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Family members' experiences with adult participation in weight management programs: Triadic perspectives from patients, partners and children

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Summary

Objective: Spouses are known to influence the outcomes of an individual's attempt at weight loss, but little is known about the broader influence of, and on, the family. The objectives were to explore: (a) the effects of an adult weight management program on the family and (b) family factors that help or hinder patient weight loss.

Methods: A qualitative design was employed to explore triadic family members' experiences of patient participation in a weight management program. Semi-structured interviews were conducted with patients, partners and children (ages 7–18). Questions included support for patient participation and weight loss, dietary choices, meal preparation, physical activity routines, the home-food environment, communication about health and family dynamics. Thematic analysis was used, where codes and categories of codes were then grouped together to create themes and subthemes.

Results: Nineteen triadic interviews were conducted (57 total). Seven themes emerged, including four related to Outcomes (objective 1): (a) shift in family dynamics, (b) family behaviour change, (c) child observations of family change, (d) indirect benefit to partner; and three related to Process

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AUTHOR CONTRIBUTIONS

J.A.S. and K.P. conceived and conducted the research, analysed the data, interpreted the data, and was involved in writing the manuscript and had final approval of the submitted and published versions. H.H. and S.B.M. conducted the research, collected and managed the data and participated in analysing the data. K.H.L. and C.L.B. participated in conceiving the research and organizing the data collection, interpreting the data, and were involved in outlining and writing the manuscript. C.A.A. was involved in managing and analysing the data, interpreting the data, and in outlining and writing the manuscript.

CONFLICT OF INTEREST

No conflict of interest was declared.

(objective 2): (e) level of accountability, (f) patient perception of support and (g) support is essential and flexible.

Conclusions: Future research and clinical applications from these themes should seek to determine the positive behaviour change that was evident in the families that were interviewed, where the culmination of family interactions, expectations and concurrent partner weight loss indicates the potential longevity of weight management programs beyond patients' own participation.

Keywords

bariatric; family; qualitative; weight management

1 | INTRODUCTION

Medical weight management options range from individualized lifestyle plans to weight loss medications and bariatric surgery. Unfortunately, the majority of adults who lose weight in these programs regain over the long-term.[1,2] One way clinicians and researchers have sought to improve the amount and durability of weight loss is by considering the role that the family has in long-term behaviour change for weight loss.[3] For example, the influence of the spouse or partner (referred to as partner herein) on a patient's health behaviours and weight status is well established.[4–9] Patient participation in weight management programs can elicit a positive spillover on their partners' health behaviours and weight status,[10–12] and patients' weight loss has been show to improve with the support of partners.[13] Unfortunately, the converse is also true: patients' weight loss can be sabotaged by an unsupportive partner.[14] Further, patients who are in positive romantic relationships and undergo bariatric surgery achieve more weight loss than those patients in negative relationships.[15] Although there is evidence about the positive effect of romantic relationships for patient weight loss, there is still a void in information about how the partners experience patient engagement in weight management and surgery programs.

Much less is known about the role that children play in their parents' or caregivers' weight loss attempts.[16] There is some research to indicate that parental weight loss efforts has negative consequences for children, such as the development of disordered eating behaviours,[17,18] as well as child weight loss efforts influencing parental weight.[19–21] Specifically, parental discussion about weight status, their own or their adolescent's, may increase the risk of developing eating disorders.[22] Parent and child weight status tends to be positively correlated,[23,24] with preliminary work suggesting potential spillover benefits of parental weight loss to their children with overweight or obesity.[20,25] However, it is currently unknown how parental weight loss in weight management and surgery programs is experienced by children in the home.

Given the bidirectional influences on weight loss between romantic partners, parents and children,[19–21] viewing patients in the context of their family is a logical paradigm shift. Family Systems Theory (FST)[26–28] provides a framework for understanding patients in the context of their families, and how existing family dynamics influence health behaviour change, and ultimately weight loss.[3] FST provides a lens to see the interconnected

elements of a family, with members functioning independently and together, all the while interacting with their environment. Membership in a family is determined by the family itself, and can be quite diverse, including or excluding extended family members, blended families and close friends. Relationships within the family system can also be complicated, with subsystems existing between parent-parent, parent-child and sibling-sibling. While families strive to maintain stability, or equilibrium, change is inevitable given the changing environment. Pertinent to weight loss and behaviour change, that change is impacted by the different system levels within a family: first-order change pertains to simple responses to environmental input, such as a person waking earlier in the morning in order to exercise; a higher- or second-order change involves "deeper" interactional changes—gaining assistance from a family member in preparing dinner and getting children to bed so they can also go to sleep earlier. FST provides a more complex and nuanced view of the family that can better inform interventions to improve health behaviours of individuals within the context of the family.

FST has been proposed to guide paediatric weight management interventions, where family-based treatment is the gold standard,[29] and in couples-based interventions in weight loss surgery.[15,30,31] From a practical standpoint, interventions can be more cost- and time-efficient if multiple family members can benefit from the participation of a single adult or parent, similar to parent-only interventions in paediatric weight management.[32,33] In adults, Gorin and others[34] have investigated the support provided by partners on adult weight loss,[10,35] and have an on-going trial to intervene on the weight of couples.[36] These studies detected a positive effect on an untreated partner from adults pursuing weight loss,[10,37] and how these relationships can improve weight loss outcomes.[35,38,39] Some effect has also been seen in children of adults who have undergone weight loss surgery.[34,40] However, little is known about how patient participation in weight management programs affects multiple family members, or subsystems in a family (ie, parent-child, romantic partner). Such information could better inform future family-based research and clinical interventions that extend the health benefits of weight management to the *entire* family system.

The overall objective of this study was to qualitatively explore the relationship of the family system to the processes and outcomes of an adult weight management program; specifically, we aimed to explore: (a) the effects of an adult weight management program on the family (outcome); and (b) family factors that help or hinder patient weight loss (process). Specifically, this study employed triadic interviews with patients, their romantic partners and child (ages 7–18) living in the same home in an effort to understand the experience of patient behavioural change and weight loss on family system (and vice-versa).

2 | MATERIALS AND METHODS

This study utilized a qualitative design to explore triadic (patient, romantic partner, child) family members' experiences when one parent/partner engages in a weight management or bariatric surgery program.[41,42] Semi-structured interviews were separately conducted with the patient, their partner and child to determine each family members' experiences and explore differences and commonalities between responses. In line with Family Systems

Theory, it was important to obtain perspectives from different members of the family, not just parent-child or spouse-spouse dyads.

2.1 | Participants and enrolment

Patients were recruited for interviews from a larger quantitative Institutional Review Board (IRB) approved study[16] taking place at an academic weight management centre in the southeastern US. Patients included in the larger study were required to be participating in either a medical weight management program or pursuing weight loss surgery, English reading and speaking, have no known medical conditions that would prevent them from participating in weight management activities, ≥18 years-old, have a romantic partner ≥18 years-old and a child 2 to 18 years-old living in the home with them at least 4 days per week. Patients were in various stages of the multi-disciplinary medical weight management program, from first-time attempts at the comprehensive nutrition and exercise program to repeat program enrolment to enrolment as part of presurgical evaluation before being a surgical candidate. Patients were eligible if they previously had bariatric surgery. Additional inclusion and exclusion criteria and procedures are published elsewhere.[16] For the interviews, the study recruited participants with a child 7 to 18 years old to participate.

If patients had more than one eligible child in the home, the youngest child was requested to participate. Previous knowledge from the larger quantitative study showed that many of the parents reported having older children (adolescents), and there was a concern of the population skewing older.[16] To ensure a diverse representation of ages, when more than one child was in the household, the younger child in the household was asked to participate. Verbal patient and partner consent and parental permission was obtained prior to the interview, and child verbal assent was provided. This study purposely included patients participating in both medical weight management and weight loss surgery to reflect the most commonly used treatment options available.[43]

2.2 | Procedures

Participants were recruited from May to November 2017 prior to their clinical appointments in the centre waiting room. If patients met inclusion criteria for the larger study, indicated interest, and gave verbal consent, the research team then requested permission to contact their partner and child. All consecutive patient who participated in the larger study (N = 150) and met inclusion criteria for this study was asked if they would like to participate in a one-time interview. A member of the research team then contacted the family by telephone to arrange a time to conduct the interview in person or by phone with each individual member of the family. The research team planned to enrol until we reached a sample size of 20 families, or until saturation was reached.

2.3 | Measures

Qualitative interview guides were developed to explore patients', partners' and children's perceptions of support and engagement around patient participation in weight management, including weight loss, dietary choices, meal preparation, physical activity routines, the home-food environment, communication about health and existing family dynamics. Table 1 displays the interview guides that were developed for patients, partners and children.

The question stems for each topic of interest were developed jointly by the team, based on their professional background (paediatric weight management, adult weight management and bariatric surgery, public health, and couple and family therapy), clinical experience and existing evidence in the literature. From these stems, pilot questions were developed by senior team members (KJP, JAS), then reviewed and modified by the rest of the research team. The interview guides were then reviewed by the team as a whole for face validity, and further modified as the team determined necessary. The guides were then tested for comprehension and clarity via cognitive interviews[44,45] with volunteers external to the study and clinicians working in two separate adult weight management and bariatric surgery centres. Research staffs (SBM, HH) were trained by a senior investigator (JAS) to conduct the semi-structured interviews. Interviews were conducted to gather more details on topics, further clarify statements in an unobtrusive manner and allow new areas of inquiry to emerge.[46]

The interviews lasted 30 minutes or less for each patients and partners, and 15 to 20 minutes for children. Patient interviews took place in a private location within the weight management program, or by telephone, per their preference. Interviews with partners and children were conducted by telephone. This allowed for greater flexibility in scheduling, and were more convenient for partners and children, where they could participate from home or a location of their choosing. While in-person interviews allow for rapport building and awareness of non-verbal cues, telephone interviewing, in addition to the convenience, can strengthen the participants' feelings of confidentiality, lessen pressure and build feelings of control for the participant, and allow them to speak on sensitive subjects with a greater feeling of anonymity, and is gaining acceptance as being as powerful as in-person interviews.[47–50] The interviewer received assurance they were in a private location and could speak freely. Interviews were digitally recorded and transcribed verbatim into Microsoft Word (Microsoft Corporation, Redmond, WA).

2.4 | Analysis

Interviews were analysed using thematic analysis. First, a systematic schema was established for data analysis, similar to previous research by the study team.[51–54] Three investigators (CAA, SBM, JAS) independently reviewed a transcript each from a patient, partner and child participant several times, inductively developing codes representing the key ideas expressed by the participant. Initially, there were no limitations on the number of codes that could be assigned to a response, but were capturing initial impressions of the interview. Investigators assigned these initial codes to phrases, sentences, or groups of sentences that formed an idea or represented meaning within the text, regardless of the question asked; depending on the participant or response, this varied from line-by-line coding to a single code for an entire response. Two investigators (CAA, SBM) then met and reviewed the transcripts together, comparing and contrasting codes for each participant response, meeting with a third investigator (JAS) to develop an initial set of codes. An additional three interviews were then reviewed using the initial set of codes, and then reviewed as a team, with the codes modified by consensus, resulting in a common codebook for analysis. Two investigators (CAA, SBM) separately read and re-read the transcripts, regularly refining the codebook as needed with the third investigator (JAS), using repeated

comparisons and revisions. All transcripts were then analysed and coded by investigators (CAA, SBM), with the freedom to refine or modify the common codebook as needed; discrepancies and changes in coding schema were adjudicated through the triangulation verification strategy[55] with a senior investigator (JAS).

Thematic analysis[56] was then used for further interpretation of codes and transcripts, which is helpful for exploring and interpreting implicit and hidden meanings in text. This analytic approach allows the investigators to identify recurring ideas and themes within the text, and capture important meaning relevant to the over-arching research questions.[57] From the existing codes, categories of codes were then grouped together to represent similar ideas and concepts across interviews. These categories were then used to create themes, which were developed and refined, as interpreted by the research team, with sub-themes added when appropriate for clarification and illumination. Significant, representative quotes were captured to illustrate themes and sub-themes. The entire process included ongoing comparisons, revisions and interpretations as the analysis progressed.

Investigators planned to conduct interviews with up to 20 families, with preliminary analysis beginning after 10 families completed the interviews. After 10 families had been interviewed, it was determined saturation had not been reached, as new information was still being generated. An additional 10 interviews were scheduled, and it was determined after a total of 15 family interviews that saturation had been reached. Four of the remaining five scheduled family interviews were completed; one family later elected to not participate. A total of 19 families participated in interviews.

3 | RESULTS

Nineteen triadic (patient, partner, child) family interviews were completed. One partner's interview was not recorded due to mishap in equipment, and therefore was not transcribed, coded or included in the analysis; thus a total of 57 interviews were conducted, but only 56 (19 patient, 18 partner and 19 child) interviews were transcribed and coded. Patients in the sample primarily identified as White (n = 13, 68%) and Female (n = 18, 95%). Weight loss approaches were: six liquid meal replacement, five pre/post-surgery (gastric bypass, vertical sleeve, duodenal switch), four weight management/maintenance, three behavioural/medical and one individual/unspecified plan.

The majority of romantic partners identified as male (n = 17, 95%) and almost half of children (n = 8, 42%). All patients (n = 19 100%), the majority of their partners (n = 13, 72%) and all child respondents (n = 19, 100%) reported having overweight or obesity. Additional patient, partner and child demographics are provided in Table 2.

3.1 | Themes

The overall objective of this study was to qualitatively explore the relationship of the family system to the processes and outcomes of an adult weight management program; specifically, the researchers aimed to explore: (a) the effects of an adult weight management program on the family (outcome); and (b) family factors that help or hinder patient weight loss (process). Seven themes with sub-themes were identified from the interviews under these

two objectives (Table 3). The seven major themes were (a) shift in family dynamics, (b) family behaviour change, (c) child observations of family change, (d) indirect benefit to partner, (e) level of accountability, (f) patient perception of support and (g) support is essential and flexible.

Each theme definition, description and example illustrative quotations are provided below. In terms of outcomes (objective 1), the following four themes were identified:

3.1.1 | Shift in family dynamics—Family dynamics were perceived to shift because of the patients' involvement in weight management. These dynamics appeared to benefit patients, whose mindset towards weight loss influenced new roles in the family. Patients felt they prioritized the mental and physical health of their partner and children, fulfilling the role of "healthy lifestyle encourager". For example, a patient said "I told [my family] not to look at it like a diet; it's a revised meal plan, a change in lifestyle, and it's eating healthier, making better choices" (Participant 3). Patients also reported engaging the family in activities not centred on food, representing a switch in family bonding and associations with other activities apart from eating.

Most families also perceived dynamic shifts that improved their relationships. Romantic and parent-child relationships were believed to have improved in families, reportedly due to increased communication, quality time and physical activity taking place between family members. Partners frequently commented on some change in family dynamics secondary to patients' involvement. For example, one partner stated: "It's helped our family dynamic to meal plan better, not eat out as much, and eat more at home" (Spouse 146). Partners noted that family dynamics improved as the program prompted communication between patients and partners. For example, patients noted how they discussed surgery options with their partner, which opened communication between the couple about uncomfortable and previously avoided topics (eg, weight, health, discontent with current lifestyle). Lastly, family dynamics reportedly changed around meals, mindsets and future goal planning due to the extension of the patients' changes spreading throughout the family.

3.1.2 | Family behaviour change—Patients' weight loss seemed to spark positive improvements among partners and children. Nearly all partner and child interviews noted that since the program encouraged the patients' own physical activity, the whole family became more active together. Children perceived this meant they could spend more time with their parent engaging in activities that the parent previously was averse to because of weight-related limitations. One child commented on finding new activities she enjoyed with the patient, only made possible once her father lost weight and was able to ambulate: "I like [my dad doing the program] because he's getting to do more stuff with me" (Child 25). Patients also spent more time with their partners and children on other program-specific aspects, such as food label checking and grocery shopping.

Patients also noted discussing nutritional and lifestyle topics they had learned in the program with the family. One patient remarked: "I felt if anything [my family] would benefit from [the weight management program] because the information I could bring home and hopefully rope [my family] in, but also just me being healthier and being

happier" (participant 3). These changes, prompted largely by information from the program, improved overall communication between family members.

3.1.3 | Child observations of family change—Regardless of whether patients reported talking about their involvement and/or success in their program with their child, children noticed changes. Many patients reported consciously avoiding conversations about their program for fear of encouraging their child to have unhealthy relationships with food or body image. Children reported what they observed occurring in the family, and offered their own perspective. They noticed individual changes in the patient, including their mood, self-control, physical weight loss and activity level. Children also noticed household changes, such as having different foods in the house and decreased frequency in eating out. Most children were extremely proud of the patient's weight loss and their self-improvements. For example, one child said: "But now [my mom] asks more, [my mom] seems more interested in talking more. [My mom]'s like a whole new mom" (Child 146).

3.1.4 | Indirect benefit to partner—The effect of the patients' involvement in the program most commonly was perceived as a convenient lifestyle change on behalf of the partner, who reportedly also lost weight and noted their change as a side effect of the weight management program. When referring to the program's drawbacks, a few partners cited how expensive the program was, and how it negatively impacted family finances. Regardless of sex, partners occasionally mentioned positive changes in the physical appearance of patients as they lost weight, and resultant improvements in physical intimacy. One spouse noted: "I love how [my husband]'s lost weight and how [my husband]'s changed. [My husband]'s so much healthier and more handsome now," (Spouse 25) while another mentioned: "It's been a total 180 as far as our marriage is concerned and I love it" (Spouse 81). The few partners who discussed the physical aspects of weight loss did so repeatedly and passionately.

For partners who made changes with patients, two ideas emerged that facilitated support and participation: (a) a fear of being the remaining overweight or parent/partner with obesity and (b) the ease or simplicity of eating the same food as the patient. For example, one partner reported: "I said I would do whatever [the patient] wanted to do because it would be easier for both of us to be on the same thing" (Spouse 79) or "I think I need to lose some weight, I'm not happy with it. So this program is actually going to help both of us" (Spouse 106).

In terms of family factors that affect patient weight loss, the following three themes were identified as related to the process of the participant's weight management journey (objective 2):

3.1.5 | Level of accountability—Patients endorsed multiple new types of accountability as a result of their involvement in the weight management or weight loss surgery program. Many patients commented on their new accountability by being a positive example of health and lifestyle change for their child. Patients commonly noted how they consciously avoid discussing weight with their children because they desire to destigmatize weight and prevent future disordered eating behaviours in their children. Patients also frequently remarked feeling responsible for ensuring their children do not "miss out" on typical aspects of childhood and adolescence revolving around food and lifestyle. This was

perceived to cause periodic tension, because allowing their children to have “treats” caused discomfort for many patients that did not have a simple solution to their child's request. In this case, patients upheld their own dietary practices and compromised on the meal or snack desired by the child. This dissonance was infrequently noted in interviews, but patients reported that they retained flexibility and understanding of the differing dietary priorities between them and their child.

Patient accountability to their partner was reported to be associated with better program adherence. For example, one patient said: “I would recommend doing it together because then you can hold each other accountable” (Participant 41). Patients' accountability to themselves was a pervasive sub-theme, where patients cited an intense fear of failure, with worries about continued weight loss and maintaining their end goal weight. One patient remarked: “That was the biggest concern for me; could I have enough self-control to help myself?” (Participant 81). Much of this anxiety manifested in families where the cost aspects of the program placed a strain on family finances. Both patients and partners feared a poor return on investment. Participant accountability to the program appeared to serve as a way to anchor the participant to the program, provide support, and keep them on track, even if they lacked support in other areas of their life. For example, one patient believed this worry was tied to a “personal level because I failed, but the amount of money [my husband and I] put into the program” (Participant 50) was significant, signifying the gravity of the financial investment and accountability to the program.

3.1.6 | Patient perception of support—All patients perceived family support to be essential, while partners rarely acknowledged its integral role in patients' success. The family overall, in this case partners and children, did not recognize their potential to be influential supporters for patients. Most partners did not see how they needed to be emotionally and physically present to help patients. Children did not discuss or mention the need to support the patient in their weight loss.

When patients did not perceive that their partner provided support, patients reacted strongly and intensely. In the occasional instance where a partner was perceived to be sabotaging the patient's weight loss efforts (eg, requesting unhealthy food to be kept in the house, verbal comments disapproving of the program due to its high cost), it was a major disruption and discouragement to the patient's weight loss efforts. Patients strongly expressed a desire for support, and commonly recognized internal motivation for program adherence. One patient stated:

> “Do it even if your spouse is not supportive. […] there's a whole host of reasons, but you get one body, you get one life. You want to be around for your kids. And I think people in regards to marriage have to remember that you are a unique individual. You are not just the sum of your relationship, so you have to do what's right for you” (Participant 79).

Many patients reported prior experience with partners not supporting their weight loss efforts, which seemed to spur comments about how essential it is to have a supportive partner.

3.1.7 | Support is essential and flexible—Patients reported feeling different kinds of support, and described the qualities inherent for it to be effective. They noted key ways that their partner supported them, commonly identifying categories of support and associating emotion with each category. Patients verbally outlined the kind of support they would like and require, regardless of the type of support their partners provided. Most patients stated that they wanted a partner who could be fully "on board" with their weight loss journey; the majority felt it was easier to adhere to their program if their partner understood the importance of being involved and understood the process. Interestingly, the language patients used when answering this question was oftentimes more passionate. For example, one patient reported:

> "You need to make sure the person that you're either married [to] or involved with loves you truly for who you are and they're willing to make the change because when you have surgery, there's going to be a lot of changes in your life and [your partner] need[s] to be willing to go through those with you, or you need to kick them out the door" (Participant 79).

This type of response was common in patient interviews, where patients acknowledged that support at home was essential, because support via their weight management program was more infrequent and only took place during clinic visits. When a partner was not initially meeting their support expectations, patients commented on the evolving nature of their partner's support with gratitude, noting optimistically that it could evolve over time.

A few partners also commented on their conscious effort to improve their involvement in weight loss efforts, although this was not the norm; a few were intentional in the ways they provided support (eg, grocery shopping, eating the food the participant cooks at family meal times, going to the gym together, spending time outside together and changing activities from food to other non-food alternatives). Patients rarely noted that support was not congruent between their partner and child(ren): partner was supportive and child was not, and vice-versa. In one interview, where support was not congruent between the partner and child, the patient noted that it was difficult to cater to her resistant child but was appreciative of her partner's support. Eventually, this led the family to initiate change that involved the child: "[My child's food] initially stayed the same. Now I'm talking about putting the whole house on the diet" (Participant 26).

4 | DISCUSSION

This study provides insight into the experiences of the family system when an adult parent/partner engages in weight management. Obtaining triadic perspectives moves beyond linear cause-and-effect relationships between romantic partners *or* parents and children to exploring the effects on and experiences of the *entire* family system of adults engaged in weight management and weight loss surgery. Several of the themes reflect family functionality that can impact patients' long term adherence to a weight loss program, such as shifting family dynamics, accountability to and from family members and qualities of support within the family. Further, participants perceived positive changes within the family, including improved communication and dynamics, and the spread of behaviour changes to other family members in the home. Surprisingly, partners and children failed to recognize

their own potential in supporting the patient. Every child noted some form of change in the patient or the family dynamic, ranging from small comments about new groceries to viewing the patient as a “brand new” parental figure. Promising applications of these findings stem from the positive effect that was evident in the families that were interviewed, where the culmination of family interactions, expectations and concurrent partner weight loss illustrate the potential longevity of weight management programs beyond patients' own participation.

These narratives support the known importance of support by friends and family,[16,31] although it is unique in including the perspective of children in the household. Improving partner and/or child awareness of their own potential to provide support to patients could be an important area of focus in future adult weight management interventions. Another valued perception is improved family dynamics, which may be an unanticipated “side effect” of adult weight management and surgery programs. This is important given the link found in the accompanying quantitative cross-sectional study of perceived family dynamics and child weight status, where patients who had children with overweight/obesity reported more impaired family functioning than those patients whose children were healthy weight.[16] Children mentioned how much they enjoy spending time together with their family, particularly engaging in new physical activities. This complements a previous finding in a qualitative study of children participating in a paediatric weight management program[51]; children noted enjoying activities that involved the whole family and time spent together, which was a major point of program satisfaction. This finding could indicate a way to increase support for patients in adult weight management and surgery programs by designing interventions that include family activities to facilitate positive interactions and support for the adult pursuing weight loss.

Another area of exploration in this study was identifying potential family-based targets to enhance adult weight management programs and promote patient success. Adult weight management programs may be able to institute family-based approaches that are complimentary to strategies embraced by paediatric weight management programs, in order for patients to change their home environments, modify parenting approaches to feeding and activity and support change within the entire household. Patients in this study indicated that family support was important to their success in their weight management and surgery programs. Feasible ways of augmenting such support may include facilitating explicit attempts to guide partners and children in supporting the patient by providing concrete approaches. Patients could also be taught appropriate approaches to discussing change with their family. For example, healthcare providers are advised to use sensitive, developmentally appropriate language in addressing children's weight that has a measurable positive effect on subsequent child weight loss[58,59]; this could be taught to patients and their partners as well. Notably, all children interviewed self-reported being overweight or with obesity (Table 2) and the majority of parents commented they were aware their children were uncomfortable in their bodies due to their excess weight. Patients and partners overwhelmingly acknowledged the necessity of making permanent lifestyle changes to model healthier living and improve daily family life through removing their physical barriers that prohibited them being a fully engaged parent. In this way, a family-centred weight management program would also benefit children and help combat ever-rising childhood obesity rates. Potential concrete ways for partners to effectively support the

patient include: engaging in conversations around patient learnings and applications from their weight management and surgery programs, encouraging and participating with patients in physical activities, partaking in program-approved meal preparations and dining together and suggesting alternative family-based activities not revolving around food (ie, visiting a park or recreation centre).

The spillover effect on the partner presents other exciting possibilities to positively impact the family system. The majority of family triads noted positive changes within the home as a result of the patients' participation in weight management and surgery programs. Mirroring the parent as an exclusive agent of change in paediatric weight management,[32,60,61] participating patients in adult programs could be equipped to be the agent of change in their families and bring lifestyle changes into the home. Surprisingly, many patients were aware of potential negative effects on their children, and were careful in discussing their weight loss, although they all noted excitement about teaching the family what they learned in their programs. This may potentially set up a conflict for patients, where they want to discuss what they learned in their programs, but are not sure how to do so without negatively affecting their children. This concern is noted in expert clinical reports about development of disordered eating by the American Academy of Pediatrics.[17] The effects of adult weight management programs could potentially extend to children via their parents' participation, which in return could better support parents' own weight loss efforts through increased support. It is highly possible that other comprehensive and family-based approaches with a highly motivated adult patient could have similar effects and promote healthy behaviour changes and weight loss among multiple members in the family system.

Family Systems Theory provides a framework to address systemic family behaviour change and weight loss.[3] Therefore, improving family dynamics prior to an adult initiating weight management programs or in conjunction with their program participation might enhance outcomes.[7] Potential areas to assess include screening for relationship challenges within the family to identify potential for lack of partner support or risk of partner sabotage, and screening for disordered eating or depression that would be barriers to effective support and longevity of instituted healthy lifestyle changes. As suggested by Pratt in youth,[3] screening for potential issues that impact treatment could occur with normal patient and family evaluation at the onset of treatment; subsequent treatment pathways can then be determined, either addressing complicating factors before treatment (disordered eating, depression, family dysfunction) or concomitantly (family systems-informed weight management). More research is needed in this area to determine optimal screening and treatment approaches.

There are limitations to this study. Qualitative investigation does not always provide generalizable results, and further quantitative assessment is often needed. However, in the context of our exploratory objective, this study design is adequate to assess the experiences of triadic family members' perceptions of patient participation in weight management and surgery through the lens of Family Systems theory. Rigour was maintained through the analysis through the use of coding numerous (56 total) interviews, and through the achievement of saturation after 15 triadic interviews. This study was based on one weight management program, which is not representative of all weight management programs undertaken by adults. Study participants came from a somewhat homogenous population,

further limiting the generalizability of results and transferability to other adult patient populations. Additionally, it is possible that by including only patients' romantic partners and a child between the ages of 7 to 18 that other important family members' perspectives were omitted. Lastly, this study was not designed to pick up inherent differences between weight management and surgery treatment approaches. We examined broad approaches; results may differ between bariatric surgery, behavioural weight management or medication-only approaches.

Further assessment and potential inclusion of the family system in adult weight management programs has potential to both improve outcomes for adult patients pursuing weight loss, and safely improve the health of family members in the home. Improving the health of an entire family with a single intervention increases the overall reach of weight management programs, and potentially decreases costs of individually focused treatment. With over 200 000 individuals undergoing bariatric surgery in 2017, the public health significance of safely and effectively helping those families with behaviour change is significant.[62] Patients in this study recognized the need for support in their weight loss, and embraced their role in improving the health habits of their partners and children. Partners and children recognized that changes were occurring within the family and the home, but did not observe their role in supporting patients with change, although they approved of the changes that were occurring. Further assessment of the dynamics of families with an adult pursing weight management will provide additional avenues for the development of family-based obesity prevention and weight management interventions.

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What is already known about this subject

- Support is important for adults pursuing weight loss.
- Children can benefit from their parents attending weight management programs, but there is the potential of harm as well.
- Family Systems Theory can provide a means to understand how a parent attending a weight management program can affect the family, and how the family can affect their weight loss.

What this study adds

- Family support of the patient pursuing weight loss is important, but complex.
- Partners and children do not recognize how they can be of support to the patient.
- Family members recognize changes occurring within the family system from a parent attending a weight management program.

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TABLE 1

Interview guides for patients, children and partners

Subject	Questions
Patient	1. First: what program(s) are you attending at WFBH WMC (behavioural, liquid meal replacement, maintenance, surgery)?
	2. How long have you been coming to WFBH/How long have you been a patient of WFBH?
	3. Now I would like to ask questions about your family, including your partner/spouse and child. Can you tell me who lives in your home with you?
	4. How has your family (significant other and child) been helpful or supportive to you while you are trying to lose weight?
	5. In what ways has your family (significant other and child) not been helpful for supportive?
	6. What kind of conversations did you have with your partner/spouse about coming to the WMC/having surgery?
	7. How did you talk with your child about coming to the WMC/having surgery? How did you explain it to them?
	8. Have you noticed any changes in how your family eats since you started the WMC?
	9. Have you noticed any changes in how you talk about food with your family?
	10. Have you noticed any changes in what kind of food and drinks you have in your home?
	11. Have you noticed any changes in your child's physical activity since you started the WMC?
	12. Have you noticed any changes in your partner's physical activity since you started with the WMC?
	13. What about any physical activity changes that you have seen among the entire family?
	14. What do you think about your child's weight status?
	15. What do you think about your partner's weight?
	16. What worries you about losing weight with the WMC program/having surgery and your family?
	17. What was the most difficult part of [the surgery]/[weight loss] process for your family?
	18. What has been difficult about losing weight and being a parent?
	19. What has been the most difficult part about losing weight and being married/in a relationship?
	20. How has your relationship with your child changed since starting program?
	21. How has your relationship with your partner/spouse changed since starting program?
	22. If someone asked your advice about being a parent going through [surgery] [weight loss], what would you tell them?
	23. If someone asked your advice about going through WMC program/surgery and being in a romantic relationship, what would you tell them?
	24. What was the most difficult part of [the surgery]/[weight loss] process for your family?
Child	1. What did your mother/father/parent tell you about the surgery/weight loss program?
	2. In your own words, tell me about how your mother/father/parent is losing weight or trying to be healthier.
	3. What do you think about him/her doing this program?
	4. How has your mother/father/parent changed since starting the XXX program?
	5. Have you noticed any changes in how your family eats since your mother/father/parent started the WMC?

Subject	Questions
	6. Have you noticed any changes in how your mother/father/parent talks about food?
	7. Have you noticed any changes in your physical activity since your mother/father/parent started the WMC?
	8. Have you noticed any changes in your parent's physical activity since they started the WMC?
	9. What do you think about your weight?
	10. What has changed in your home since they started the program?
	11. How has your relationship with your mother/father/parent changed since they started XXX/had surgery?
	12. What has changed in your family since your mother/father/parent since they started XXX/had surgery?
	13. Have you tried to help your mother/father/parent with losing weight? Eating healthier? Exercising?
	14. How have you changed since your mother/father/parents started losing weight?
	15. Have you noticed any changes in what you and your parent(s) like to do together?
Partner	1. What did your partner/spouse tell you about the surgery/weight loss program?
	2. In your own words, tell me about how your partner/spouse is losing weight or trying to be healthier.
	3. What do you think about him/her doing this program?
	4. Are you participating with them in any aspects of the program?
	5. How has your partner/spouse changed since starting the XXX program?
	6. Have you noticed any changes in how your family eats since your partner/spouse started the WMC?
	7. Have you noticed any changes in your partner/spouse talks about food?
	8. Have you noticed any changes in your partner/spouse's physical activity since they started the WMC?
	9. Have you noticed any changes in your physical activity since your partner/spouse started the WMC?
	10. What do you think about your weight?
	11. What has changed in your home since they started the program?
	12. How has your relationship with your partner/spouse changed since they started XXX/had surgery?
	13. What has changed in your family since your partner/spouse started XXX/had surgery?
	14. Have you tried to help or support your partner/spouse with losing weight? Eating healthier? Exercising?
	15. How have you changed since your partner/spouse started losing weight?
	16. Have you noticed any changes in what you and your partner/spouse like to do together?
	17. Have you noticed any changes in your children? Tell me more about that.

TABLE 2

Characteristics of patients, children and partners

	Patients (N = 19)	Children (N = 19)	Partners (N = 18)
Age in years, mean, range	42 (±5.1), 34–52	9.3 (±4.4), 2–17	44 (±5.7), 36–53
Self-report overweight or obese weight status	19 (100%)	19 (100%)	13 (72%)
Female	18 (95%)	11 (58%)	1 (5%)
Race/ethnicity			
Non-Latino/White	13 (68%)		
African-American	4 (21%)		
Multi-racial	1 (5%)		
Latino/a	1 (5%)		
Highest educational attainment			
Attended or completed college	18 (95%)		
Weight loss approach			
Liquid meal replacement	6 (32%)		
Bariatric surgery	5 (26%)		
Weight management maintenance	4 (21%)		
Behavioural/medical management	3 (16%)		
Individualized plan	1 (5%)		

TABLE 3

Objectives with themes, sub-themes and representative quotes

	Theme	Sub-theme	Representative quote
Objective 1: Outcomes	Shift in family dynamics	• Shift in family dynamics leading to different mindset by the patient -Focus on health instead of pounds lost -Alternative activities not centred on food -Relationships improved	*"So I think me showing* versus *telling [my family], everyone is just kind of following my lead."–Participant 60* *"Anytime you have positive self-changes, it transfers over."–Participant 2*
	Family behaviour change	• Increased family quality time • Improved family dynamics • Knowledge transfer	*"Definitely the food and the attitude overall has changed."–Child 79* *"[Family dynamic] improved just because we are together more. We do more things together."–Participant 145*
	Child observations of family change	• Individual participant-parent changes • Household changes	*"And [my parents] definitely feel happier about themselves and how they are eating and it's affected my brother and I in a positive way. We started eating healthier, not buying as much junk food, not going out as much, trying new recipes and stuff. I think they are really happy with the outcome."–Child 79*
	Indirect benefit to partner	• Partner weight loss • Partner focus on financial concerns • Improved physical intimacy & physical appearance of participant • Ease of jointly participating	*"I think I need to lose some weight, I'm not happy with it. So this program is actually going to help both of us."–Spouse 106*
Objective 2: Process	Level of accountability	• Different kinds of accountability to: • Child • Partner • Program (financial) • Self (failure)	*"I would recommend doing it [with your partner] because then you can hold each other accountable."–Participant 41*
	Patient perception of support	• Lack of acknowledgment on part of partner & child • Sabotaging partners	*"Together is better; you definitely need that support when going through the process."–Participant 26*
	Support is essential and flexible	• Evolving support was appreciated • Rare to have incongruent child and partner support • Patients cited support as essential	*"Make sure you have someone supportive. [Participants] do not need to have the enablers."–Participant 2* *"I'm learning how to best support [my wife]. I do not know if that's changed since the program began, I guess so. Like I said, it's an ongoing process. I'm trying to find the best ways to support her, whatever that may be."–Spouse 50*