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Research report

Gastric bypass patients' goal-strategy-monitoring networks for long-term dietary management

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ABSTRACT

Following gastric bypass surgery, patients must make dramatic dietary changes, but little is known about patients' perspectives on long-term dietary management after this surgery. This grounded theory, qualitative study sought to advance conceptual understanding of food choice by examining how gastric bypass patients constructed personal food systems to guide food and eating behaviors 12 months post-surgery. Two in-depth interviews were conducted with each of 16 adults, purposively sampled from bariatric support groups. Using constant comparative analysis of verbatim interview transcripts, researchers identified participants' goal-strategy-monitoring networks representing how participants used specific food and eating behaviors towards their main goals of: Weight Management, Overall Health, Avoiding Negative Reactions to Eating, and Integrating Dietary Changes with Daily Life. Linked to each main goal was a hierarchy of intermediary goals, strategies, and tactics. Participants used monitoring behaviors to assess strategy effectiveness towards goal achievement. Individuals' Weight Management networks were compared to uncover similarities and differences among strategy use and monitoring methods among those who maintained weight loss and those who regained weight. The complex, multilevel goal-strategy-monitoring networks identified illustrate the "work" involved in constructing new personal food systems after surgery, as well as advance understanding of strategies as a component of people's personal food systems. These findings provide researchers and practitioners with insight into the long-term dietary issues that gastric bypass patients face and a potential method for representing how people relate deliberate dietary behaviors to their goals.

Introduction

Gastric bypass surgery is a popular medical intervention for obesity in the United States that leads to drastic weight loss and improvements in obesity-related co-morbidities including Type 2 diabetes and cardiovascular disease (Adams et al., 2012). By reducing stomach size and re-routing the small intestine (Buchwald et al., 2004), this surgery physically limits the volume of food one can eat and alters hunger and satiety hormonal signaling (Bose et al., 2010; Carrasco et al., 2012). Lifelong vitamin and mineral supplements are required to prevent nutrient deficiencies (Shah, Simha, & Garg, 2006). Food intolerances are common and can be severe as in the case of dumping syndrome (Frantzides et al., 2011; Overs, Freeman, Zarshenas, Walton, & Jorgensen, 2012). Post-surgery, patients have to manage not just their weight but surgery induced "side effects."

Existing studies of dietary behaviors after gastric bypass surgery generally provide information about what patients eat, focusing on calorie consumption or nutrient composition of the diet (de Torres Rossi, Dos Santos, de Souza, de Cassia de Aquino, & Sarni, 2012; Novais, Rasera, Leite, Marin, & de Oliveira, 2012; Sarwer et al., 2008). More recently, studies have focused on "problem behaviors" such as grazing or eating sweets (Colles, Dixon, & O'Brien, 2008; Faria, De Olivera Kelly, Faria, & Ito, 2009), or compliant or non-compliant behaviors of interest (Toussi, Fujioka, & Coleman, 2009). With the exception of citing food intolerances (Moize et al., 2003; Thomas & Marcus, 2008) or emotional eating (Mathus-Vliegen, 2006), few studies offer explanations as to why patients choose or avoid certain foods, how they make food related decisions, or how they have integrated the need to manage both weight and altered digestive tracts into their lives.

A different perspective on dietary practices comes from the Food Choice Process Model (Sobal & Bisogni, 2009), a grounded theory model that takes a constructivist perspective on dietary behaviors. According to the model, people construct "personal food systems," cognitive processes that guide their food and eating practices. Personal food systems are dynamic, change over time, and include food choice values, which are meaningful considerations in

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food decisions, e.g. health, taste, and convenience. Personal food systems also include ways of classifying foods and eating situations (Blake, Bisogni, Sobal, Devine, & Jastran, 2007; Furst, Connors, Sobal, Bisogni, & Falk, 2000), strategies to achieve food choice values (Falk, Bisogni, & Sobal, 2000b) and ways of balancing conflicting values (Connors, Bisogni, Sobal, & Devine, 2001; Smart & Bisogni, 2001). This model suggests that after surgery, gastric bypass patients need to reconstruct their personal food systems such as by revising their food choice values, creating new strategies, constructing new food classifications, and developing new scripts and routines for eating.

The goal of this study was to develop a conceptual understanding of the cognitive processes gastric bypass patients used to guide food behaviors after the first year of surgery. The gastric bypass experience also provided a unique opportunity to advance understanding of food choice more generally as these individuals have to "relearn" to eat after surgery and their post-surgical food and eating behaviors may be highly conscious and memorable to them. To gain patients' perspectives on their experiences, researchers used a constructivist perspective (Charmaz, 2000) and a grounded theory approach (Glaser & Strauss, 1967).

Material and methods

Participants were purposively sampled (Lincoln & Guba, 1985), with inclusion criteria of having gastric bypass surgery a minimum of 12 months prior and being over 18 years of age. The first recruitment yielded 10 participants from two bariatric support groups in separate cities in Upstate New York. Although no new emergent themes were uncovered with the 10th participant, the researchers felt similarities in concepts and themes might be due to shared support group participation and similar pre- and post-operative treatments; all participants went to one of three surgeons operating in local hospitals. A second wave of recruitment from a third group yielded six additional participants. Recruitment stopped after theoretical saturation was reached (Glaser & Strauss, 1967). Together, the 16 participants reflected upon experiences from six different surgical practices. As no major changes in bariatric surgery practices had occurred since the first wave of recruitment, researchers assumed that participants' medical management of their surgery would remain comparable, which was confirmed by analysis. The university institutional review board approved all research protocols, including recruitment efforts, informed consent processes, and participant involvement.

Table 1 summarizes the characteristics of the 13 women and 3 men who participated. Participants ranged in age from 32 to 62 years and varied in their educational background. Twelve participants had full or part-time jobs in fields including education, business, and healthcare. Twelve participants were married and five had children living at home. Time since surgery ranged from 14 months to 10 years. All participants' surgeries were covered by insurance.

Participants differed in their post-surgical weight loss outcomes. Although all participants felt they had experienced maximum weight loss, some participants were just beginning a weight stabilization period, while others had maintained weight loss for a year or more. Several participants reported unwanted weight regain; of those, only three were unsuccessful in their ability to deal with it. The detailed weight loss trajectories of these patients are described elsewhere (manuscript forthcoming).

One researcher conducted two semi-structured interviews with each participant. Two interviews enabled the researcher to build rapport with the participants through prolonged engagement (Lincoln & Guba, 1985), to follow up on emerging themes, to clarify interpretations from the first interview, and to reduce participant fatigue because the depth of inquiry was extensive. The first interview focused on current and past dietary practices, while the second interview focused on experiences related to the surgery and weight loss. Drafts of the interview guides were revised accordingly after review by food choice researchers, clinicians who worked with gastric bypass patients, and a bariatric surgery recipient. Questions covered a range of topics on dietary behaviors, weight loss, health, and surgical experiences. Questions also asked participants to compare their pre-surgery and post-surgery experiences and to reflect on changes in behaviors, thoughts, and attitudes.

Table 1
Summary of participant characteristics.

	Count
Marital status	
Married	12
Single	4
Household composition	
Lives alone	1
Lives with spouse/significant other only	8
Lives with spouse and children	4
Other	2
Education level	
Diploma	1
Associates degree	6
Trade school	2
Some college	5
Graduate or advanced degree	2
Employment	
Full-time	9
Part-time	3
Unemployed/retired/disability	4
Income[a]	
$10–19,000	1
$20–29,00	1
$30–39,000	1
$40–49,000	1
$50–59,000	3
>$70,000	8

[a] One person did not report h\is/her income.

The interview guides were pilot tested with the first participant. As no major changes were made to the interview guides after her interview, this participant's data were included in the analysis. Interviews were conducted in cafeterias, offices, bookstores, and participants' homes, as mutually agreed upon by the participant and researcher. Interviews lasted between 50 and 150 minutes, were audio-recorded, and transcribed verbatim.

Transcripts were coded for emergent themes using the constant comparative method (Glaser & Strauss, 1967) and a grounded theory approach (Charmaz, 2000). Codes were created to label each concept encountered in the transcript. Each subsequent transcript was coded with these emergent codes and previous transcripts were reviewed to ensure that no instances of this concept were missed. Codes were compared across transcripts and categories were formed by grouping similar or related codes together (Strauss & Corbin, 1990). These emergent categories were then organized into themes. The researchers met regularly to discuss the emergent categories and themes and reviewed transcripts when they differed in interpretation. Preliminary analysis suggested that post-surgical dietary behaviors were directed at one or more goals. The researchers then employed self-regulation theory to organize these emergent themes. Self-regulation theories of goal orientation (Bandura, 1991; Carver & Scheier, 1998) focus on the conscious efforts individuals put forth toward reaching goals, including planning and implementing behaviors (strategies), and monitoring progress towards goal achievement. Viewing dietary behaviors as strategies within the self-regulation framework increased depth of understanding by allowing for connections to be made between the planning, implementation, and monitoring of behaviors.

The subsequent analysis of all 32 transcripts focused on the identification of dietary strategies, goals, and monitoring behaviors. The

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