Use of direct and indirect techniques to analyze adherence to obesity management program guidelines – a research proposal

Introduction and Overview

The problem of obesity is a full-blown pandemic which affects all age groups, classes, strata, genders, and is increasingly becoming an uncontrollable problem. According to statistics from the United States, 16 to 33% of children are suffering from obesity. It is the cause for about 300,000 deaths annually and each year, about $100 billion are spent on its management (AACAP, 2011). Data from England shows that before children start school, one-fifth of them are obese and this figure rises to one-third by the time they complete primary school. In the United Kingdom alone, about 70,000 deaths are attributed to obesity annually and the annual cost of its management is £5.1 billion. Around £638 million is spent annually on obesity prevention programs (House of Commons Health Committee, 2015). A survey of the regions of the world most affected with this issue found that the prevalence of obesity in children is below 10% in Africa and Asia and above 20% in the United States and Europe. In Asia, the countries largely affected by this epidemic are China and India (Raj and Kumar, 2010).

According to standard guidelines, when a child's weight is about 10% more than the normal age-recommended weight, he/she is considered obese. Obesity is largely attributed to an unhealthy diet and physical inactivity. Some children may be more vulnerable to quick weight gains and consciously need to maintain a healthier lifestyle. Other possible causes of obesity include a strong family history, certain medications and disorders, mental stress, peer pressure and depression. Chronic obesity usually begins when a child is around 5 years old and needs to be brought under control immediately. If uncontrolled, it might lead to other conditions such as

hypertension, amnesia, diabetes, lower self-esteem, and an increased risk of heart disease (AACAP, 2011).

The two main roots of obesity are poor diet and poor lifestyle. A very important cause of obesity in childhood is increased sugar consumption. This usually occurs in the form of cold drinks, sugar-sweetened drinks, biscuits, pastries, puddings, cereals, preserves, chocolates, fruit juices, and desserts. It is estimated that the current consumption of sugar by children is three times the normal recommended amount. A secondary risk of this high sugar consumption is dental caries and about 28% of children between the ages of 3 to 5 have tooth problems (House of Commons Health Committee, 2015).

A large proportion of children who exercise regularly have a healthy weight. The benefits of physical activity are not limited to overweight people alone; it is highly recommended for people of all age groups. Contrary to expectations, children fall short of meeting the physical activity guidelines more often than adults (House of Commons Health Committee, 2015). Statistics show that obese children often tend to while away their time watching television or using other electronic gadgets rather than playing in the ground. As a result, the calories consumed are not released by the body and accumulate as fat. Other factors such as passive transport facilities rather than cycling or walking and decreased physical activities in the school curriculum also have an effect on the overall daily activities of children (Hills et al., 2011).

In response to the rising concern of widespread obesity among children, a number of initiatives have been taken by governmental and non-governmental organizations all over the world. The main implementation strategies to combat obesity include structured physical activity programs and strict guideline-oriented dietary planning for obese children. Such programs are often tracked closely with the objective of identifying any significant changes in weight with

respect to time and intensity over the course of the program. Data is usually collected by noting down the weight of all participants in a given program before and at regular time points throughout the sessions. This data is tabulated and presented in the form of graphs or charts followed by in-depth statistical analyses (AAHPERD, 2013). Although these type of studies serve to provide useful statistical data, they do not throw light on the personal experiences, opinions and problems faced by the participants during these programs. Hence, this doctoral project aims to provide a personal take on the attitudes of participants and parents towards dietary planning, adherence to diet restrictions and structured physical activity programs.

As obesity is a growing concern and a sensitive topic of discussion for most people, it is important to understand the thought processes of the participants undergoing obesity management programs. The study conducted for this doctoral project will focus on one obesity management initiative which is a structured physical activity session for obese children in collaboration with dietary restrictions. The study will include observation of the class, assessment of nutritional diaries filled out by the participants and their parents, and assessment of questionnaires and interview transcripts obtained at the session. Observation of participants and their parents during the program will help understand their reasons for joining the session and their attitudes towards the objectives of the program. Assessment of nutritional diaries will help understand levels of adherence to dietary restrictions set by the program guidelines and parents' enforcement of these restrictions in their children's diets. It will also aid calculation of the total energy consumed during a day in relation to the energy burned during the physical activity session, which will help parents understand the gap between these two variables and the amount of work that needs to be done to eliminate obesity in their children. After this analysis, different sets of questionnaires will be distributed to the participants and their parents and

personal semi-structured interviews will be conducted to obtain a personal account of tackling obesity and commitment to eliminating this problem.

As most obesity management programs for children are structured according to guidelines set by pioneering health committees around the world, this project will provide data based on the personal thoughts of the participants and their families and any changes they would appreciate in the structure of such programs. It will help healthcare workers understand any problems faced by the participants with the help of which better programs can be undertaken to encourage greater participation and satisfaction levels. This will also be an eye-opener for parents involved in planning meals for their obese children to see if they are doing it right and is it in conjunction with the amount of energy expended in the physical activity program. Children themselves will be able to understand the gap in their food consumption and physical activity and work towards achieving a healthy balance between the two. Health organizations around the world can use the data to customize obesity management programs to better suit the needs of people and elicit active participation to combat obesity in their children.

The data obtained from this doctoral study will provide a platform for other studies which can further look into various segments of the society and the level of similarities in the results. It remains to be seen if the results from this study can be extrapolated to obese children all over the world or if the results vary according to changes in cultural and economic backgrounds. If they do, obesity management programs will have to be re-structured to provide maximum benefit to different segments of the society.

In conclusion, obesity in children is a serious issue which is being addressed in different ways around the world. This section provided a short description of the main objectives of this doctoral project, scope of the study, the methodology that will be involved in collecting

evidence, and its potential implications for the field of healthcare. The next section will focus on the literature pertaining to this issue with regards to problems faced, diverse means of addressing them and their success rates. It will also highlight key persons involved in bringing about a positive change in this field and their approach to this problem.

Literature Review

The ultimate foundation of treatment of any condition lies in its effective prevention, or in other words effective promotion of health. Nola Pender's Health Promotion Model of 2006 focuses on promotion of health as opposed to prevention of disease, which is quite suitable especially for the management of obesity. According to Pender, importance should be given to goal-directed behavior, taking responsibility for one's own health and maintaining fulfilling relationships for a peaceful mind and healthy body (Atanda-lawal, 2012). All the above points seem tailored for obesity management as it requires strong discipline in lifestyle and behaviors and a strong personal initiative to maintain a healthy weight. This model is not specific to any condition; however, its basic principles are ideal for fighting obesity as the promotion of healthy behaviors and habits will eventually lead to a healthy body and mind.

A theory that addresses management of any condition at its core is the Health Belief Model (HBM). This model has been around for quite some time and focuses on individual beliefs and perceptions about their condition and their motivation levels to seek guidance and treatment measures. According to this model, an individual's thinking about the perceived risks of their condition and perceived benefits of treatment measures and initiatives will determine their likelihood of taking strong action to achieve a healthier lifestyle (Glanz, n.d.). As this doctoral project aims to identify and analyze these individual beliefs regarding their children's

obesity, it will provide direction for future strategizing of obesity prevention and management programs with careful consideration of individual preferences.

The theory of planned behavior is another important healthcare theory which is quite suitable for obesity management. It holds that in order to adopt a healthy lifestyle for bringing about a positive change, it is important to have the right intentions to consistently follow good habits. Factors that affect the development of intentions include perceived social norms, degree of perceived control of one's behavior and personal attitude towards this behavior (World Health Organization, 2012). Hence, as this project aims to understand the perceived beliefs and intentions of participants and their parents towards obesity management, it will help guide the structuring of physical activity programs and diet management for elimination of obesity.

Especially in the case of children, there is a lot of bias and discrimination involved in behaviors and attitudes towards obesity. Children as young as 3 to 4 years discriminate between thin and fat people and consider obese people lazy or stupid. This leads to lower self-esteem in obese children which further affects their motivation for obesity management. Bernard Lonergan blames this trend on ignorance; according to him, children are largely unaware or incapable of understanding the diverse mechanisms behind obesity and, in many cases, mimic the attitudes and behaviors of adults around them (Azetsop and Joy, 2011). Hence, one aspect of this doctoral project also comprises of understanding the levels of self-esteem of the young obese participants of the program to identify any deterrents to achieving the maximum benefit from obesity management initiatives.

Initiatives in this direction have largely focused on understanding the underlying personal beliefs and opinions of parents of obese children regarding obesity management in their children. A mixed methods study conducted in Australia to understand the attitudes of parents and

children towards obesity with an aim to tailor social marketing strategies revealed that obesity was not seen as a serious health issue and there is not much an individual can do to prevent or manage it (Olds et al., 2013). These results reveal a serious gap in levels of public knowledge regarding the severity and consequences of obesity. This study was done on a random sample to understand the opinions of the general population rather than those of the obese individuals and did not include a common thread among the participants, such as participants of a prevention or management program.

Another study was conducted in Mississippi to understand the attitudes of parents whose children were participants of an obesity intervention program. This aimed to correlate the underlying knowledge and perceptions of parents of obese children and the successful completion rates of obesity intervention programs. The data from the parents was collected in the form of interview transcripts and analyzed independently by two researchers. Results revealed that most parents were quite motivated to work towards reversing obesity in their children. They also found comfort in the environment where all children were persevering towards a common goal of a healthier lifestyle. However, not all children had complete family support for a group intervention program and often found it difficult to juggle school activities with weight management activities (Moore and Bailey, 2013). This study reveals a strong deciding factor for participation in obesity management programs and will receive emphasis in designing of similar sessions in the future.

All studies conducted so far have focused on collecting data from parents and children in different settings regarding obesity in general and as a growing epidemic. Although there are differences in opinions based on cultural differences and socioeconomic status, the underlying concern about their obese children's weight is a common anxiety among the parents. The main

objectives for these type of studies focus on future strategizing and structuring of programs to elicit better participation and satisfaction levels and successful elimination of obesity in groups of the population. Although this doctoral project has similar aims and objectives, the difference in approach of this study lies in real time tracking of participation and adherence levels of the participants and their parents to physical activity and dietary guidelines laid down in the program manual. This study will help draw a correlation between the attitudes of participants and their parents and their involvement in the activities of the training program. Although different studies conducted so far have focused on these two aspects of obesity management separately, no study has combined these two objectives in an integrated approach to understanding of obesity management. Hence, the uniqueness of this study lies in the fact that it will provide a combined assessment of parental and participant attitudes and their adherence to habits for a healthy lifestyle.

In the context of the theme of this project, a child will refer to any individual between the ages of 3 to 8. A child or adult with a Body Mass Index (BMI) of 30 or more will be considered obese. Added sugars will include any processed food items that are added to food products as a sweetening agent and will not include sugars such as fructose and lactose in naturally occurring food products. Calorie balance will refer to the relationship between the number of calories consumed and the number of calories burned during physical activity and normal physiological processes. Behavior modification will refer to changes in eating habits and choices, physical activity and awareness about obesity and its consequences.

In conclusion, this section provided a review of the current literature with regards to attitudes towards obesity in general and participation in obesity management initiatives. This study will provide a connection between personal opinions of obese individuals about this

condition and how these affect their lifestyle choices. The next section will focus on the methodology that will be adopted in addressing the objectives of this study.

Sources of evidence and methodology

Obesity is a serious cause for concern worldwide, especially now that it is becoming increasingly common in children. Hence, it is important to understand the attitudes and problems of people attending obesity management programs in order to ensure that they are structured to provide the maximum benefit to them. This doctoral project aims to analyze the correlation between participants' and their parents' attitudes towards obesity and related issues and the adherence to the program guidelines to promote a healthier lifestyle.

It is hypothesized that if people in general are unhappy about the program structure, enforcements and schedules, they are less likely to actively participate in its activities. Also, if the perceived risks of obesity and the perceived benefits of obesity management programs are not sufficiently strong to elicit anxiety, people will be less enthusiastic about planning a healthy diet and engaging in healthy physical activities. Hence, it is important to identify the exact notions and perceptions of people and children with regards to their condition in order to effectively plan future education, training and management programs that will help eliminate this epidemic.

The methodology which will be adopted to address this project's objectives will be of two types. One type will be to collect evidence pertaining to the personal opinions and beliefs of participants and parents of an obesity management program and will include questionnaires and semi-structured interviews which will cover aspects such as food choices, exercise regimen and planning of meals as per guidelines. Data obtained by this method will be analyzed in detail and

categorized thematically to better understand people's problems and reasons for passive participation levels. The other type will be to collect data by observation of the physical activity class and analysis of a nutritional diary filled out by the participants. This will help collect evidence such as attendance, punctuality, motivation, enthusiasm, attention to detail, positive and negative behaviors, interaction with other participants, adherence to a planned diet, and discipline and awareness regarding food choices. Data will be tabulated and segregated for individual participants and their answers to questions and actions in the program will be correlated to understand the relationship between their attitudes and their behavioral patterns.

In order to lay a foundation for the objectives of this doctoral project, a concise literature review was performed to understand the type of studies that have been previously done. The database PubMed was used to collect and analyze previously published literature in the field of obesity management in children. The keywords used for this search included 'obesity', 'children', 'management', 'interventions', 'physical activity', and 'diet planning'. Research published during the last 5 years was used for this review and only original articles were selected. Those articles which focused on personal and environmental factors affecting management of obesity in children were included and all other articles were eliminated from the review.

A number of intervention studies and randomized controlled trials were identified to explore the efficacy of obesity management programs in children. Different approaches such as shared care and telehealth models have been probed to understand the outcomes of various approaches (Wake et al., 2013; Shaikh et al., 2011). Trials such as the HopSCOTCH randomized trial are conducted at regular intervals in the field of obesity management in children to collect evidence on the most effective management strategies for this condition (Wake et al., 2013).

Also, these type of management programs only promise a certain amount of weight loss and not complete reversal of obesity due to lack of discipline and adherence to the program guidelines (Muhlig et al., 2013). This review of literature, however, did not cover differences in opinions and/or management efficacy for different sections and sub-sections of the society. It also did not take into consideration the attitudes of practitioners who are consulted in the management of child obesity.

As the present study will address and draw a correlation between two aspects of obesity management, evidence will be gathered in two steps – indirect evidence by means of observation and assessment, and direct evidence by means of interviews and questionnaires. The participants of this study will be recruited from a structured physical activity program for obese children and will include participants and their parents. The child participants will fall in the age range of 3 to 8 years and have a BMI of more than 30. The parents of the child participants will also be recruited from this program and may or may not be obese. Informed consent will be obtained from all parents before involving their children in this study.

The first half of the study will involve observation of all participants in the physical activity class. Before this procedure, a brief informal personal interview will be conducted with each participant and data such as age, BMI, family structure, and number of siblings will be tabulated. During the observation session, aspects that will be assessed include attendance and punctuality, enthusiasm in performance of activities in the class, levels of self-esteem of the children, and attitudes of parents in motivating their children to perform better. Also, structured nutritional diaries will be provided to each parent-child couple and they will be asked to plan four meals a day daily for a week. They will also be required to note down how strictly the plan was followed and if there was any extra consumption of calories between meals. At the end of

the week, the diaries will be collected from all participants and analyzed for adherence to the set dietary guidelines.

In the second half of the study, two different sets of questionnaires will be prepared and distributed to parents and children. The questionnaires will cover aspects such as opinions about the obesity epidemic, perceived risks and consequences, attitudes towards obese individuals, acceptance of their condition, reasons for adherence or non-adherence to the program guidelines regarding physical activity and calorie consumption, any problems faced in attending the program, and any improvements they would like to see in similar programs in the future. Semi-structured personal interviews will also be conducted to assess tone and body language regarding the above aspects. The data obtained in both parts of the study will be analyzed independently and personal conclusions will be noted down in each case. After the entire analysis is complete, conclusions noted down for each participant will be placed together and analyzed for similarity in the responses and action-reaction behaviors.

Ethical clearance for carrying out the project will be obtained from the ethical committee of the university and management board of the physical activity program. Care will be taken to inform all authorities about the need and scope of this project and precautions that will be taken to protect the privacy rights of the participants. An information sheet will be provided to all parent participants at least one week before the study that will explain in detail the aims and objectives of the study and how the results will be used in future healthcare decisions. It will also include in detail confidentiality and privacy protection measures that will be undertaken by the researcher. After giving the participants one week to go through the information sheet and decide if they want to be a part of the study, a consent form will be provided to each participant. All participants interested in taking part in the survey will sign the consent form and return it to the

researcher. Additionally, they will sign another consent form on behalf of their children allowing them to be a part of the study. However, any participant is free to withdraw from the survey at any time without providing any particular reason. In this case, an assurance will be taken from the participant that the subject of the survey and other related information is not revealed to any third party without the consent of the researcher.

All personal information of participants, including their responses, will be maintained strictly confidential. No person except the researcher will have access to these. Each participant will be assigned a number and all responses will be stored with the respective number in the computer to protect their privacy. All risk assessments will be performed in accordance with the university guidelines. Possible concerns of participants include the risk of disclosure of their personal information. All participants will be assured that they are not bound to provide any information that they are not comfortable in providing and may contact the researcher at any time with such issues. Participants also have the liberty to request the withdrawal of any information from the study after the process of data collection has taken place, in which case the participant will no longer be a part of the study. On the same note, all participants will also need to ensure that they do not divulge any sensitive information related to the study.

In conclusion, this doctoral project will address important questions in the field of obesity management in an integrated approach to understand why obese children and individuals do not adhere to recommended obesity management strategies. It will use evidence collection strategies such as observation, meal planning assessment, semi-structured interviews and questionnaires. All data will be analyzed independently and correlated at the end to identify common themes and behaviors that will guide future structuring of obesity management programs.

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