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An Examination of Obesity and Eating Disorder Prevention Programmes in Schools

In recent years the increasing global burden of cardiovascular morbidity and mortality associated with obesity has placed this issue at the top of the health policy agenda (Chopra et al, 2002). Numerous health promotion and education initiatives have taken place targeting various risk groups. According to the Centers for Disease Control and Prevention (CDC), rates of childhood obesity have been increasing at an unprecedented rate as they state that, "since 1980, the percentage of children who are overweight had more than doubled, while the rates among adolescents have more than tripled" (Weschler et al, 2004). One health education initiative has concentrated on targeting children before their development of obesity as a tactic of promoting the future health of North Americans. The researchers Ohinma et al (2011), examined the costs of implementing the widely promoted "comprehensive school health programme" that supports nutrition and exercise within schools in Alberta to be cost-effective, at a total of under half a million dollars in public funds.

The purpose of this paper is to review the literature showing the strengths and weaknesses inherent in various health education campaigns targeted at primary and secondary school children. Knowing the strengths in each campaign will enable the development of best practice guidelines for future healthy eating and activity campaigns. This will ensure that public funding will be allocated only to the most efficacious health education initiatives. The second section of this paper will concentrate on establishing a framework founded on the best evidence that could be implemented in schools in the Vancouver and Burnaby areas.

Several studies within North America and Europe were selected for review that met the criteria of, having been published within the past ten years and, involved an intervention that lasted over a month with a comparison group. The rationale was to ensure relevance to contemporary nutritional issues facing school children which are increased by changing marketing regimes. Another criterion was to ensure that sufficient time had been allocated to observing properly and recording quantitatively, changes between intervention groups.

Preliminary Literature Search: Devault

The preliminary literature search generated several important studies that are worth discussing. One study, conducted by Devault et al (2009), sought to address the public health problem of childhood obesity by implementing a comprehensive physical activity and nutrition programme in schools within the Tulsa district of Oklahoma. The target population consisted of 140 children in grades 1-5 who were exposed to a variety of nutrition education initiatives. One particular strength of this study is that it integrated experiential learning which has been shown to be an effective educational approach exemplified by research in Simon Fraser University's Professional Development Programme. The students in the Devault et al., study were not only educated about healthy eating but were directly involved in making nutritious meals in class. One may suggest that involving the students in participatory exercises increased the relevance of the subject of nutrition to their daily lives and had the advantage of making learning fun. Moreover, involving their student peers in healthy eating

may have had the advantage of instilling positive peer pressure.

The researchers found significant differences in the level of knowledge acquisition and positive attitudes towards healthy eating between the intervention and control groups. Thus, an important inference may be drawn from this study. Combining theoretical knowledge through traditional lectures, in tandem with directly involving students in making healthy food choices, will have a longer lasting effect on changing unhealthy behavioural risk factors in children. Whilst the above study had certain strengths, listed above, one weakness that this study does not address is the ability of children to eat healthy meals once they leave the school environment. Although children may have more positive attitudes and greater knowledge acquisition after the educational initiative, scarce family resources may act as significant barriers towards translating knowledge into one's daily practices.

Preliminary Literature Search: Carlson

Although the direct student involvement model has many strengths, several other models of interest have been implemented in health education initiatives that are worth considering. One particular model adopted by Carlson et al (2008), pertains to the involvement of health professionals in training as educators in schools. The study involved both kinesiology and dietician university students as a central part of the health education initiatives in primary school children in Michigan. This approach centered around acquiring knowledge of nutrition through student-led mentoring via goal-setting online, in tandem with traditional lectures. The main advantage of this technique, as discussed by the researchers involved, is the low economic cost of programme implementation. It thus provided the benefit enabling students to train while providing the younger students with education from health professionals in training. One weakness of this study is the lack of direct student involvement in the learning process akin to the earlier study conducted by Devault et al (2008). It may be argued that the web-based goal setting programme was a form of direct student learning. However, this initiative could have been strengthened by expanding on the goal-

setting component to weekly detailed journal entries composed by students. Another weakness is that the study similarly did not address the SES status of students and the barriers which may arise when seeking to eat nutritious meals in the home environment.

Preliminary Literature Search: Stock

A third model has involved student peers as educators. The UBC health education initiative, "healthy buddies" to prevent childhood obesity, used a peer-led approach to promoting healthy nutrition (Stock et al. (2007). This programme was unique in that elementary school students mentored their younger peers in their school about healthy eating. The older students were essentially trained in aspects of nutrition, setting positive examples for their younger counterparts. One feature of this approach, rather than the university student approach, is that it enables students to learn about healthy lifestyles while they act as leaders and role models within their schools by promoting healthy eating and physical activity. It also has the advantage of economic sustainability that was present in their earlier study. Learning from someone who is within your school may motivate students who do not tolerate instructions well from authority figures. However, a disadvantage is that elementary school students may not be adequately prepared to grapple fully with the inherent complexities of nutrition and obesity in the same way that university health programme students can. Having health professionals monitor and assist with the educational interventions would likely maximize the benefits accrued with this form of health promotion. The researchers found that students, who were in the intervention, had improved biological markers and physical measurements associated with healthier nutritious choices, such as reduced weight and systolic blood pressure. Quantitatively assessing the impact of this health education intervention is a strength of this study as previous studies mostly examined self-reported knowledge acquisition rather than physiological findings suggestive of intervention success.

Although there is a need to educate young children and their families about nutrition and to find the most efficacious modes of translating

this knowledge (such as experiential learning, health professional interventions, or peer led approaches), there is also a need to examine social, economic, and environmental barriers.

Social, economic, and environmental barriers

None of the above studies examined the roles of the welfare state in creating opportunities for low-income families to be able to purchase nutritional meals for their children. Indeed, the CDC article, on obesity prevention and the role of schools, promoted strategies to prevent obesity which were seen in all of the studies. However, there was no mention of the role that social structures play in reinforcing inequity in healthy nutritional meal access nor a plan that may ensure equity in accessibility for all families.

Riches (2002) has criticised Canada's dependence on the food bank as social safety nets, when in fact it demonstrates a failure of the government to enforce work and welfare policies supportive of mothers and low socioeconomic status groups. Riches argues that food banks do not enable children to receive all of the nutrients necessary for healthy development and may serve as stigmatizing points of contact for families who cannot provide for their children. Thus, in order to attenuate the obesity epidemic, there is a need for health promotion strategies in schools to be partnered with health policy initiatives that may enable children to eat healthy meals in both the school and home setting. There needs to be a clear outline that sets goals for schools, families, and welfare policies that will demonstrate how the goals of equity and accessibility will be reinforced. Gaps that exist between the school and home environment need to be addressed by ensuring continual access to healthy meals and green space for sufficient exercise. Often inequity in exercise amongst children from disadvantaged families is overlooked by many studies and policy analyses. Promoting government subsidised after-school sports programmes in recreation centres, that are safe, will ensure that children from all (socioeconomic status) backgrounds will receive sufficient exercise after school. This will maximize the efficacy of health education initiatives within schools.

Furthermore, these programmes should offer choices in exercises in order to ensure maximum student participation. None of the above studies demonstrated a curriculum that had sufficient diversity that would represent all the sports interests of students. Funding dance classes, gymnastics, and synchronized swimming alongside traditional ball game competitive sports, both in the school environment and after-school park recreation centres, will ensure that all children will be able to select exercises that they feel most comfortable. Integrating facilities for students with disabilities into the built environment will also ensure that equity and accessibility to exercise activities will be reinforced.

Environmental and political forces

In order to maximize the efficacy of health education in schools there is a need to examine environmental and political forces that may limit the efficacy of these programmes. According to Thayer et al. (2012), environmental exposures may act as obesogens by affecting the proper functioning of cells in fat synthesis in tandem with affecting one's neurological system that regulates appetite. Specifically, a study by Kelishadi & Poursafa (2012) has demonstrated that air pollution is associated with childhood obesity and problems with fat synthesis. Educating children about healthy nutrition should only be one part of a complex strategy that has many components. There is a need to legislate environmental policies that limit childhood exposure to agents that promote obesity. Constructing schools from materials that are safe and in greener spaces is one way to complement health education strategies.

Whilst obesity prevention in schools is rightfully a public health priority, there is also a need to achieve a balance between promoting reduced caloric intake with ensuring sufficient caloric intake. The researcher O'dea (2005), argues that health promotion initiatives seeking to reduce obesity in schools may have negative repercussions even though they are intended to have positive impacts on students. O'dea posits that health promoters in schools may not recognise that health education may pressure students to lose excessive weight during critical developmental periods. She argues that, "it is a common myth that overweight children and adolescents are unconcerned about their weight

and make little effort to control their weight. One of the most concerning findings of the study was that 85% of the teachers reported recommending strict caloric-controlled diets to their overweight students, many of whom were in the middle of their adolescent growth spurts" (O'dea, p.261, 2005).

Complementary programme

In addition to the potential psychological harm to overweight children, a lack of a complementary programme targeting students with eating disorders perpetuates and allows this issue to permeate when not taken into account during the design stage of health promotion programmes. In other words, obesity is a public health problem that exists alongside anorexia nervosa and bulimia. Haines et al. (2011), found that high school students across the United States have a high prevalence of eating disorders, according to a national survey, as they argue that, "nearly 12% of females and 3% of males reported vomiting to control their weight and 17% of females and 10% of males reported binge eating 1 or more times a month. Approximately 24% of females and 8% of males report being preoccupied with being thinner" (Haines et al., 2011).

We find fewer initiatives to combat anorexia than obesity. Research by Torres-McGhee (2011), has demonstrated that not only are dancers unaware of the signs of eating disorders, but that their coaches and school administrators also lacked knowledge in this topic despite ranking themselves as being knowledgeable of the signs of eating disorders. This is particularly disturbing if one considers the fact that dancers are twice as likely to suffer from eating disorders, according to a study by Herbrich et al (2011). Furthermore, the lack of knowledge about eating disorders extends beyond specialized schools and pertains equally to regular high schools. According to a study by Harshbarger et al (2011), the majority of school counsellors are not prepared for dealing with students who suffer from eating disorders. They argue that, "of the 109 respondents, 55% felt eating disorders were a problem in their school. Very few felt "very competent" identifying (6%) or helping (2%) students with eating disorders" (Harschbarger, p.1, 2011). Thus, it appears that health education resource personnel in schools

are less trained in dealing with anorexia and bulimia than they are with obesity. There is a need for health promotion campaigns to promote body holism rather than support obesity prevention while allowing anorexic and bulimic students to be excluded from public health prevention, intervention, and education strategies.

One alternative model in health promotion, which Bacon & Aphramor (2011) describe, involves a campaign that supports adequate nutrition and exercise without placing any pressure on obese students nor triggering the symptoms of students with pre-existing eating disorders. It is called "health at any size" and its central tenet is that individuals should eat whenever they feel hunger and can integrate activity into their daily activities without feeling the pressure to engage in excessive exercises in the gym. However, this model does not offer exciting exercise choices for young students who need to first need to learn about different exercise modalities in order to be able to integrate them into their daily lives. Furthermore, it does not address the complex social and cultural forces that both promote obesity and anorexia. One programme in Spain, produced by the researchers Gonzalez et al. (2011), integrates media literacy with health education which has the benefit of empowering students and making them cognisant of the ideal body image types that the media wrongfully propagates.

Summary

This literature review has demonstrated that health education campaigns targeted at primary and secondary school students should include social, political, economic, and environmental dimensions. There is a need to integrate obesity prevention programmes with anorexia and bulimia prevention campaigns into a holistic health promotion intervention that may be universally disseminated across schools. There is also a need to improve the awareness of counsellors, school administrators, and sports coaches of the signs of eating disorders in tandem with supporting social intervention training within schools. For if counsellors are unable to effectively deal with anorexia then whom may these students count on for help? Counsellors should act as first points of contact

for both social intervention and primary healthcare referrals. Other lessons from health education initiatives are that an ideal programme should involve many stakeholders and professionals. While peers may promote health nutrition effectively, there is a need for dieticians, trainers, psychologists, social workers, health policy analysts, environmentalists, health scientists, and politicians to be involved in the promotion of healthy nutrition and exercise among school-aged children. Social inequities in accessibility to nutritious meals and exercise programmes need to be addressed. Health education initiatives need to integrate ways to ensure that parents will be able to send their children to sports programmes and purchase healthy meals irrespective of their socioeconomic status.

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