A Social Ecology of Health Promotion Model Approach to Childhood Weight Management

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**Introduction**

The desire to improve health is common to all healthcare providers. Many healthcare providers feel frustrated with their lack of ability to change health behaviors in their clients. This frustration had led to many theories on best way to promote behavioral change. Some of the theories like the Health Belief Model do show some positive impact on health behaviors; however the model only targets one dimension of the client’s life (White & Sudley-Brown, 2012). People are not one dimensional they interact with their families and larger community. Therefore, a better model would include strategies that look at the person as a whole and takes in account their larger community. One such model is the Social Ecology of Health Promotion Model (SEHPM). The SEHPM is an interactive model that examines five different levels of impact on the client and stresses that all the levels interact to bring about the desired health behavior change (McLeroy, Bibeau, Steckler, & Glanz, 1988).

**Why the model was developed**

In the past clients were handed a pile of papers and told to read them, in the hope that the information contained within the pages would enlighten them, leading to a change in their behavior. Providing information alone is a life-style hypothesis approach. For some clients information alone may be enough to cause change, but for most people information alone has little effect and fails to cause change. An example of this is the increasing in the number of people in the United States with obesity, type two-diabetes, and hypertension despite widely available information about diet (Centers for Disease Control and Prevention [CDC], 2013). With the life-style hypothesis approach the caregiver provides information to the client if the client choose not to act on the information, then client is to blame for his own health (Glanz & Rimer, Spring 2005). Another example of information alone at a policy level failing is smoking; there has been a label about the health effects of smoking on cigarette packages for many years yet people still start smoking. Peoples’ actions are influenced by many factors personal, family, and societal. Their health behaviors are influenced by these factors also. The realization that to influence change, interventions must occur at multiple levels of the client’s life led to the development of a multi-level health behavior change model. The SEHPM identifies five levels of influence. The levels build on each other starting with the narrowest then expanding. The ecological perspective stresses the interaction and interdependence of the different levels (McLeroy et al., 1988).

**Level one**

The first level is the intrapersonal level. This level deals with the individual’s characteristics and how they impact their behavior. These characteristics include their viewpoints, educational background, temperament, and their cultural background. The SEHPM stresses that, at this level, the provider should not make the person feel guilty about their health condition and expect change, but rather affect their attitudes or fears to bring about change (Glanz & Rimer, Spring 2005). For example, if diet change is desired the client’s attitudes related to diet need consideration. If the client is from the south where culturally vegetables are over cooked with fatback just instructing them to eat more vegetables alone may not have the desired effect. Rather, the provider needs to instruct them to eat more vegetables and discuss food preparations. The health care provider could set up classes on healthier food preparation and allow the client to sample healthier food products. Another example of how intrapersonal factors effect health behaviors, does the client have access to fresh vegetable or is canned the only option? The health care provider should assess the client’s limitation and help to build better health behaviors within those limitations.

**Second level**

The second level is the interpersonal level. This level deals with the client’s family and the client’s close personal friends and their interactions with the client. This level also takes into account how the actions and beliefs of family/friends affect the client (Glanz & Rimer, Spring 2005). Using diet as an example again, does the client’s family believe that a change is needed? In overweight children if the parent feels the child is not overweight they are not motivated to change their or the child’s diet. Assessing the family’s opinions and guiding them to a better understanding of the problem is necessary before health behaviors will change.

**Third level**

The third level is the institutional or organizational level. This levels deal with the larger institutions the client is involved in like their school or place of employment. At this level the model looks at how the policies of the institution affect the client (Glanz & Rimer, Spring 2005). As examples of the employer’s influence, if an employer or school desires a healthier student/employee is smoking allowed on the campus or place of business? Does the school/business have vending machines for soft drinks? Is there daily physical activity as part of the curriculum or encouraged for employees?

**Fourth level**

The fourth level deals with community factors and how they impact the client and their health behavior (Glanz & Rimer, Spring 2005). For example, are there running or walking paths to promote exercise? Are the parks easy to get to and safe? The community factors also include community groups that embrace families in need. Do businesses, hospital, schools, churches, and volunteer organization team up to address health care needs? For example do they team up to promote breast cancer screening with fund raising and walks/runs to promote awareness?

**Fifth level**

 The fifth level deals with public policies and the affect they have on health behavior (Glanz & Rimer, Spring 2005). Public health policy is an important component to health promotion because of health policy milk is pasteurized and there are minimum standards for housing. Public policy is still important. For example, what are the laws governing public smoking? Does the city allow smoking in restaurants? Is there funding for parks and recreation areas? For effective health promotion public policy must reinforce the ideals.

Together the five levels develop a comprehensive program that not only informs but support health behavior changes. Any level alone may provide good information, but together they blend to promote the best chance for health behavior change. One good example of this is multi-level approach is smoking. The federal government has a minimum age for purchasing cigarettes. Many communities out-laws public smoking. Many businesses do not allow smoking on campus. The family promotes non-smoking and the clients in taught about the health effects of smoking by their primary care provider.

**Weight management and school age children**

The duration of this paper will deal with weight management and school aged children. This group was chosen because health behaviors learned at a young age influence life-long health behaviors (National Association of School Psychologists [NASP], 2003). The obesity rate among school age children has risen at an alarming rate. According to the CDC nearly 18% of all children age 6-11 were obese in 2010 (2013). If a child is overweight it is very likely that they will be an overweight adult (Lee, Ho, & Keung, 2010). Obesity can lead to heart disease, diabetes, and hypertension. In the United States there are 54 million children in school (U. S. Department of Education Institute of Education Sciences, n.d.). If healthy eating behaviors are introduced in the early years of a child’s life the overall health of the child may be positively affected. Reaching children alone is not enough, nor is reaching out to just the families if the community and schools do not reinforce better eating habits and offer health alternatives. School aged children spend eight to nine hours a day at school nine months a year at school. In the 2011-12 school year, 29 million children ate school lunches and about a quarter of these children also eat breakfast at school (Food Research and Action Center, 2013). Children are learning, most live in a family unit, they attend school, the schools are in a community, and public policy affects schools and communities, therefore the SEHPM is an ideal way to examine weight management in school age children. Two examples of successful programs for each level of the SEHPM will be presented along with a brief analysis of the programs.

**Level one intrapersonal**

Haines & Kim (2013) studied at the effects of physical activity on school age children to reduce obesity and one of the negative outcomes of obesity, asthma in their quantitative, non-experimental, nonrandomized longitudinal study. They developed an educational program emphasizing physical activity that they presented to the children and their families during 6 weekly 2 hours sessions. Questionnaires were completed before and after the program to assess physical activity levels. The sample was 10 children 7 to 12 years of age. No theoretical framework was mentioned. The results showed that a program with an emphasis on moderate physical activity can reduce asthma symptoms and may lower the risk of obesity later in life.

Thompson et al., are concerned about the obesity in young African-American girls. They suggested a study protocol looking at the effect of interactive video-game on obesity (2012). The study’s intervention is an eight episode online interactive comic that promoted health diet and physical activity. They based their intervention on the Social Cognitive Theory and the Elaboration Likelihood Model. The study design is a randomized control trial of 390 subjects. The study’s participants will self-report. Based on a pilot study they expect success for their intervention. This is an ongoing study, limiting its interpretation. Another limitation is that it is not known whether the same intervention would be successful in a different cultural population. An intervention of interactive video-game play may have a positive effect on children’s dietary choices.

**Level two interpersonal**

Raynor et al., studied the relationship between the types of food parents eat and the foods their child liked and ate. It was a randomized, but not controlled study (2012). The intervention was two armed. Both arms had eight one-hour family based sessions across six months. One arm focused on increasing physical activity and limiting sweet drinks versus decrease television viewing and increasing low-fat diary drinks. The other arm focused on increasing fruits, vegetables, and low-fat dairy versus decreasing sweet and salty snack food and sweet drinks. The sample was 135 children 4 to 9 years of age with a body mass index (BMI) greater than the 85 percentile were randomly assigned to a group. Both the children and parents completed a Likert scale pre and post intervention. No theoretical foundation was mentioned. The results of the Likert scale showed that parental food choices influenced children food choices therefore positive changes in the parents diet should improve the child’s diet as well. Interestingly, they did not mention which intervention worked better or even if they worked at all. The study’s participants were mostly white middle class persons; it is not known if results generalize to other groups. Promoting better eating habits in parents may have a positive effect on eating habits in children.

 The second interpersonal study done by Hystad, Steinsvekk, Odegard, Wichstrom, & Gudbrandsen (2013) looked at the difference between therapist-led groups and the more cost effective self-help groups to change dietary habits in the long-term for obese children. The intervention one, arm met 10 sessions with a therapist who focused on a different topic each week such as body image and vacations. They also provided a detailed treatment manual focusing on diet and physical activity. The parent-led self-help group also met ten times the first two times with a therapist. The parents talked about their own experiences and knowledge. All the children in both groups also participated in sessions with a clinical dietitian and a physiotherapist. Also, all families attended five individual counseling sessions with a clinical dietitian. The sample was 99 obese children, 47 in the therapist led group. The groups were randomly assigned. No theoretical model was mentioned. The results showed no difference in the two groups. Both groups sustained improved dietary intake 6 to 24 months after the intervention. Limitations were not noted in the study; the researchers did suggest that cost effective methods still needed study. The study does seem to suggest that targeted interventions with parents and children over a 6 to 18 month period improves diets in children.

**Level three the institution/school**

Tsul, Deutsch, Patinella, & Freudenberg (2013) explores how teaching the lowest level food service worker improved the diet of the people they serve. They discuss how a dietitian would plan a menu including French fries, but when the fries were placed on the food line they contained five times their theoretical fat content due to way they were prepared. To overcome this food preparation personnel were trained to prepare healthier food. This was done in the Head Start program in New York City. The workers completed a five-day program. After completing the program they did prepare healthier meals. They suggest that this program could serve as a model to for food worker training.

 The second article, at the institutional level is a systematic review of school-based interventions. In this review Brown & Summerbell (2009) reviewed 38 studies. One in three of the three diet centered, one third of the physical activity, and almost half of the diet and exercise combine studies showed promise. Their conclusion was that a combination of diet and physical active provided at the school level might prevent children, especially girls, form becoming overweight.

**Level four the community**

Dooyema, Belay, Foltz, Williams, & Blanck (2013) recognize that obesity is a serious national problem. This article outline the Childhood Obesity Research Demonstration (CORD) Project a multi-level intervention for the prevention of childhood obesity. They recognize that the community is a very important part of the program. They suggest that the community working together with the schools, primary care providers, and groups like the YMCA can provide an atmosphere for positive changes.

 Wilken et al., (2013) studies the use of the Children’s Healthy Living Program to curve obesity in Alaska, Guam, Hawaii, and other US affiliated Pacific counties. The program is a community-based program that works to train a public health nutrition work force. The program also has a physical activity component at parks, schools, community centers, and churches. The program is an 18-month randomized environmental intervention trial. This is a highly structured program. The paper was written to outline the program and provide a base assessment of the program. The program has many great ideas and the initial results seem promising. The project is not complete yet so the final results are not in. The program’s biggest limitation is funding. Implementing the training for all the people needed would be very costly. The program was set for the Pacific Rim population, however it could be carried out in the other populations.

**Level five public policy**

The first article pertained to patterns that have been recognized that allow researchers to predict whether a piece of legislation dealing with obesity will pass or fail. Eyler, Nguyen, Kong, Yan, & Brownson’s (2012) review focused on which type of obesity related legislation passed and what type of politician voted for the legislation. They completed a review of online legislative databases for all 50 states. They used 1761 bills in their analysis. They found that 475 of the bills were enacted. The bills that passed were twice as likely to deal with physical activity and nutritional content compared with food labeling and soda and snack taxes. They also found that bipartisan sponsorship and term-limits were important to the passage of the bills.

Alderman, Smith, Fried, & Daynard (2007) explains the interaction between laws and their effect on the health of children, for example, the marketing of fast food to young children. They state that personal choice only will not curve the increase in childhood obesity. The researchers assert that legal approaches to the obesity epidemic should consider social epidemiology theories and incorporate public health goals. They feel that too often laws are passed targeting individual behavior without considering the larger community. They also feel that leaders in the fast/junk food industry influence lawmakers for the benefit of the business not the health of the community. The study concludes by stating that while the law has potential to fight childhood obesity, the focus needs to shift from the individual to creating an environment conducive to health through such means as limiting soda and fast food in schools. They feel that if lawmakers continue to work with industry they will continue to fail in producing the results desired.

**Conclusions and recommendations**

The SEHPM can work to bring about health behavior changes. For the model to work many people, private, and public agencies have to work together. The choice for all concerned is how important is the health behavior change. In the case of childhood weight control, the health behavior is important for a healthy work force and health insurance cost in the future. The investment is worth making. Working together an impact is possible. In an ideal example of the five levels interacting; a child is taught the basic food groups, the family’s values cooking at home and using fresh ingredients, the school’s lunches are freshly prepared using child size portions, there are no soda machines in the school, the community has neighborhood gardens and farmers markets, and the public policy does not allow marketing fast-food or junk-food to children.

Childhood obesity is a relatively new problem so new ideas and methods are needed to solve the problem. Using the SEHP model the nation can start working on a solution. The nation needs to commit to change and invest in it.

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