011) further indicated a prevalence of 7.8% overweight and 3.8% obesity among Grade 1 learners in the North West Province of South Africa. In a study by Jacobs & De Ridder (2012) on 11-13 year old black children living in rural areas in the North-West Province of South Africa, 5% of the boys were overweight and 4% were obese. With regard to the girls 10% were classified as overweight and 10% as obese. According to Westwood (2012) lack of physical activity has a strong correlation with obesity in black South African girls.

It must also be kept in mind that the prevalence and aetiology of childhood obesity may vary according to lifestyle and socio-economic status. Most of the reports with regard to childhood obesity are conducted from studies in urban areas and South African children in the rural areas have different lifestyles when looking at the availability of televisions and computers (Stroebel *et al.*, 2007). Therefore the research on the South African youth reported differences between urban and rural communities as well as ethnic and gender differences.

In 2007 the Healthy Active Kids (2007) research indicated that only 45% of the youth in South Africa participated in sufficient vigorous PA, and 40% of the youth participated in no or little vigorous PA. Kahn (2011) supports the above, and he reported that only 42% of the youth in his study participated in sufficient vigorous physical activity. In smaller towns and rural settings these figures are even worse, since 64% of the girls and 45% of the boys reported little or no moderate physical activity (Healthy Active Kids, 2007). A matter of concern to the health professionals is that this hypokinetic trend is associated with a sedentary “culture”, as 25% of the adolescents reported little or no interest in leisure time activities (De Ridder *et al.*, 2012; Healthy Active Kids, 2007).

A study by Reddy *et al.* (2003) in South Africa reported that only 54.3% of adolescents have Physical Education on their timetables, and only 52.8% participated in vigorous PA at school, because a lot of the schools in rural areas do not have any playgrounds for the children to play on. Rajput & Van Deventer (2010) indicated that only 33% of the total time which is allocated in the learning area in Life Orientation for grade 4 – 6 learners, is used for physical development and movement. This trend is shocking because Physical Education is supposed to provide the opportunity for all children to be physical active.

If the aforementioned research statistics are taken into account and also the current state of physical education in the South African schools, the answer to the question whether we are sitting on a time-bomb in South Africa with regards to obesity in our youth, is a definite a *yes!* Therefore there is no doubt concerning the seriousness of the matter and the following questions now is: Is it possible to fight back and how can we fight back against this non–

communicable disease that currently is a serious threat to South Africa's youth and which is responsible for a major part of the health care budget of the country?

4. Is it possible to fight back?

This is not an easy question to answer, because childhood obesity is a very complex clinical condition with no simple solutions and answers. What is important to remember when implementing intervention programs in the fight against childhood obesity, is that each country has its own unique set of circumstances that need to be considered. Therefore a country such as South Africa, cannot simply directly implement intervention programs that are used in other countries. There are aspects such as urbanisation, ethnic and gender differences, lifestyle and socio-economic status etc. that need to be taken into consideration at the development and implementation stages of the intervention programs to combat obesity. Appropriate eating and exercise behaviors should also be integral to any management strategy of childhood obesity. According to Jacobs & De Ridder (2012) the environment in which children grow up has drastically changed worldwide, as well as in South Africa, during the last decade as reflected in their unhealthy dietary habits and also their sedentary behaviors. South Africa are at present also undergoing a process of epidemiological transition which is associated with a variety of health and other consequences (Goedecke *et al.*, 2006).

If all the above-mentioned are taken into account, there are several challenges that has to be faced in the combat against childhood obesity in South Africa. However, despite all these challenges, it is possible to fight back! However, this will not be an easy task and will require perseverance and also well-planned strategies which are specifically designed for South Africa to prevent and manage the condition. There are many success stories all over the world (Chin *et al.*, 2012) from which valuable lessons can be learned and which can be used as motivation for those engaged in this very difficult task. It is not necessary for us here in South Africa to reinvent the wheel. Although South Africa has its own unique set of circumstances that need to be considered, we can still use success stories from different countries worldwide to help us in the fight against childhood obesity in South Africa.

5. How can we fight back?

Research agrees that genetic predisposition, physical inactivity, poor dietary choices and an obesogenic environment may all be important role players with regard to obesity, however the increasing prevalence of obesity over the past 30 years suggests that environmental and lifestyle factors, rather than genetic predisposition, must be responsible for this rapid increase in overweight and obesity (Mota, 2005; Kesanieme *et al.*, 2001). In the fight against childhood obesity and in order to apply successful intervention programs, it is therefore important to focus on those environmental and lifestyle factors which will have the largest impact on intervention programs and where there can indeed be intervened by health care professionals. In this section brief attention will be given to three of these environmental and lifestyle factors that in the opinion of the authors, can have a large and very positive impact on the combat against childhood obesity in South Africa.

5.1 Effective physical education in SA schools

The two models for physical education used to date in South African schools, pre- and post-apartheid, were neither successful and it is of cardinal importance that a model is applied in South African schools that is successful and which addresses the needs of our current generation of children and adolescents in South Africa. There are currently serious challenges facing the presentation of physical education in South African schools. As previously mentioned, the lack of facilities and apparatus plays a huge role, but the greatest problem is the lack of trained teachers to offer the subject, in conjunction with the lack of trained subject advisors to offer the necessary support (Van der Merwe, 2011). According to Rossouw (2004) a further problem is that there is currently insufficient safety measures in place in physical education classes, as a result of the ignorance on the part of the teachers, which could lead to injuries resulting in legal steps being taken and civil suits being filed. The aforementioned challenges, therefore, result in physical education being poorly presented in South African schools or even many schools not offering it at all. Another factor that also plays a negative role, is that in the pre-1994-Apartheidsera, physical education was only offered in certain privileged schools and the presenting of this subject in previously disadvantaged schools was grossly neglected (Van der Merwe, 1999).

A unique model that is currently being used in some primary schools, is to make use of trained kinderkinetic specialists. Kinderkinetics is a profession that aims to promote and optimize the neuromotor development of young children, through scientifically based physical activity. Kinderkineticists can promote functional growth and development, they can also focus on certain movement activities to promote/facilitate sport specific activities and they can also implement appropriate rehabilitation for children with growth and/or developmental disabilities and specific motor deficiencies. Aspects such as obesity and the development of a healthy and balanced lifestyle in children are addressed by Kinderkineticists with programs that are offered in groups. The advantages of this program are that it is highly specialized and successful and that highly trained individuals is used (Pienaar & Strydom, 2012). The disadvantages of this model are that it can be expensive and currently it is only advantageous to a small group of children. It is imperative that every child in South African schools is given a right to participate in physical activity. It is therefore important that we dispel the controversies that shroud Physical Education up to date, so that there is focus and direction in its deliverance in South African schools (Rajput & Van Deventer, 2010).

With regard to Africa, it is well known that physical education and sport are not new to Africa, but rather what is new is its western model (Amusa & Toriola, 2010). The practice of physical education and sport in Africa is deeply rooted in the cultural fabric of its diverse ethnic communities and in most African countries and communities physical culture forms an integral part of traditional activities associated with hunting, pastoral way of life, food gathering, inter-tribal conflicts, survival and maintenance of good health (Amusa & Toriola, 2010). These are depicted in numerous indigenous games, dances, initiation rites and rituals. In an article by Amusa & Toriola (2010) on the development of physical education and sport in Africa from the pre-colonial to colonial and post-colonial eras, it is clear from the

historical past that to date, there is hardly anything uniquely African in physical education and sport as presently practiced. The models being used the practice physical education in Africa is mostly western models which was “imported” with the hope that they will serve Africa’s needs. According to Amusa & Toriola (2010) this is quite worrisome, considering the diverse and rich cultures, traditions, sports and games, the African continent is blessed with. It is therefore very important that countries in Africa make use of their own unique African models to lecture physical education in schools all over Africa. Models that are more relevant to the indigenous African populations than the current models being used and which are sustainable. Models that are developed in Africa by Africans and for the benefit of our African children. In light of the world-wide problem with regard to overweight and obesity in children, it is more important than ever that quality physical education be implemented in all South African schools and offered by well trained teachers. If this does not happen, South Africa will reap the bitter fruits of its labor in the future.

5.2. Involvement of parents and the community

If we are to win the war against childhood obesity, it is of cardinal importance that both the parents and the community become actively involved. It is almost impossible for children who are overweight or obese to try and beat this non-contagious disease on their own. The role of the parents is extremely important and by establishing healthy behavior in children at an early age, parents may circumvent long-term issues that may emerge in adulthood related to obesity and overweight (Wang *et al.*, 2008). According to Chin *et al.*, 2012 intervention strategies must include focusing on both healthy nutrition and dietary habits and also the importance of daily physical activity. Without the help and support of parents, it is almost impossible to install healthy dietary habits and regular participation in daily physical activity. A large part of the motivation as well as the support come from the parents and children will only learn the aforementioned good lifestyle habits if they have the support of their parents. There are many ways that parents can make a contribution, for example they can become involved as members of health-related committees and serve as representatives on the school's medical and health teams overseeing student health services, religious education, the health curriculum, school ethos, interpersonal relationships etc. (Chin *et al.*, 2012).

With regard to the community, it is of cardinal importance that the community become involved in their children’s health. The majority of children in South Africa live in environments that are not conducive to their health and well-being and it is, therefore, a challenge to reach these children who are in many areas considered at-risk and in need of developmental help (Pienaar & Strydom, 2012). It can even be said that if a community is not involved in its youth’s physical activity programs, it is doomed to failure. It is very important that the community assist in the effort to keep our children fit and healthy. It is also very important that community involvement should not only be limited to the financial aspects, but that the community becomes involved on several levels of the wellbeing of children. Commitment from the government to make communities safer, to construct sidewalks for walking as well as bicycle lanes, to help with the development of sporting grounds and play areas etc. is also very important, because a community cannot perform all these tasks on their own. They need governmental support in this regard.

5.3 The important role of evidence-based physical activity intervention

It is well established that children who are active in adolescence are more likely to become physically active adults and therefore the promotion of physical activity as a normal part of life through schools and in society is very important (Westwood, 2012). The benefits of physical activity and exercise for children and youth have been well documented and parallel those reported for adults. In combating the obesity epidemic among children, an increase in physical activity plays an important role, both in primary and secondary intervention and a real challenge is to provide evidence-based physical activity intervention to children during early childhood (3-12 years) (Pienaar & Strydom, 2012). Physical activity should be an integral part of normal growth and development for all the youth and according to Pienaar & Strydom for the very young child, physical activity intervention should be age and developmentally appropriate. Therefore, the professional who administers the intervention during this stage should be thoroughly trained in childhood development and paediatric exercise science.

In South Africa the profession of kinderkinetics, as referred to earlier in this article, has done excellent work with regard to applied research on the growth, motor development and physical activity of children, as well as interventions to improve shortcomings that are identified in this regard, have already been extensively researched within the field of pediatric exercise science. In this regard research on obesity among children of different age groups and from different perspectives for a better understanding of the problem, have been published (Pienaar & Strydom, 2012). Very important is that it did not stop with the research, but the research was used as evidence to plan a research project in which an obesity intervention program was developed and assessed. A program based on the principles of physical activity participation, behaviour modification and dietary guidelines was compiled and the outcomes were evaluated (Pienaar & Strydom, 2012). The protocol of this research project is currently very successfully implemented as an obese intervention program and is used by kinderkineticists specialists country wide. Specific adjustments with regard to age appropriateness of the level, selection and inclusion of motor activities and the intensity level of physical activities has been made to the program (Pienaar & Strydom, 2012). According to Pienaar & Strydom (2012) the treatment program can also be used effectively for inactive children by only modifying the intensity of the programme, as it incorporates all the necessary fitness components such as strength and strength endurance, cardiovascular endurance, flexibility and the development of basic motor skills needed for sport participation. One of the challenges of this program is to bring this service to the deep rural and remote areas of South Africa in this asks for innovative thinking in South Africa which is a country with extreme diversity, not only in population and ethnic groupings, but also with regard to socio-economic status (Pienaar & Strydom, 2012).

6. In conclusion

Chronic diseases that are associated with being obese, are now rising in developing or third world countries at a faster rate, than that experienced by developed or first world countries (Raymond *et al.*, 2006). From the research it is clear that great concern exists regarding the increasing epidemic of obesity and physical inactivity among the youth and that efforts to remedy this situation should be enhanced. Therefore, the time for talking is long gone and in South Africa as in many other countries in the world, it is now the time for serious action. The combat against childhood obesity in a third world country like South Africa have many challenges and especially the health care system is challenged with numerous complexities and financial constraints. According to Pienaar & Strydom (2012) the first step in childhood obesity treatment will have to be national initiatives acknowledging the severity of the problem, policy support and community engagement on the level of implementation. Quality physical education must be implemented in all South African schools and offered by well trained teachers, because almost all the children can be reached through the school curriculum. This will require that physical education programs in South Africa, as well as physical education teacher preparation programs, be rethought and reformed. According to Chin *et al.* (2012) physical education and health programs worldwide are, without question, in need of transformation. In South Africa, this will need to be in the context of a need for physical education curricula to harness the technical and scientific principles within a context of political, aesthetic and ethnical realities that not only focuses on the needs, culture, traditions and practices of only one group irrespective of race, class, gender and ethnicity. Also very important is the use of evidence-based physical activity intervention to combat childhood obesity, especially in a country like South Africa which is a country with extreme diversity, not only in population and ethnic groupings, but also with regard to socio-economic status. It is very important to start at a young age in order to be able to establish a culture of a healthy lifestyle among the children. Therefore, intervention of childhood obesity (prevention and treatment) calls for comprehensive and innovative strategies (Pienaar & Strydom, 2012) and in South Africa this is an exciting challenge for the future which in the end, will be of great benefit to this exciting African country and its rainbow nation.

7. References

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