“She is active, eats well – I am not worried”

A Qualitative Study of Parental Challenges to Managing Childhood Weight Based on Online Parenting Discussion Forums

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Abstract

**Aim:** This thesis explores parental challenges to managing childhood weight.

**Relevance:** Childhood overweight and obesity is a global health issue with serious health and societal consequences. Parents play a key role in the prevention and treatment of childhood overweight and obesity. Understanding the challenges parents face can facilitate improved support to them in providing their children an environment that promotes a healthy lifestyle and normal weight status.

**Method:** Data from three online parenting forums (based in Australia, USA, and UK) and posted from 2010-2016 were analyzed using qualitative content analysis.

**Finding:** Three themes were identified. The first theme relates to the challenges in managing childhood weight which were acknowledged by the parents. The second theme relates to parents’ beliefs about childhood overweight and obesity. The third theme relates to the parents’ beliefs about the health consequences of childhood overweight and obesity. The second and third themes were not directly acknowledged by the parents.

**Conclusion:** Parental understanding and perceptions of childhood overweight and obesity and the impact of elevated weight on the child affect parents desire and ability to manage childhood weight. It is important that interventions (at family, community, and health care system levels) to reduce and prevent childhood overweight and obesity are acceptable, effective, and sustainable to the parents. Greater parental understanding of how culture, past experiences and child’s behaviour can obscure detection and hinder actions to prevent childhood overweight and obesity can increase the success of interventions to manage childhood weight.
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**Acronyms**

BMI – Body Mass Index

GP – General Practitioner

ID – Identification

NCMP - National Child Measurement Programme

WHO – World Health Organization
Background

Overview

A rise in childhood obesity in recent decades has led to the World Health Organization (WHO) declaring it to be one of the most serious global health challenges of the 21st century (1). Childhood overweight and obesity is a major societal concern as it affects individual’s health, education and overall quality of life (2). Children who are overweight or obese may suffer from asthma, increased risk of fractures, hypertension, cardiovascular disease, insulin resistance and psychological effects (3). Unless measures are taken in childhood, overweight and obesity continue into adulthood and put affected individuals on a path of developing chronic diseases such as diabetes, heart disease and some cancers (4). Overweight and obesity have further reaching consequences such as decreased educational attainment and quality of life for individuals and increased economic burden at familial and societal levels (4).

WHO defines overweight and obesity as abnormal or excessive fat accumulation that may impair health (3). For children, both age and gender are considered in the definition. Children under five years of age are classified as overweight when their weight-for-height is greater than two standard deviations above the WHO growth standard median and obese when their weight-for-height is greater than three standard deviations above the WHO growth standard median. In children aged 5-19, the Body Mass Index (BMI) tool is used (3). A BMI-for-age greater than one standard deviation above the WHO growth reference median is considered overweight and greater than two standard deviations above the WHO growth reference median is considered obese (3).

Global trends of childhood overweight and obesity

Globally, the number of overweight and obese infants and young children (0 to 5 years of age) has increased from 31 million in 1990 to 42 million in 2015, and if the current trend continues it will reach 70 million by 2025 (5). Figure 1 shows a graph of the increase in the prevalence of childhood obesity in nine countries over the past four decades (6).
Figure 1. Prevalence trends for child overweight and obesity in nine low-income, middle-income and high-income countries from 1972-2012 (6).

Worldwide, the patterns of overweight and obesity vary. In high-income countries the prevalence rates of childhood obesity and overweight are about double that of low- and middle-income countries (7). An example of this trend is illustrated in Figure 2 which depicts the percentage of obesity in boys age 5-17 throughout the world. In actual numbers, almost half of the world’s overweight children under the age of five live in Asia (1). Many low and middle-income countries have a situation, known as the double burden of malnutrition, in which childhood overweight and obesity co-exist with childhood undernutrition (8,9).
Determinants of childhood overweight and obesity

The increase in childhood overweight and obesity is related to changes in the environment in which children are conceived, born and raised (2,4). Changes in the availability, affordability, type and marketing of food, combined with a decrease in physical activity, have contributed to energy imbalances and ultimately excess weight gain in children (2). The increase in childhood overweight and obesity is linked not only with children’s behavior but also with societal and economic development and lack of supportive policies in areas of health, agriculture, transport, urban planning, the environment, food processing, distribution, marketing and education (3,11). Additionally, epigenetic changes have been shown to predispose individuals to obesity (9). Undernutrition in early life (including in utero), overweight mothers and rapid weight gain in early life are factors that predispose children to developing overweight and non-communicable diseases later in life (9). These contributing factors to overweight and obesity in aggregate have been termed obesogenic environment (2).
Socio-economic inequality is a determinant in overweight and obesity which varies globally. In high-income countries those with the greatest social disparity are at the highest risk of obesity (12). In contrast, in low and middle-income countries, childhood overweight and obesity levels are increasing across socio-economic levels (12).

**Attempts to counter childhood obesity trends**

Attempts by governments to halt and reverse the trend of increasing childhood obesity thus far have been unsuccessful related to: lack of consensus on what actions to take, piecemeal policies and lack of accountability of voluntary pledges (2,13). Addressing this complex problem requires a broad approach in which government policies across all sectors consider health and avoiding harmful health impacts, thereby improving population health and health equity (2).

In 2016, the WHO published a commissioned report on childhood obesity with the goal of halting the rise of childhood obesity (4). It calls for governments to take leadership and for all stakeholders to recognize their moral responsibility in acting on behalf of the child to reduce the risk of obesity (2). The report recommends a broad spectrum of activity in the areas of promoting intake of healthy foods, promoting physical activity, preconception and pregnancy care, health, nutrition and physical activity for school age children, and weight management (which involves the treatment of children who are obese) (2).

Without intervention, overweight and obese children are likely to continue to develop into overweight and obese adults and suffer from increased negative health consequences (4). Evidence supports the need for early treatment as weight loss efforts are more effective in childhood than adulthood (14,15). Establishing policies, environments, schools and communities in which health promotion is central supports parents and children in making healthier food and physical activity selections (16).

**Parental role in the prevention and treatment of overweight and obesity**

A key factor in the prevention and treatment of childhood overweight and obesity is the family structure. Parents have a significant impact on the child’s lifestyle behaviors which can increase
or decrease the likelihood of the child becoming overweight or obese (17). Parental factors which influence children’s weight status include; parental knowledge of nutrition, parental influence over food selection, meal structure and home eating patterns, encouragement of physical activity and modeling of a healthy lifestyle (18). Success of weight management programs has been shown to increase when families participate (19).

Parental views of childhood overweight and obesity are influenced by the parent’s social and cultural environment (20). Some cultures consider large body sizes desirable and view overweight as a sign of a strong healthy child and parental competence (17,21,22). In contrast, other cultures stigmatize overweight and blame parents for childhood obesity (23,24). In the latter, the blame and criticism parents feel for their child’s excess weight makes parents reluctant to discuss their children’s weight with others (i.e. seek help) and create an atmosphere which is less conducive to assisting children in maintaining a normal weight (23,25,26). Studies have also revealed gender differences in which mothers are more accepting of higher weights in their adolescent sons than in their daughters (19,27). As well, in today’s environment of high childhood obesity, parental perceptions of a normal child body size can be skewed thus, leading to lack a of recognition of overweight in their children (28).

Parents often fail to recognize that their child is overweight and that their child’s overweight poses a risk to their health (17). Worldwide, mothers have been shown to underestimate the weight of their overweight and obese children (19). Despite having BMI measurements in the overweight and obese range, mothers did not consider their children overweight if they were physically active, had a healthy diet/good appetite, were happy and visually looked healthy (17,21,26). Weight was only considered by mothers to be a concern when it caused social or physical problem such as being teased or having physical limitations related to their weight (17,21).

Studies have found that while mothers can identify causes of childhood overweight, mothers believe that weight is predetermined and nearly impossible to change (21,30). Parents of overweight children expressed beliefs that their children would grow into a normal weight as they became taller, older or more active (17,21).
While mothers have been shown to be able to identify many of the evidence-based strategies for childhood obesity prevention they also express a low ability to help their overweight children lose weight (21,30). Mothers were more confident in their ability to buffer their child from the effects of being teased by bolstering their self-esteem than in their ability to treat obesity (21).

National and community programs such as the National Child Measurement Programme (NCMP) in the United Kingdom (29), have been developed to survey and screen for childhood overweight and obesity using the BMI measurement tool. However, parents often do not view the diagnosis of overweight and obesity by BMI as credible as the assessment does not take into consideration their children’s appearance and lifestyle (26).

Parents are taking initiative to improve their management of childhood weight. Social media is one venue where parents seek and share information about their children’s health with other parents (31). Online forums are an increasingly popular medium for parents to pose parenting questions and receive social and emotional support for parenting issues and have the advantages of being accessible (discussions can occur anytime and from any place) and anonymous, an aspect which is particularly valuable when dealing with sensitive issues such as childhood overweight (31,32).

Efforts to halt the increase in childhood overweight and obesity continue to fall short of the objectives. Success may be achieved by multilevel assessment and interventions directed at the child, the family and the community within an obesogenic model. A clearer understanding of how these factors influence children’s likelihood of developing overweight and obesity will assist to plan and execute effective interventions that will lead to policies/guidelines to prevent and reduce childhood overweight and obesity that are also acceptable to the child, family and community.
**Research question**

What do parents describe as challenges in managing childhood weight?

**Aim**

Using qualitative research methods, the aim of this thesis was to explore parental challenges to managing childhood weight.

Regarding the content of online forums, the data are not directed by a singular question as would be in an interview or survey format. Parents are engaging in an informal discussion involving sharing their practices and giving advice to other parents, as such parents’ motivations and understandings may not be revealed in a straightforward analytical manner.

Observing parents in this natural environment can nevertheless provide further insight into parental beliefs of childhood overweight and obesity. This greater understanding of parental challenges can assist healthcare stakeholders in designing and implementing programs which support parents in their role in the prevention and treatment of childhood obesity.

**Theoretical framework**

The theoretical framework used in this thesis was the socio-ecological obesogenic model developed by Lipek et al. (Figure 3). Lipek’s model depicts the multiple factors which contribute to the child’s weight status. These factors are represented in concentric circles, with the most individualized at the center (e.g. genetics) to the most generalized on the perimeter (e.g. policy). The family factor is very close to the child in this model. In this thesis, I focused on the most influential family factor for the child, which is the parents. The parental role in influencing childhood weight involves providing children’s earliest growth and development environment and influencing children’s development of lifelong health habits. The effectiveness of parental interventions, as guardian to the child, are influenced by the immediate environment (family, socio-economic status and child behavior), regular interactions with the community and societal practices and customs.
**Methodology**

**Study design**

This study followed a qualitative study design to collect and analyze content from online parenting forums. The qualitative nature of the study design provided a unique understanding of parental beliefs of childhood overweight and obesity as the participant discussions were unstructured and therefore free to move in broad directions. The participants were uninfluenced by the direct presence of a health care provider or researcher allowing the true voices and priorities of the participants to be heard.
Study setting

The study setting was three online parenting discussion forums based in three English-speaking countries; Australia, UK, and USA. Three discussion threads (or topics) per forum (for a total of nine discussion threads) were accessed and analyzed.

The selected parenting forums encompass child developmental stages from pre-conception to adolescence, and have a large membership base (minimum of one million members). Online parenting forums which focused exclusively on specific parenting topics (e.g. children with specific medical disorders) were excluded from the study. Forums were also selected based on the ability to access the data as an unregistered guest of the site. Forums which required registration and membership to access the data were excluded from the study as they were perceived to be private and did not therefore meet the criteria for not obtaining informed consent as described in the ethical considerations section of this thesis.

Discussion threads were selected according to three primary criteria: they were posted from 2010 to 2016, they referred to a child’s large body size in the title (e.g. “overweight daughter”, “obese son”, “chubby toddler”) and they contained a minimum of six posts. Once the primary criteria were met, threads were selected if they appeared at the top of the google search list or at the top of the forums site list of the thread topics.

Study population

The study population comprised of 206 English-speaking people mainly originating from Australia, UK, and USA. All participants had access to the internet and were registered members of one of the three online parenting forums selected for study.

The registration process for each forum is free and involves providing name and email address and agreeing to the forum’s mission statement and posting rules. Registration allows participants to enter the forum and post in the online discussions. Posted comments are accompanied by the person’s first name or chosen pseudonym. In two of the three forums, participants could include their location (typically the city in which they live), an avatar (image
beside their name), and a signature (one line at the end of their post describing who they are or a chosen quote). These features served to make the participants more recognizable to the online community.

The study population included participants who self-identified as parents or non-parents and those who did not reveal their parental status. Parental status was revealed through: the content of their posts (e.g. talking about their role as a mother/father/parent), their name or pseudonym (e.g. “momto2”), or their signature (e.g. “Simple-living momma to two great boys”). A total of 149 participants (72%) self-identified as parents. This included 99 mothers, 2 fathers, and 48 parents (either mothers or fathers). Of the remaining participants, 56 (27%) did not reveal their parental status and 1 participant (0.5%) self-identified as a non-parent. Participants who did not reveal their parental status and the non-parent participant were included in the study to maintain continuity of the dialogue.

Children’s gender and age, and the number of children in the families of the self-identified parents were identified from participants posts, pseudonyms and signatures. Sixty-five of the 149 self-identified parents revealed the number of children in their family, this number ranged from one to five. The developmental stages of the children ranged from infants to adolescences, with most children being in the pre-school to school age range. Of the self-identified parents: 43 reported having daughters, 46 reported having sons, 22 reported having both sons and daughters, and 38 did not reveal the gender of their children.

Although the participants came from high-income countries, the individual socioeconomic status and education level was unknown.

Forum 2 was distinct from Forums 1 and 3. Forum 2 participants live mainly in the United Kingdom where a National Child Measurement Programme (NCMP) has been implemented. This programme provides national surveillance and screening of school-aged child BMI measurements and informs parents, via a letter home, when their child falls in the overweight or obese BMI measurement range. Forum 2 parents made frequent references to this programme in their posts.
Table 1. Summary description of online parenting forums including country, year founded, number of members, and vision statement.

<table>
<thead>
<tr>
<th>Forum</th>
<th>Country</th>
<th>Year online discussion forum founded</th>
<th>Number of members</th>
<th>Vision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forum 1</td>
<td>USA</td>
<td>1998</td>
<td>Approx. 3 million</td>
<td>Promote natural family living. Provide parents with information and inspiration to make best choices for their family.</td>
</tr>
<tr>
<td>Forum 2</td>
<td>UK</td>
<td>2000</td>
<td>Over 2 million</td>
<td>Bring parents together, decrease isolation, access support, give mothers a voice.</td>
</tr>
<tr>
<td>Forum 3</td>
<td>Australia</td>
<td>1999</td>
<td>Approx. 1 million</td>
<td>Provide parents friendship, support, and advice throughout the child-rearing years.</td>
</tr>
</tbody>
</table>

Table 2. Summary of thread details including forum origin, dates posted and accessed, number of posts per thread, number of participants per thread, and total number of unique participants by each forum and forum totals.

<table>
<thead>
<tr>
<th>Forum</th>
<th>Thread dates (start to finish)</th>
<th>Date accessed</th>
<th>Number of posts</th>
<th>Number of participants</th>
<th>Total number of unique participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>July 2010 to July 2010</td>
<td>02-05-2017</td>
<td>23</td>
<td>18</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Mar 2012 to Apr 2012</td>
<td>01-23-2017</td>
<td>45</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aug 2014 to Dec 2014</td>
<td>01-23-2017</td>
<td>6</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Repeat participants</td>
<td></td>
<td></td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>June 2011 to June 2011</td>
<td>02-13-2017</td>
<td>21</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jan 2013 to Mar 2013</td>
<td>02-06-2017</td>
<td>69</td>
<td>43</td>
<td></td>
</tr>
<tr>
<td></td>
<td>June 2016 to July 2016</td>
<td>02-14-2017</td>
<td>42</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Repeat participants</td>
<td></td>
<td></td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Feb 2012 to Feb 2012</td>
<td>02-10-2017</td>
<td>10</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aug 2014 to Aug 2014</td>
<td>02-09-2017</td>
<td>44</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aug 2014 to Sept 2014</td>
<td>02-10-2017</td>
<td>83</td>
<td>57</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Repeat participants</td>
<td></td>
<td></td>
<td>(12)</td>
<td>85</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>206</td>
</tr>
</tbody>
</table>
Sample size

The sample size was 343 posts from 206 participants. Posts came from nine threads (or discussion topics) from three online parent discussion forums (three threads per forum). This size was deemed appropriate to capture the variation of the challenges that online, English-speaking parents reported in managing childhood weight.

Data collection method

Secondary data were collected from January to February 2017. The online discussions took place over the years 2010 – 2016. The online parental chat forums have been de-identified to protect participant identity and are referred to as Forum 1, 2 and 3 throughout the thesis.

The research was conducted passively. As an unregistered user of the discussion forums, I could access the contents of the forum but could not post comments or alter the database.

Data from the online discussion forums was cut and pasted into Microsoft Word for Mac (version 15.31) documents and subsequently analyzed.

Data analysis method

At the outset of the analysis process, participants were assigned unique identification (ID) numbers to protect their identity. Participant ID numbers were based on the forum and discussion threads in which they participated as well as the chronological order in which they appeared in the discussion threads.

Each thread was read over several times to increase familiarity and obtain a sense of the whole discussion. Data were analyzed using manifest quantitative content analysis adapted from Graneheim and Lundman (34). Meaning units were identified and coding was done inductively. Coding was driven by the data as opposed to a theory. Inductive coding was chosen as the research sought to explore challenges parents reported as oppose to testing a theory or hypothesis regarding parental beliefs.
Identified meaning units were given codes on the Microsoft Word documents containing the original forum data and transferred to new Microsoft Word documents. The new documents contained the meaning units, the page number where the meaning units could be located on the original document, the assigned codes and the participant ID numbers. The transfer of information was done using a coding macro in Microsoft Word (35). Meaning units and codes were then reviewed and revised and transferred to Microsoft Excel for Mac (version 15.31) spreadsheets where the codes were grouped together, reviewed and revised.

Analyses of the data had two phases. In the first phase 1,021 meaning units were identified and studied to develop and extract themes. The first phase involved coding for both challenges and facilitators that parents reported in the management of childhood weight. The second phase of analysis narrowed the focus to the challenges reported by parents as expressed in the research question. This phase identified 221 meaning units divided into three major themes. Each theme was divided into 2-4 categories and each category was further divided into 0-9 sub-categories. The process can be visualised below.

Text → Meaning unit → Code → Category → Themes → Recode → Category → Sub-category

The code structure that was developed during the second phase of the analyses is provided in the Annex A.

**Ethical considerations**

While online parenting discussion forums were a rich source of qualitative data for studying parental perceptions of childhood overweight and obesity, the use of these forums raised ethical questions pertaining to informed consent and privacy. In determining the need to obtain informed consent for internet based research, the criteria developed in Eysenbach and Till were used (36). These authors discuss the distinction between “public” and “private” online space and suggest that when the online space is considered “private” informed consent is required, whereas when the online space is considered “public”, informed consent is not required. Three measures can be used to estimate the perceived level of privacy. This involves examining: the source of the data, the methods in which the data was collected and used, and the participants
and organizations awareness of the information being used for research (36). According to these criteria, the data from the online parental discussion forums were assessed to come from a “public” space and therefore informed consent was not obtained for the following reasons.

Firstly, the source of the data was in the public domain as the data from all three internet forums could be accessed without registration.

Secondly, the number of real (or assumed) users of the online communities was considered high indicating a perception of the space being “public” as compared to smaller internet communities such as those with a thousand members, which may be considered more private (36). The online forums sampled in this study were well-established, each having had online capabilities for over 15 years and memberships of over one million members. Additionally, each forum had a several simultaneous discussions suggesting an active membership base and thus a perception of being “public”.

Thirdly, the aims, norms, codes and target audience of each forum communicated that forum organizers were aware that the online discussions were accessible to non-members and thus the forums were perceived to be in the public domain (36). While the online discussion forums were aimed at parents, membership was open to anyone and comprised of a wide range of participants. Forum 1 notes in its statement of purpose that forum participants form a diverse community and an aim common to all the forums is to provide a gathering place for reading and discussing broad parenting topics. These factors lead me to conclude that the space was public but also reinforced for me the importance of respecting the privacy of the participants and the confidentiality of the participants’ information as noted in the Helsinki Declaration (37).

Measures to maintain the privacy of the participants and the confidentiality of the participants’ information were taken throughout the researching process and in the written thesis. During the data collection and analysis period, the printed data were kept in a secure location and the research material on the computer was password protected. To ensure privacy in the written thesis the researcher has altered potentially identifying data. The names of the parenting forums and the participant usernames and pseudonyms have been de-identified.
Reflexivity

My professional experiences as a registered nurse in public health and my personal experiences as a mother have influenced my choice of the thesis topic of childhood overweight and obesity. These experiences may have also influenced the process and results of the study. My prior knowledge of the factors contributing to overweight and obesity in children, as well as the challenges of prevention and treatment of this issue, may have caused me to take for granted some of the details expressed by the parents in the online discussion forum. As I have faced similar decisions with regards to raising my own children in an obesogenic environment and am satisfied with the choices I have made, I may bring a bias to agree with and have a greater understanding of the participants whose beliefs are similar to my own, while not fully hearing or understanding the parents whose beliefs differ from my own.

Findings

The study aim was to explore the challenges parents described in managing childhood weight. Challenges took three different forms: those that were directly discussed by the parents, those based on beliefs about the causes and definitions of childhood overweight and obesity, and parental beliefs of the health consequences of overweight and obesity. Three themes, based on these different forms of challenges, were developed through the analysis process. Though the coding was done using manifest meaning units, one manifest and two latent themes were developed.

The first theme that will be discussed is parent-described challenges to managing childhood weight. It is a manifest theme as it was openly acknowledged and discussed by the parents in the online forums and was comprised of four categories.

The subsequent two themes that were developed from the data are latent, meaning that they were not obvious within the online forums and not directly discussed by the parents. They are: parental beliefs about childhood overweight and obesity (comprising of two categories) and parental beliefs of the health consequences of childhood overweight (comprising of two categories).
Theme 1: Parent-described challenges to managing childhood weight

Parents were knowledgeable on the determinants of childhood overweight and obesity and on the actions which they could take to promote normal childhood weight. Parents reported the causes of childhood overweight and obesity to be related to genetics, the type or quantity of food eaten, parenting behavior, lack of activity, increased screen time and stress.

Parents also shared ways in which they could assist their children maintain or attain a healthy weight. These included offering their children a variety of healthy foods, decreasing the amount of processed foods and sugary beverages they served, creating positive food rituals, encouraging children to engage in physical activity, and reducing the time children spent in front of the TV. When compared to documented effective parenting behaviors, the online parents’ demonstrated good knowledge of effective childhood weight management strategies (18). Parents in the online forums were shown to be particularly knowledgeable in the areas of promoting healthy eating habits and encouraging physical activity as indicated by their high level of reporting of these behaviors as beneficial. See Table I in the Annexure for further details.

However, parents also reported barriers which prevented, or made it difficult, for them to fully implement the actions they knew to be beneficial. These barriers were grouped into four areas: Diet, Activity, Time and Stress.

Diet barriers

The most commonly reported challenge in managing childhood weight (as defined by the largest number of coded meaning units) was ensuring that children had what the parents perceived to be a healthy diet. Parents understood that a nutritious diet was important in maintaining a healthy weight but reported many obstacles in achieving their dietary aspirations. The obstacles were specific to the individual families in that not all parents experienced the same challenges. The barriers that parents reported facing were influenced by the children’s character, internal family factors, parental behavior, and factors from outside of the family home.
Parents described the influences of the children’s character and internal family factors as limiting the healthy foods they could provide to their children. The limitations they discussed were having children that were “picky eaters”, having to balance different nutritional needs of family members, and the spoilage of healthy food options, such as fresh produce.

*I hardly buy fruit as it just gets binned as he (son) goes through notions of what kind he likes.* Mother, 2013

Parents discussed their own behavior and past experiences to be challenges to diet and weight management in their children. Parents acknowledged that they were not always the best role models for healthy eating and found it difficult to change their own dietary habits. Lack of nutritional knowledge was another challenge parents described.

The most frequently reported category of diet challenge discussed by parents was their cautiousness in making dietary changes for fear of inducing emotional problems or eating disorders in their children.

*Do not take away her food and leave her hungry all the time, she will remember and she will feel bad about herself.* Parent, 2014

This cautiousness was often related to a parent’s own negative childhood experiences with food.

*I’ve also had (still have) issues with food and I don’t want to project them on my children.* Mother, 2012

Parents described the inability to control the food their children received from outside of the family home. They described their children receiving unhealthy food and unrestricted portions from extended family, the children’s other parent(s) in situations of separation or divorce, at childcare and school, and within the community.
Grandparents spoiling them with treats, school serving rubbish food and sweet puddings every meal, going to friend’s houses for tea and parties (often twice a week for ours at the moment). Parent, 2013

Physical activity barriers
Lack of physical activity was the second most frequently reported category of parental challenges in managing childhood weight. While parents recognized the importance of physical activity in weight management and promoting healthy child development, they also reported a wide range of factors relating to the child, the parents, and the community which inhibited children’s physical activity.

When parents were motivated to ensure their children had obtained what they perceived to be adequate physical activity, they described their children’s resistance to activity related to a lack of interest and being tired. This resistance presented a barrier for parents to achieve the physical activity aspirations they had for their child.

Sometimes my daughter turns them (friend’s invitations to play) down because she would rather watch TV or play on her computer, or play with me. Mother, 2014

Parents described three factors related to their own behavior which hindered their children from engaging in physical activity. Parents restricted children’s activity based on safety concerns (i.e. playing outside unsupervised). Parents preferred their children to engage in quiet activities in which the parents would not be disturbed. Parents acknowledged that they were not always modelling an active lifestyle to their children.

I think it is easier for active people to remain active and be good role models for their children but for people like me, it is a constant struggle between what I should be doing, what I want to do, what I tell my daughter she should be doing etc etc…. Parent, 2013

Parents also described factors outside of the home which created barriers to children’s physical activity. These included negative peer influences, children requiring drives or bussing to school
as schools were situated too far to walk, inclement weather restricting outdoor activity, and a lack of affordable physical activity programs for children.

**Barriers of time**

Lack of time was another challenge reported by parents in relation to managing childhood weight. It often appeared in the discussion in the context of parents’ work situation (i.e. both parents working full-time and working longer hours). Lack of time was described as a challenge in a general sense as it contributed to the parents’ inability to manage their child’s weight and in a specific sense as it affected the parents’ ability to ensure their children engaged in physical activity and maintained a healthy diet.

*I was held up at work and did not have time to make the fabulous dish I had planned.*

Mother, 2013

**Barriers of stress**

Stress was the least frequently reported parental challenge to managing childhood weight. Parents acknowledged stress as a cause of family and childhood weight gain though the details of the body’s stress response (increased cortisol levels causing increased appetite, retention of fat, and diminished will-power to implement healthy lifestyle) was not articulated.

*Last year we all gained weight because of how we reacted to a family member suddenly dying.* Mother, 2013

**Theme 2: Parental beliefs about childhood overweight and obesity**

Parents expressed beliefs about childhood weight which differed from the health care understanding of childhood weight. These beliefs hindered childhood weight management by deprioritizing the importance of maintaining normal weight, and by underemphasizing the parents’ ability to influence their children’s weight. The two categories of beliefs that emerged from the data were: childhood size is predetermined and high childhood weight is not a problem.
Childhood size is predetermined

Many parents expressed that childhood size was predetermined. This belief was articulated in two ways: that children are genetically programmed to be a certain size (from birth through to late childhood/adulthood) and that childhood growth follows a natural course, including periods of high and low weight-for-height ratios, which eventually settles at a normal weight-for-height ratio.

The belief that the genetic code determines child size was evident when parents compared their children within families and with other children in the community. Attributing size to genetics was a way in which parents explained why one child’s (or one family’s children’s) weight status differed from another despite a comparable lifestyle. Encapsulated in this belief was a perception that diet, exercise and other weight management strategies had little effect in altering child weight.

*My kids are 7 and 4. The 7 year old is tall and skinny. The four year old is very solid. Same diet, same exercise. Very different builds.* Parent, 2014

The belief that children grow into their weight was another finding arising from the data. Parents described two patterns in the way their children grew into a normal weight. In the first pattern, young children of a high weight (described by parents as “chunky” or “chubby”), “thin out” as they become older and eventually their height catches up with their weight.

*He was pretty chunky as a kid then hit puberty and shot up so it all kinda evened out.*

Parent, 2013

In the second pattern, children’s growth was described by parents as “uneven” or oscillating between chubby and thin phases throughout their childhood. Children would grow out, gaining waist circumference and body thickness in the time periods outside of a growth spurt and grow taller, gaining height during a growth spurt. Parents believed that high weight was a temporary phase. They advised other concerned parents to be patient and not to worry about their children’s chubby phases. They believed that eventually the child’s weight would stabilize in the normal range.
My daughter plumps up a lot before a growth spurt. I was incredibly worried about it when it first started happening and now I have actually come to expect it, because it is the way her body works. Parent, 2012

**High childhood weight is not a problem**

Parents encouraged each other not to worry about high childhood weight. Their expression that high childhood weight is not a problem ranged from a strong acceptability of high weight including a recognition of its advantages (e.g. in playing rugby), to a belief that it is acceptable as long as it is not associated with other child or parental concerns. The extent of this belief also depended on how the parents viewed the accuracy of the BMI diagnostic tool used to classify children’s weight.

Some parents used general terms to express that high childhood weight was acceptable. This belief was explained on the basis that children weight fall within the entire range of the weight spectrum and children should not need to be “average” weight to be considered normal or be accepted.

*I don’t see anything wrong with being 90%. Someone has to be or it wouldn’t exist.*

Mother, 2012

As parents discussed their situations on the online forum, there was a belief that it was premature to consider childhood weight a problem based on child age, child weight not being high enough, or in the absence of any other health concerns. Parents who commented that a child was too young to worry about weight were referring to children aged 15 months to 9.5 years old, with most children being in the toddler to preschool-age range.

*I wouldn’t worry about it. She is two years old and I personally think watching a VERY young child’s weight is absolutely ridiculous (unless he or she is wayyy overweight or it’s obviously affecting their health).* Mother, 2010

When parents expressed the belief that as child’s weight was not high enough to be considered a problem, they used vague descriptions of what would be acceptable versus unacceptable.
“Slightly bigger” and “only a bit around the middle” were considered acceptable sizes for a child, while sizes beyond that would warrant some attention. Parent also believed that high weight should be considered problematic only if it was associated with signs of parental neglect. This belief was raised in the context of discussion about whether government programs should be involved in informing parents of their children’s high weight.

*I don’t think they (child measurement programme) should comment on a child’s weight unless they see signs of neglect.* Mother, 2016

Parents believe high childhood weight is not a problem when they consider the child’s behaviour and activities to be healthy. When a child had a healthy diet, was active, was sleeping well, and was generally considered healthy and happy, parents were unconcerned about their weight. Not surprisingly, parental responses to childhood weight were emotional. Parents emphasized their feelings that their child was fine and encouraged others to trust their own instincts and not worry about their children’s weight.

*I now have decided to ignore it as my son is a growing lad and until I feel he has a weight problem I am just going to let him be the little boy he is and I don’t feel he eats too much and he is always running about with his friends in the park.* Mother, 2011

The belief that childhood weight is not a problem was also influenced by parental interactions with the health care system. Parents did not believe their child had a weight problem if their child’s weight had not been addressed as a concern by their GP. The absence of GP’s discussions regarding children’s weight assured parents that childhood weight was acceptable.

*I think our son is a bit on the heavy side but the GPs never said anything so I have thought he must be just fine.* Parent, 2014

Another explanation for parents’ belief that childhood weight is not a problem is that they do not accept the medical definition of childhood overweight and obesity using the BMI measurement. There was much discussion regarding child measurement with the BMI measurement tool. Most parents who commented on the BMI measurement tool were
opposed to its use and did not trust a diagnosis based on its results. In the first iteration of coding when both the barriers and facilitators of managing childhood weight were coded, many parents expressed a belief that the BMI measurement was not a good tool for assessing child overweight and obesity while only a few parents expressed a belief that the BMI measurement was a good diagnostic tool. Parents reported many reasons for rejecting the validity the BMI measurement tool including: that it is not accurate for children, it does not take into consideration muscle mass or body type, it does not take into consideration a child’s activity or fitness level, it was not designed for individuals, it does not consider childhood growth patterns (i.e. growth spurts), and it is based on a previous generation of children.

*Some kids are more active than others and BMI doesn’t take any consideration of the child’s build or how muscly they are.* Mother, 2016

The rejection of the BMI diagnosis of overweight or obese leads parents to believe that their child’s weight was not a problem.

There were significant differences between the forums in the strength of the parental belief that BMI was not a good tool diagnosing childhood overweight. Although each forum had some parents expressing the opinion that they did not believe the BMI measurement tool was a valid tool for children (mentioned by a few parents in Forum 1, and many parents in both Forum 2 and 3) the parents from Forum 2 used the most passionate language to describe their opposition to its use. Parents from Forum 2 described the BMI measurement as “utter rubbish”, “blasted thing”, and “seriously flawed”. They also said multiple times that they “hate it” and used exclamation points to emphasize their negative opinions toward it.

*What is classed as over weight. If it’s BMI..sorry...hate the blasted thing.* Mother, 2010

See the Table II in the Annexure for further details on forums differences in parental expressions of opposition to the use of the BMI measurement as a diagnostic tool for measuring overweight and obesity in children.
Theme 3: Parental beliefs of the health consequences of childhood overweight and obesity

The online forums contained limited parental discussion on the well-documented health effects of childhood obesity. When the health effects were discussed, parents’ focus was mainly on two areas: the psychological consequences (i.e. bullying, and poor self-image) and the consequences of overweight and obesity as they affected children other than their own.

See Table III in the Annexure for more details of the parent-reported effects of childhood overweight and obesity and to whom the participants were referring in their posts.

Emphasis on psychological effects of childhood overweight and obesity

When health consequences were discussed, parents emphasized the psychological effects children were experiencing in the present rather than on the physical effects that overweight and obese children may be experiencing now or in the future. The identified short-term, psychological effects were poor self-image and being bullied.

*She was 7 and upset with her weight, being bullied due to it and wearing clothes for 10+. It broke our heart to see a child already battling with self-image.* Mother, 2016

When the long-term consequences were reported, parents used vague and non-specific language. Only once did a parent identify specific long-term consequences (diabetes and joint problems) associated with being overweight or obese. The other parental reports described future health problems in non-specific terms such as “lifetime battle with weight” and shorter life span.

*He’ll never live long if he doesn’t fight the flab.* Mother, 2013

Effects of overweight and obesity are distanced from parents own child/children

When the health effects of childhood overweight and obesity were discussed, parent’s comments tended to distance these effects from their own child/children. Only one parent referred to the consequences of overweight and obesity in her own child.
Our GP thinks it will be a lifelong battle for her though. Mother, 2014

All other parental reports referred to the health effects of childhood overweight and obesity as they related to the general population or to children other than the posting parent’s own.

Today on the way to school I noticed a lot of kids heading towards the junior playground were overweight if not obese and I felt just awful for them and what they might be going through i.e. bullying, name calling, etc. Mother, 2013

This distancing effect was not notable in parental discussion on other areas related to childhood overweight and obesity. In contrast, parents openly discussed other their own children’s weight status, growth patterns, diet and physical activity patterns.

Discussion

Main findings

The study found that parents’ desire and ability to manage childhood weight are affected by both their general understanding of childhood overweight/obesity, and their specific understanding of the consequences of overweight/obesity on the child. The qualitative assessment of three online parenting forums revealed the differing parenting experiences that affected parental perception of childhood overweight and obesity but led to a similar stance in coping and managing childhood overweight and obesity in a passive “watchful waiting mechanism”. In some cases, parents projected the cause and responsibility of childhood overweight to factors beyond their control including genetics, working full time, the child’s character and GP assessment. Additionally, parents set the threshold of taking actions to when the child was symptomatic with physical or psychological problems.

Though the findings were captured passively and with limited in-depth exploration and triangulation, they are sufficient to conclude that parents are key players in ensuring that interventions (at family/community/health care system levels) to reduce and prevent overweight/obesity are acceptable, effective and sustainable. Thus, healthy lifestyle changes
are difficult to make and sustain unless the parents understand clearly how culture, past experiences and child’s behavior can obscure detection and hinder prevention of childhood overweight and obesity.

**Interpretation of the findings**

The thesis research listened to the voices of parents where they described the challenges they faced in managing childhood weight in the online forums. Seven factors that impacted the parents’ role in childhood weight management were identified: parental beliefs, parents’ past experiences, parents’ lifestyle, child behavior, family, community, and the health care system. To interpret the findings, I have developed a socio-ecological obesogenic model which parallels the model developed by Lipek (Figure 3). Where Lipek’s model depicts the child at the center with multiple factors influencing his/her weight status, the model I have developed (Figure 4) depicts the parent at the center with their role in managing childhood weight being influenced by multiple factors. These factors are represented in concentric circles with the factors that are most intrinsic to the parent (e.g. beliefs) or are more frequently encountered by the parent (e.g. child behavior) closest to the parent and the factors which are more extrinsic to the parent (e.g. health care system) or are less frequently encountered by the parent (e.g. community) further from the parent. The influencing factors have also been divided into those which the parents directly discussed and recognized as having an influence on their childhood weight management (on the right side of the model) and those which the parents indirectly discussed and may not be fully recognizing the influence they have on their childhood weight management (on the left side of the model).
Figure 4. Socio-ecological model depicting the multiple factors influencing parents in their role of managing childhood weight.

Each of these factors will be described below beginning with the factors depicted closest to the parent and concluding with the factors depicted furthest from the parent as seen in Figure 4.

**Beliefs**

Beliefs held by parents’ impact their management of childhood weight and include: the belief that child size is predetermined, the belief that high childhood weight is not a problem, and the beliefs parents hold regarding the health consequences of childhood overweight and obesity.

Parents expressed a belief that childhood size is predetermined by hereditary factors. This belief appears to reduce parents’ motivation to adopt a healthy lifestyle as they believe these actions to manage childhood weight will not yield results. Similarly, other studies have found that parents perceived their children’s weight to be nearly impossible to lower, as weight was attributable to inherited metabolism and body type (21). This belief appears to be based on an incomplete understanding of the role of genetics in the development of childhood obesity. As portrayed in the socio-ecological obesogenic model (Figure 3), the development of childhood
obesity is related to many more factors than just genetics (33). The relationship between genes and lifestyle on body size are intertwined. Epigenetic processes can modify gene function in many areas including: the number of fat cells that develop, control of appetite, food preferences, metabolism, fat deposition, and insulin secretion and sensitivity (4). Parental efforts to facilitate young children’s development of positive lifestyle habits such as healthy diet, physical activity, adequate sleep, and low stress assist in reducing their genetic vulnerability to becoming obese (18).

Parents expressed a belief that high childhood weight is not a problem. When discussing children’s weight, parents expressed that elevated weight in absence of other concerns (e.g. bullying or physical limitations) was acceptable. They did not articulate the point at which a child’s weight status would become a concern. This lack of recognition of overweight and obesity as a health concern is well documented in the literature. Multiple studies show that parents underestimate the weight of their overweight and obese children; when overweight is recognized by parents, parents do not view it as a problem as they are satisfied with their child’s lifestyle and overall health (19,23,38). When parents do not recognize overweight or do not believe high weight is a problem, the motivation to make healthy lifestyle changes to manage or reduce weight is diminished.

Parents also expressed a belief that they could defer weight management action. In this study, parents communicated that children were either too young, or their weight was not high enough, to be concerned about at the present time. Studies have identified that child age and weight are factors associated with poor maternal perception of overweight (19). Since weight loss interventions are more effective earlier in childhood, deferral of action can result in parents’ later management of childhood weight being less successful (14).

When parents discussed the health consequences of childhood overweight and obesity, their focus was on the short-term, psychological effects (e.g. bullying and poor self-image) as opposed to the long-term physical health consequences (e.g. diabetes and heart disease). Additionally, when they referred to the consequences of overweight and obesity in children, parents spoke in generalized terms of the consequences impact on children other than their
own. This was a phenomenon not seen in other areas of parents’ discussion where the parents’ spoke in individualized terms and openly discussed their own children’s size and behaviours. While the psychological effects are a valid and appropriately important consideration for parents, the lack of discussion on the equally important physical effects could hinder parents in their present role of managing childhood weight. Studies have shown parents’ desire to prevent future chronic disease in their overweight children can be a motivating factor in making lifestyle changes in the present (39).

The limited parental discussion on the long-term physical health effects of childhood overweight and obesity has several possible explanations. One explanation may be related to the parents’ belief that they are powerless to change their overweight child’s situation. Rather than act in an area they believe will not effect change, parents may instead take actions which are believed to be effective, such as in buffering their children from the effects of being teased and bolstering their self-esteem (21). Parents’ discussions of the effects of childhood overweight and obesity as they relate to children other than own children may be a defense mechanism of avoidance, as parents may find it emotionally difficult to consider the future health problems of their children. As parents have been shown to be knowledgeable on the physical health risks of overweight and obesity, their failure to recognize overweight and obesity in their own children may leads them to believe the known physical consequences of overweight and obesity are not relevant to their child. The failure of parents to recognize or address overweight and obesity in their own children may decrease their motivation to make healthy lifestyle changes (40).

**Past experiences**

The parents’ own childhood experiences with diet and weight management influence their parenting role in childhood weight management. Parent-reported childhood experiences were mainly related to diet and included: being fed too much foods, having food restricted (which led to binging behavior), and feeling family pressure to be thin. Parents desired to protect their children from the emotional and eating problems they had as a child, and as such, were reluctant to discuss weight issues with their children or restrict their children’s diet. The desire
to protect their children emotionally may have the unintended effect of hindering parental actions that support children in establishing healthy lifestyle changes and maintaining a normal weight. Previous studies of parental perceptions in childhood obesity found parents to be reluctant to address overweight for fear of adversely affecting their child’s self-esteem or inducing eating disorders (41,42). Parents, who themselves had excess weight, emphasized that they did not want their children to experience the same difficulties that they had experienced in childhood (41). Though the parents’ weight status in this thesis is unknown, we can hypothesize that many of the online parents in this study had excess body weight as they referred to their past and present issues with diet and body image in their discussions. Additionally, as parental overweight is a strong determinant of high child weight, it is probable that many parents participating in online forum discussions on childhood overweight and obesity have high weight themselves (43). Other studies have concluded that parents’ past experiences with diet and weight management represented both a barrier to, and a motivation for, managing their children’s weight problem (41).

**Lifestyle**

Parents recognized that the lifestyle choices they made for themselves and for their family impacted their children’s development of healthy lifestyle habits. Though parents desired a healthy lifestyle for their families, they described barriers to reaching their goals in the areas of diet, physical activity and time.

Parents articulated that they were role models for their children. Parents also indicated that at times they were poor role models in areas of diet and exercise as they did not always have a healthy diet or engage in physical activity to the extent in which they desired their children to do.

Another lifestyle challenge that parents reported was lack of time which restricted parents’ ability to provide the nutritious meals and physical activity opportunities for their children. This lack of time was usually discussed in the context of the parents’ long working hours. The lifestyle choice factor concurs with other studies that have found that parents believe being a positive role model and eating and exercising as a family have a good influence on weight-
related behaviors, but that these actions were not always possible because of a perceived lack of time (42).

**Child behavior**

When parents desired a healthy lifestyle for their family they reported that the behavior of their children presented a challenge in meeting their aspirations to manage overweight and obesity. These challenges were reported in two areas: diet and exercise. Parents reported that children’s like of unhealthy foods and dislike of healthy foods prevented them from providing their children the diet the parents desired. Parents in the study reluctantly provided unhealthy foods for their children as they feared the alternative was that their children would not eat anything. In the area of physical activity, children’s preference for sedentary activity and their reports of being too tired to engage in physical activity prevented parents from ensuring their children received what they felt was adequate physical activity. Parents expressed sympathy for their children’s fatigue after what they felt was a long school day; consequently, parents did not insist their children engage in physical activity. Previous studies have found similar child-related factors to be associated with overweight and obesity (42).

**Family**

Factors arising from both the parent’s immediate and extended family influenced parents’ management of childhood overweight and obesity. In the immediate family, parents described balancing the different nutritional needs of siblings and parents as being a challenge in meeting their individual child’s nutritional needs. Parents felt conflicted when the other parent (mainly described as the Father) brought unhealthy food into the house. Studies have explained this type of conflict as resulting in compromised lifestyle behaviors as parents prioritize keeping the peace within the family relationships (42). The extended family, specifically the grandparents, were often described as undermining the child weight management priorities of the parents. The grandparents were reported as giving the children unhealthy food and unrestricted portions. Previous studies have also recognized the role grandparents play in undermining parents’ efforts to make lifestyle changes and have recommended that their role be acknowledged and that they be involved in the planning of health promotion strategies (41,42).
Community
Community factors influenced parents’ role in the management of childhood weight in the areas of diet and exercise. Similar to the parents’ challenges with their extended families, parents reported being unable to control the food their children received at school, daycares and friends’ houses. Children’s physical activity levels were impacted by the location of the schools (with some children being unable to bike or walk to school), lack of accessible and affordable physical activities for children and negative peer influences. Safety concerns were also cited as limiting physical activity, as some parents reported feeling uncomfortable allowing children to play outside unsupervised. Previous studies concur with the community factors identified in the thesis and report the high cost of healthy food and media and marketing influences to be additional community barriers to healthy weight-related behavior reported by parents (38,42).

The unique design of this study enabled internet forums to be identified as a community factor which influenced the parents in their role of managing childhood weight. Online support has been shown to provide parents with significant support, additional parenting strategies and information clarification (31). While this positive support was observed, in this study, interactions which may hinder parents from taking actions in managing their children’s weight were also observed. For example, when a parent posted that their child had been identified as being overweight other forum participants responded with messages that the child would be fine and not to worry. These responses may give false assurances that their child’s weight is not a problem and could lead to no lifestyle changes being made for parents whose children are overweight or at-risk of being overweight.

Health care system
The health care system was found to influence the parents’ role in managing childhood weight. The influences of the health care system were evident in the different ways in which parents and health care providers identified childhood overweight and obesity and in the ways that they communicated with each other.
As documented in other studies, parents in this study did not accept a diagnosis of overweight and obesity in children based on the BMI measurement tool used by health care providers (17, 21, 23, 26). Many parents stated that it was an invalid tool for diagnosing overweight and obesity in children as it did not consider children’s activity levels, body shape or growth patterns. The parental rejection of the BMI diagnostic tool can lead to breakdown in the communication between the parents and the healthcare provider and subsequently lead to delayed, or even no actions taken to manage childhood weight.

The parental rejection of the BMI measurement tool to diagnose childhood overweight and obesity leads parents to decide for themselves the point at which they consider their children’s weight a concern, an approach which was very subjective and qualitative (i.e. “a little bit of a tummy is okay”). As seen in the literature, without the use of a diagnostic tool that is analytical and quantitative, parents underestimate overweight and obesity in their children (19). This has the consequence of deferring action in making lifestyle changes.

Another health care system influence on the parent was the reluctance of the parents and health care professional to discuss weight issues. Despite the easy availability of tools to diagnose childhood overweight and obesity, parents in this study appear to rely on their GPs to initiate discussion on weight and to diagnose their child’s overweight. Parents assumed their child was not overweight if the GP had not initiated discussion on the child’s weight status. Studies have shown both parents and health care professionals find it difficult to raise the issue of childhood obesity with each other. Parents fear being blamed for their child’s overweight and are concerned that being labelled overweight could affect their child’s mental well-being (24). Physicians are reluctant to discuss childhood overweight with parents related to their own low self-efficacy, insufficient communication skills, and apprehension of parents’ denial and resistance towards discussing weight issues (41, 44). These communication difficulties can lead to delays in children receiving weight management interventions.

The influence of childhood overweight and obesity surveillance and screening programs, such as the UK’s NCMP in Forum 2, were also evident in the study. The strong negative reactions parents reported regarding the news that their children were overweight or obese appears to
relate not only to the information itself, but also to the method of delivery of this sensitive health information. This is an area that has been explored by previous studies. Parents have reported that receiving the letter informing them that their child was overweight felt like a criticism of their parenting skills and made suggestions to improve the communication of this sensitive information by including a clearer explanation of how to interpret BMI data and more individually tailored information (26). The negative parental reaction to the delivery of the information may decrease trust in the patient-health care professional relationship, leading to parental reluctance to plan weight loss interventions for their children with health care professionals.

This thesis identified seven factors which influenced the parents’ role in childhood weight management. These factors may not be a complete list of all the influencing factors but are the ones that were discussed by the online parents in this study. These influencing factors had been identified in previous studies. Frequently seen in the literature were the factors that directly impacted the parents’ ability to provide their children with a healthy diet and ensure their children received adequate physical activity. The thesis finding that parents believe childhood weight is not a problem aligns with previous studies showing parents to both underestimate their child’s overweight and distrust the BMI measurement tool diagnoses of childhood overweight. There was minimal literature on the finding regarding parental emphasis on psychological rather than physical consequences of childhood overweight and obesity. As a result, the understanding of this factor is limited.

The theoretical model divides the influencing factors into those which parents overtly recognized as having an influence on their role in childhood weight management (lifestyle, child behavior, community and family) and those factors which the parents discussed but did not recognize the full impact they had on their role in childhood weight management (parental beliefs, past experiences, and health care system). The recognized factors were straightforward and tended to be amenable to practical intervention. These included child behavior (e.g. having a child who is a picky eater) or lifestyle factors such as parents who model sedentary activity. The fact that parents could identify these factors as a challenge also indicates parents can
identify the solutions, be it information, support, or strategy, to reach the desired diet and physical activity aspirations they have for their children. The ability to identify solutions then brings parents closer to receiving the support or taking the actions needed to improve their management of childhood weight.

The factors which parents discussed but did not recognize the full extent of their impact, pose a greater challenge to the long-term management of childhood weight. These factors were beliefs, past experiences, and health care system. These factors challenged the parents’ management of childhood weight by decreasing their recognition and acceptance of overweight and obesity in their children. Consequently, parents do not fully consider the long-term impact of overweight and obesity, and are reluctant to discuss weight concerns and/or implement lifestyle changes. Parents’ motivation to implement lifestyle changes is reduced when they do not recognize their child’s weight as a problem, do not consider the long-term consequences of childhood overweight and obesity and are reluctant to address their children’s overweight. The effect of delaying actions (until the child’s weight becomes a recognized problem by the parent) creates a larger challenge for the child in the future when weight loss interventions will be more difficult and less effective (14).

**Methodological considerations**

Data collection from online communities allowed for easy access of data from three countries and involved no financial costs or inconveniences to the participants. There were also benefits to the type of data collected by this method. The parental discussions were uninfluenced by the direct presence of a researcher (free from observational bias). There was a high degree of anonymity within the online community allowing participants to speak freely about their feelings and problems (45). Additionally, within the online forums there was no selection bias of participants as all participants of the discussion threads were included in the study.

Credibility and confirmability of the research findings were strengthened by capturing the authentic interaction of the parents in the online forum. While the online forum is similar to focus group discussions, it can additionally provide understanding of how parents think and
interact in the community in everyday life. Credibility was further enhanced through the feedback from supervising lecturers and critical friends which was incorporated throughout the research process and lead to a more comprehensive study.

The data from all forums were collected and analyzed an identical manner which increased the dependability of the study. Though collected passively, the analysis process allowed new insights to emerge from the data. Keeping a reflective journal assisted in preventing my own beliefs and bias’s from influencing the thesis findings.

Transferability was facilitated by giving a clear description of the study setting, study population, data collection method and analysis method. Transferability was increased by having a large sample size (343 posts from 206 participants) representing three countries.

The inability to perform purposeful sampling limited the diversity of participant’s background characteristics thus restricting the varying opinions of parents with different experiences. This created a limitation to the credibility of the results.

Data collection from the online forums had limitations as compared to that of collecting data from face-to-face focus groups. The absence of non-verbal cues meant that some information could not be conveyed and there was an inability to clarify unclear messages which may have led to the misinterpretation of some messages. Additionally, the method of data collection was observational, resulting in the research question being explored passively and indirectly. Data were limited to what parents voluntarily said and data pertaining to the research question had to be extracted from parents’ informal conversations.

Collecting data from online parenting discussions may have presented a sample bias. Participants may have had an above-average interest and knowledge of childhood overweight and obesity as they participated voluntarily in the forums. There may have been an absence of parents with normal weight children as these parents may be less inclined to seek out childhood weight management discussion in online forums. Additionally, as the data came from the internet, participants would have tended to be well educated, literate, and skilled users of the computer (46).
Despite the limitations, the data from the online forum provided a greater understanding of complexity of the challenges that parents face in managing childhood overweight and obesity. The unique insight from parents’ natural dialogue with their peers on this topic was also helpful in gaining understanding of the aspects of childhood overweight and obesity that are most important to them.

**Conclusion**

This study found that parental understanding and perception of childhood overweight and obesity and the impact of elevated weight on the child affect parental desire and ability to monitor and control children’s weight. Parents have a significant role to play in the management of childhood weight; therefore, improved parental support in this area can assist in achieving the goal of normal weight outcomes for children.

The factors influencing parents in managing childhood weight can be classified into two broad categories: those factors recognized by parents and those factors unrecognized by parents. Depending on the type of challenges parents face, the interventions required to support parents differ.

The factors that parents readily identified and discussed as influencing child lifestyle (e.g. challenges of diet and physical exercise) are amenable to practical interventions and may respond well to programs and policies which reinforce parents’ existing health-promoting activities.

The factors parents identified but did not recognize as influencing child weight, including the beliefs which obscure detection and hinder prevention of childhood overweight and obesity, require more than the reinforcement of positive behavior. Parents need first to clearly understand how their social and cultural environments and past experiences influence their beliefs about childhood overweight and obesity and lead to delays or inactions in childhood weight management. Parental understanding of these barriers can increase parents’ awareness of the importance of and motivation for making healthy lifestyle changes. Specifically, this thesis points to further exploring interventions in two areas; achieving earlier parental
recognition and acceptance of childhood overweight and increasing parents’ consideration of the physical consequences of childhood overweight and obesity. Additionally, this thesis suggests that it is important that interventions (at family/community/health care system levels) to reduce and prevent overweight/obesity are acceptable, effective and sustainable to the parents. The development of policies and guidelines to assist all levels of influence in creating an environment which supports healthy lifestyle development will facilitate a reduction in childhood overweight and obesity.
References


Annexure

Annex A: Code structure

1. Parent-reported barriers to managing childhood weight

(a) Diet
- Child is a picky eater
- Different nutrition needs within the family
- Lack of control of food from outside the home
- Parental fear of causing emotional/eating disorders
- Parents model unhealthy food habits
- Fresh food spoils
- Mindless eating
- Parental lack of nutrition knowledge

(b) Lack of activity
- Child is tired
- Parents model unhealthy activity habits
- Children must take bus or get drive to school
- Lack of interest in activity
- Negative peer influence
- Parent restricts child’s activity due to safety issues
- Weather restricts activity
- Lack of resources/activity programs are unavailable or expensive
- Parents restrict child’s activity to have peace

(c) Lack of time
- Limits activity/Limits healthy eating/Unexplained

(d) Stress
- Stress causes weight gain

2. Parental beliefs about childhood overweight and obesity

(a) Childhood weight is predetermined
- Children grow into their weight
- Genetics determines child size

(b) High childhood weight is not a problem
- High weight is acceptable
- Diagnosis (BMI) not valid for children
- Child is too young to be concerned about weight
- GP has not addressed child’s weight so it must not be a problem
- Parent is not concerned based on feelings/instinct
• Parent is not concerned as diet and activity levels are acceptable
• Parent is not concerned as child is happy and healthy
• Weight is only an issue if associated with signs of neglect
• High weight has advantages
• Weight is not high enough to be concerned

3. Parental beliefs about the health consequences of childhood overweight and obesity

(a) Emphasis on psychological effects of childhood overweight and obesity

(b) Effects of overweight and obesity are distanced from parents own child/children
Annex B: Data summary tables

Table I. Parental knowledge of healthy parenting behavior compared with study review: The role of parents in preventing childhood obesity.

<table>
<thead>
<tr>
<th>Helpful parenting behavior described in study by Lindsay et al. (18)</th>
<th>Frequency reported in online parenting forum (High, Medium, Low, Not Present)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offer a variety of healthy foods to children</td>
<td>High</td>
</tr>
<tr>
<td>Do not impose stringent controls on food</td>
<td>High</td>
</tr>
<tr>
<td>Offer foods in positive context</td>
<td>High</td>
</tr>
<tr>
<td>Reduce availability of sugar-sweetened beverages</td>
<td>High</td>
</tr>
<tr>
<td>Increase number of family meals eaten together</td>
<td>Medium</td>
</tr>
<tr>
<td>Model healthful eating habits</td>
<td>Medium</td>
</tr>
<tr>
<td>Encourage outdoor play in young children</td>
<td>High</td>
</tr>
<tr>
<td>Encourage and support older children in being more active (incl. planning, watching, playing with child)</td>
<td>High</td>
</tr>
<tr>
<td>Model active lifestyle</td>
<td>Medium</td>
</tr>
<tr>
<td>Limit TV and video viewing</td>
<td>Medium</td>
</tr>
<tr>
<td>Limit physical access to TV (i.e. not in child’s bedroom)</td>
<td>Not present</td>
</tr>
<tr>
<td>Limit own TV watching and sedentary behaviour</td>
<td>Low</td>
</tr>
</tbody>
</table>

Table II. Forum differences in parental expressions of opposition to the use of the BMI for diagnosing overweight and obesity in children.

<table>
<thead>
<tr>
<th>Description of BMI</th>
<th>Forum 1</th>
<th>Forum 2</th>
<th>Forum 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of verb “hate”</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Use of strong nouns (deeply inaccurate, seriously flawed, blasted thing, utter rubbish)</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>All-caps font (used for emphasis)</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Exclamation points</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1</strong></td>
<td><strong>9</strong></td>
<td><strong>2</strong></td>
</tr>
</tbody>
</table>
Table III. Reported effects of childhood overweight and obesity in Forums 2 and 3, and to whom the participants were referring in their posts (Forum 1 had a complete absence of discussion on effects).

<table>
<thead>
<tr>
<th>Reported Effects of Overweight and Obesity</th>
<th>Referring to:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Own Child</td>
<td>*Step-child</td>
<td>Child other than one’s own</td>
</tr>
<tr>
<td>Physical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific long-term effects (diabetes, joint problems, etc.)</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Non-specified long-term effects</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Shorter life expectancy</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Poor self-image</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychological</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short-term</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bullying, name-calling</td>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

* Parents of step-children were placed in their own category due to the nature of them self-identifying as step-parents. They described their relationship as one which does not have the same level of influence in their children's diet and activity level as they were not living full-time their children.