Childhood Diabesity: International Applications for Health Education and Health Policy

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Abstract

Health policy has a direct impact on health education initiatives, health care delivery, resource allocation, and quality of life. Increasing rates in the epidemics of obesity and obesity-dependent diabetes mellitus (aka diabesity) suggest that health policy changes should be included in health education and disease prevention strategies. Health policies should provide a clearly emitted set of guidelines and priorities in health. The implementation of health policies designed to decrease obesity and diabetes rates, as well as the creation of new international visions can have a profound impact on reducing this epidemic.

Key Words: *Children, Obesity, Diabetes, Diabesity, Health Education.*

Introduction

The twin epidemics of diabetes and obesity have been identified as a growing public health concern worldwide [1-5] to the point that the terms Obesity-Dependent Diabetes Mellitus (ODDM) and diabesity have been coined to express the relationship between the obesity epidemic and increasing rates of Type 2 diabetes.[6-8] Diabesity is an important public health problem due to its high treatment costs, its many co-morbidity factors; decreased productivity among those affected and shortened life expectancy, but perhaps most importantly due to its increasing rates.[1, 9, 10] In the United States alone, the prevalence of overweight and obesity is increasing with an estimated 129 million Americans classified as either overweight or obese.[11] The prevalence of diabetes among Americans has been estimated at 7.3% for population 20 years or younger.[12] Diabesity, however, is a worldwide problem; it is estimated that by the year 2025, the worldwide number of patients with diabetes will be approximately 300 million.

The literature suggests that while diabesity in the adult population leads to negative health outcomes, ODDM (Overweight and Diabetes) in children can be worse. Children with ODDM suffer from biological and psychological effects as well as decreased quality of life.[13-16] Worldwide, the WHO global database on child growth and malnutrition indicates that the highest prevalence rate of overweight is found in Latin American and the Caribbean.

Purpose of Study

The purpose of this paper is to explore policy implications for the development, implementation, and evaluation of health education programs designed to decrease diabesity among children.

Threats to childhood health

Decreasing childhood obesity has been identified as a public health priority by the World Health Organization.[5] The incidence of childhood obesity and overweight has increased not only in industrialized nations, but also in developing countries. The 2002 World Health Report revealed that high rates of overweight in children is becoming a marker for countries at risk for development of a future diabesity problem in nations with developing economies.[9, 17]

Findings from a literature review on obesity, suggested that the World Health Organization has documented disparities in obesity levels around the world. Rates, as low as 5%, have been found in countries such as China and Japan. In Samoa,estimates indicated that 75% of the non rural population is obese or overweight. Obesity rates in China were 20% or higher in cities as compared to rural areas.[9] In Brazil, obesity rates increased by 92% in men and 63% in women between 1975 and 1989[18]. Barcelo reported that according to the National Health and Nutrition Examination Survey (NHANES) in the United States, 31% of children and adolescents between 6 and 19-years-old were at risk for overweight and 16% had been classified as overweight.[19] In Mexico, the prevalence of overweight in children and adolescents was estimated to be 27%, while in Brazil it was 13%, in Chile it was 14%, and in Peru it was 12%.[19]

The literature suggests that health policy makers need to be more proactive and engage in a process of analysis at the economic level of the major morbidity and mortality issues affecting a population, within the context of an evaluation of the cost-effectiveness of the various proposed interventions. This analysis should also include what governments can do, with the full range of interventions that are available, including improving public relations, exploring taxation and regulation and developing new strategies in response to the epidemic of chronic disease. These new strategies need to focus less on the direct provision of health services and more on ensuring that the process of economic development encourages healthy behaviors and life style changes.[20]

Health Policies and Diabesity Prevention

The World Health Organization created the Global Data Base on Child Growth and Malnutrition in order to collect systematic data to orient the development of international health policies for childhood diabesity prevention. WHO and UNICEF created the program “Atencion Integrada a las Enfermedades Prevalentes de la Infancia (AIEPI)” (Comprehensive Attention to Prevalent Childhood Diseases), which provides guidelines for the development of health policies for the prevention of diabesity in the Americas. The AIEPI program proposes the development of national health policies that deal with prevention, early detection, and effective treatment of diabetes and obesity.

AIEPI strengthens the importance of political structures that facilitate the development of healthy

habits and lifestyles among individuals and communities. Through educational models on signs and symptoms of childhood diabetes and obesity for primary care practitioners, AIEPI intends to improve the prognosis and prevention of obesity and diabetes in children.[19] AIEPI was begun in 1996 as a regional strategy for countries in Latin America and the Caribbean to address child mortality, reduce the incidence and severity of health problems affecting children and to improve growth and development during the first five years of life for children. By late 2001, seventeen countries had adopted and implemented the program. These same countries joined the initiative, Healthy Children: Goal 2002, but in ten of them, there were national and community campaigns to promote institutional participation and local community participation. The overall strategy has been to focus on those geographic areas most at risk and on the population groups that were the most vulnerable and reduce child mortality statistics. One of the major achievements of this program has been to develop a regional training facility. To date, more than 40,000 people have been trained in the principles of Integrated Management of Childhood Illness (IMCI).[21]

In the U.S., the American Academy of Pediatrics (AAP) has taken the lead in the development of health policies for diabesity prevention for children including a policy statement for the prevention of pediatric overweight and obesity.[22] The policy statement has been followed by a number of pediatric obesity initiatives including the development of an Obesity Leadership Workgroup (OLW) in April 2008 charged with coordination of AAP obesity strategic priorities.[23] This workgroup has been supported by a planning grant from the Robert Wood Johnson Foundation and has redesigned the obesity website, offered five community grants, sponsored a congressional briefing on key obesity bills and signed an agreement with the Alliance for a Healthier Generation to collaborate with them on the development of their Health Benefits Program. Bright Futures is a comprehensive child and adolescent health project of the American Academy of Pediatrics and its partners. A new initiative has been to partner with the White House, the U.S. Department of Health and Human Services, the U.S. Department of Education and the U.S Department of Agriculture to focus on addressing the issue of obesity in children and adolescents.[24] Current efforts include the March 2010 issue of *Family Matters* that focused on promoting healthy weight.[25]

The Alliance for a Healthier Generation (AHG) is a collaborative effort between the American Heart Association (AHA) and the William J. Clinton Foundation to create a healthier generation by addressing one of the biggest threats to an entire generation--increasing nationwide prevalence of childhood obesity by the year 2015 and to empower kids to make healthier lifestyle choices.[26] With support from the Robert Wood Johnson Foundation, 28 million dollars had been donated to support the "Healthy Schools Program". The program builds on research findings that suggest that a healthier school environment can result in greater academic achievement and overall healthier lives for students and school staff. By supporting more than 6,000 schools nationwide, the Healthy Schools Program takes a comprehensive approach to school health by developing standards for improving choices in nutrition and beverages in schools, increasing physical activity during and after school, providing nutrition education, and developing wellness programs for school employees.[27,28] Children and adolescents spend a good portion of their day in schools. Making educational institutions primary partners in the need to fight diabesity is a promising strategy.[14]

In 2003, the AAP proposed a series of policy recommendations to fight diabesity in school children. These policies advocated for the elimination of community and school obesogenic environments, the promotion of physical activity in school settings, and the development of healthy eating behaviors via motivational activities developed by parents, coaches and teachers. A cornerstone of the AAP proposed policies was the need for schools to offer healthy food choices.[22]

The Alliance for a Healthier Generation met with representatives from the major beverage companies and representatives from the American Beverage Association to collaborate on the development of a set of voluntary guidelines to serve as standards for the sale of beverages in schools. These standards have also been adopted by the Healthy School's Program. The standards limit portion size and reduce calories as part of an overall strategy to reduce childhood obesity. The guidelines proposed that elementary schools should offer bottled water, up to eight ounces of milk and 100% juice as part of their nutrition programs. Milk or dairy alternatives should total a maximum of 150 calories/8 ounces. Middle schools should serve the same beverages but they may be sold in 10 ounce containers. High school should serve up to 12 ounce servings of milk, no or low caloric beverages with a maximum of 10

calories/8 ounces, and at least 50% of non-milk beverages must be water and no or low-calorie options.[28]

The goal of the program was to achieve implementation of these standards in 75% of the schools under contract by the beginning of the 2008-2009 school year and worked to achieve 100% participation by the beginning of the 2009-2010 school year.[29] The results were impressive. The calories available from beverages shipped to schools had been cut by 88 percent between 2004, the last comprehensive data available prior to the agreement and by the end of 2009.[3] The program also achieved its implementation goals for participation. By the beginning of the 2009-2010 school year, 98.8 percent of schools and school districts were in compliance with the guidelines.[30]

A research synthesis of findings on reducing obesity and related chronic disease risk in children and adolescents was conducted by Flynn and colleagues and as part of the process, the research team sought advice from an international panel of experts on issues directly related to childhood obesity, including child health, public health, immigrant health, nutrition, psychology, exercise and health policy. They found that schools are an ideal environment to conduct programs aimed at children and youth. The research suggested that health status indicators, including BMI, chronic disease risk factors and overall physical fitness can be positively changed in the school setting. Best practices would include focusing on more "upstream" approaches and population-based initiatives, rather than the current emphasis on individual behavioral change. The team also suggested better integration of chronic disease prevention programs, more emphasis on long-term evaluation to determine overall program impact and more involvement of program stakeholders. Gaps that were identified in the research synthesis include studies on pre-school and young children, the greater prevalence of obesity in males as compared to females suggests the potential need for gender specific programming and specific programs targeted to immigrants, whom the researchers think may be more vulnerable to an obesogenic environment.[31]

Summerbell and colleagues[32] also conducted a review of 22 randomized intervention studies of participants under the age of 18 which involved physical activity and dietary changes, either singularly or in combination. The studies were conducted in Asia, South America, Europe or North America. The researchers reported that there is not enough evidence from these trials to prove that any one approach can prevent obesity in children, but their review strongly suggested that the comprehensive strategies to address both dietary and physical activity change, coupled with high level of psycho-social support and changes in the environment show the most promise. New trends in obesity research are for the most cutting-edge interventions to include stakeholders in the program design and to include an evaluation. More research is also need to assess changes at the population level, such as what happens when the types of food served in schools is more nutritionally balanced and what happens in a community when there are safer places to exercise.[32]

Steinbeck[33] highlighted the importance of physical activity in the prevention of overweight and obesity in children in a review article that examined numerous international school-based and community interventions and reported that interventions that focused on increasing physical activity or decreasing sedentary behaviors have shown promise for obesity prevention.

At the school and community levels, Hubbard and colleagues[34] suggested the creation of health policies aimed towards unifying health education and developing health education standards to create a culture of health in childhood. The lack of health education curriculum standards is not the issue; the problem lies in the fact that current standards (national and state) are seldom implemented since health continues to be an elective course for most American students.

Health policy for diabesity prevention should also be encouraged in the area of physical activity. Dietz[10] proposed several areas for physical activity policy development: 1) stimulate community-wide campaigns, risk factor screenings, and delivery of messages through the media, 2) promote the development of point-of-decision prompts in public areas, 3) promote the development of school curricula that allows for enough physical activity according to CDC recommendations, 4) creation of built environments conducive to physical activity, and 5) promotion of community-based social support networks to encourage physical activity. The CDC[35] recommends moderate physical activity for children and adolescents at a minimum of 60 minutes per day.

Policy makers should also consider creating standards that support physical activity at the pre-school level. Models of program that begin as early as the pre-school level are difficult to locate. The Bright Futures program developed by the AAP does have an extensive website that offers tools for

parents, teachers, health educators and others interested in developing age-appropriate physical activity programs for young children.[36] International research conducted by Mo-Suwan, Pongprapai, Junjana, and Puetpaiboon[37] on a sample of 294 4-year-olds suggested that a physical activity program consisting of a 15-minute walk before school and 20-minute dance session three times a week resulted in prevention of BMI gain for girls only. It is difficult to find studies of physical activity where the participants are pre-school aged only.

Health Policies on Advertising and Marketing Policies for Diabesity Prevention

A review of policies on food marketing around the world revealed that there is a growing pressure to regulate the marketing of nutrient-poor and high-energy foods to children and adolescents. This concern has been translated into the development of self-regulatory guidelines, civil society development of statutory controls, and governmental enactment of health policy standards.[38]

The AAP[36] suggested that professional pediatric organizations actively advocate for social marketing that promote healthy food choices and exercise. Similarly, the World Health Organization proposed the Global Strategy on Diet, Physical Activity and Health. This strategy is designed so governments, the advertising industry, and the society at large take active measures to reduce the risks associated with the promotion of unhealthy dietary practices.[39]

The WHO strategy proposes responsible advertising through self-regulatory guidelines in the marketing industry.[38] Examples of this policy, which could also be implemented in developing countries, include the proposal from eleven major food and beverage manufacturers in the U.S., including McDonald's, PepsiCo, Campbell Soup, Coca-Cola, Hershey, and others, to voluntarily limit product advertising of poor nutrient and high caloric products to children under 12- years- old and to allow the Council of Better Business Bureau and the Children's Advertising Review to audit their advertising strategies and report their findings to the public. PepsiCo for instance, agreed not to advertise unhealthy products in elementary and middle schools, nor in promotional materials such as book packs, pencils and posters among others.[40]

Another policy strategy proposed by the WHO[39] is for governments to actively enact regulations and laws to control the advertisement of high-calorie and poor-nutrient foods to children. These controls could be done through texts presented in laws or statues; creation of government bodies to develop, promulgate, and enforce the regulations; and the implementation of advertising bans related to quantity or content of mass media messages.[38]

Examples of statutory restrictions developed around the world include France's new legislation in Public Health Code-Article 29 created in 2004 and scheduled to be implemented in 2007, which requires all media targeting children to limit advertising of foods and drinks with added fats, sweeteners, and salt, as well as to pay a tax to support nutritional campaigns. Another example is Ireland's Children's Advertising Code of the Broadcasting Commission, which prohibits the use of celebrities or sports figures to promote unhealthy foods or drinks. The United Kingdom created statutory regulations to prohibit the presentation of high-fat, sugar, and salt foods during television time that particularly targets children younger than 16 years-old.[38]

A third policy strategy proposed by the WHO[39] was to stimulate governments to create guidelines, instead of statutory codes, for the advertising industry to follow. In this strategy, there is no legal mandate, but there is a strong call for industries to adhere to the proposed guidelines. Some of these guidelines are in the process of becoming legal mandates. Examples of this policy strategy include Brazil's guidelines for food marketing to children proposed in 2005, which prohibits child-centered television and radio advertisements for unhealthy foods between 6:00 a.m. and 9:00 p.m., and the inclusion of health warnings of associated health risks. Thailand's Consumer Protection Agency limited duration of advertising to 10 minutes per hour, with at least 2 additional minutes of nutrition education in times targeting children.[38]

Discussion and Policy Analysis

The policies described above, while useful, have limitations in their application in developing countries. Factors including reliability, economic affordability, political feasibility, cultural acceptability, and social value have been found to limit the impact and applicability of the proposed policies.[38]

Some authors have suggested that the specific policies adopted by each country is influenced by three components: 1) the public health advocacy process, 2) the community capacity and ecological assessment, and 3) the organizational change climate

in the region.[38, 41] These components should be analyzed within the cultural and social reality of the region.

The identification of public health priorities is influenced by the identification and promotion of interest groups, lobbying mandates, the political process allowed by the constitution in each country, and the process for laws creation[40] Relevant roles in public health advocacy should be played by professional associations and interest groups. The community capacity and ecological assessment of the proposed policies should start with a needs assessment. Although some data exist about the magnitude of diabetes and obesity in children and adolescents internationally, data about the incidence and prevalence of diabesity is very limited. There is an urgent need to develop surveillance mechanisms not only to identify morbidity and mortality, but also to support the creation of health policies related to this pathogenesis.

Policy development ought to be structured on the basis of evidence and documented needs. Community capacity should be measured by an analysis of the existing venues of political expression and political participation of communities. The organizational change climate should be assessed by a determination of the political decision-making process, followed by an assessment of the most feasible health policy strategies. Based upon the cultural and social realities of communities, there should be a determination of the value of self-regulation, statutory development, or governmental guidance as appropriate health policy strategies for childhood diabesity prevention.

As stated by the WHO[39], there is a need to recognize the importance of international cooperation in the development of diabesity prevention policies. Even when there is a political climate supportive of diabesity prevention, it is vital to establish international cooperation agreements to ensure the commitment of multi-national corporations in maintaining their self-regulatory initiatives outside their countries of origin.

Legislation and health policy mandates ought to be developed particularly for school settings. For instance, countries such as Canada, Brazil, Fiji, France, United Kingdom, and the U.S. have established legislation to control the sales, presence of vending machines, and marketing guidelines for children and adolescents in schools.[38] The WHO made a call to governments to extend their efforts to ensure that these measures are also granted to developing and non-industrialized nations.[39] WHO also emphasized the importance of establishing guidelines so multinational corporations do not mitigate their local losses generated by these policies, by overselling and aggressively promoting sales to children in less powerful economies, to bolster and sustain their overall profitability.[39]

Health policy needs to be based on an educational community process. The creation of awareness campaigns such as "National Diabesity Prevention Day" could promote a political climate conducive to recognizing the need for diabesity prevention. Effective public health policy also needs to be based on scientific evidence that is gathered and analyzed by independent scientists, not just advocates. There should be objective verification of the magnitude of health problems, based on standard definitions and measurements.[42]

Implications for health education practitioners

There is a strong relationship between health policy, public health, and health education.[43] Health education and health promotion involve the combination of educational and environmental strategies conducive to healthy living.[44] The literature suggests that health educators and health promotion specialists should work collaboratively in policy-making.[45] The Conference of the International Union of Health Promotion and Education, conducted in June 2002, posed three major questions related to the integration of health education and health policy: 1) How should constituents interested in integrated approaches to health policy advocacy lead the process of policy change?, 2) What specific abilities are needed to provide leadership for policy change?, and 3) How do we build alliances and coalitions that focus on policy change? Social justice policy has been proposed as the answer to the first question.[46] The need to collaborate across disciplines working toward a similar goal increases the chance of success in those endeavors. The response to the second question is based on the understanding that engagement in policy change, by health education practitioners, requires the development of their political and advocacy skills. The answer to the first question requires cooperation across policy domains and careful attention to the political process by health education practitioners. Public health practitioners are also called to manage the political process and engage in policy change.[47]

Public health practitioners, including those solely dedicated to educating for health should be versed in the intricacies of health policy-making and actively

participate in it. It has been suggested that to be effective, health education practitioners need to develop skills in politics and learn how to develop political and legislative environments conducive to health, as well as how to develop political strategies for public health.[44, 47, 4] Finally, it has been suggested that one of the major challenges for health education is to ensure the sustainability and democratic accountability of health policies. As a result, public health practitioners need to monitor local health policies and participate in the local and global efforts to control health hazards.[46-48]

The prevention of childhood diabesity is an emerging challenge for public health specialists. First, the limited available literature on this topic poses a need to increase the body of knowledge on this important health threat. Second, documenting the relevance of childhood diabesity from an epidemiological perspective should be a priority in the research agenda of public health practitioners. Third, public policy ought to be developed to prevent and control this health problem, particularly in vulnerable populations such as children and adolescents. Childhood diabesity prevention should constitute a priority agenda for health policy makers and health education practitioners.

Conclusion

Policy recommendations should be based on the existing literature and should place special emphasis on equity and social justice**.** This emphasis is influenced by the international climate and world-wide health policy statements. The 1998 Adelaide International Conference on Health Promotion and Policy provided a framework for countries to understand and develop healthy public policies. They are recognized for an evident commitment to eliminating disparities in health. Addition focus needs to be on accountability of their impacts and outcomes related to health. Health policies should create health-enhancing physical and social environments supporting the adoption by individuals and families of health-promoting lifestyles.[24]

The Adelaide conference placed special emphasis on the inter-sectorial nature of health. According to this conference, developing health policies should involve economic, social, cultural, and educational considerations. In addition, the responsibility of industrialized nations in relationship to developing countries was also highlighted by the Adelaide Conference. This conference emphasized the ethical and social responsibility of developed nations to create health policies congruent with the needs of developing nations.[24]

The literature suggests the need for further studies on assessing the impact of developing health policies that promote the governance goal of transparency and involve international cooperation, based on horizontal representation. This representation needs to be based on the understanding that even within a group with similar ideas and interests, there could be dissenting voices.[43, 48]

The international health promotion conferences in Ottawa, Jakarta, Adelaide, and Bangkok recognized health as a primary right and the critical role of governments in developing societies that invest in health.[49] The major policy document creating a framework for international health promotion is the Ottawa Charter of 1986. This landmark public health policy focuses on the development of a cohesive set of health promotion and health education principles based on the community perspective.[50] Some health policy researchers and the public policies they espouse are interventions based solely in the health sector; as a result their policy models fail to take a broader, inter-disciplinary approach to develop healthy public policies. Instead, they continue a narrow emphasis on health policy only. Their models don't capture the complexity of health education issues such as diabesity because they fail to acknowledge the issues of social justice and health equity and that health is not equally distributed in society.[51] Navarro stated eloquently, that public health workers need to be advocacy agents and movers of political change.[52]

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