

## INTRODUCTION

Obesity is the most obvious manifestation of the global epidemic of excessive consumption and sedentary lifestyles. According to the World Health Organization (WHO 2012), more than 1.4 billion adults were overweight in 2008, and more than half a billion obese. The health problems associated with being overweight or obese include illnesses such as coronary heart disease (CHD), type 2 diabetes, hypertension, arthritis, psycho-social problems, and certain types of cancer (WHO 2012). Various treatment approaches are available including dietary management, physical exercise, behavior modification, pharmacotherapy, surgery, and alternative treatments. Because the causes of overweight and obesity are diverse, including the interaction between an individual's genetic disposition, psychological, cultural and socio-economic disposition, and the modern environment, treatment and prevention approaches must be multi-faceted from an individual, public and clinical health perspective. Although policy and environmental changes are necessary to manage the global obesity epidemic, the process for change starts with, and can only be sustained by, the individual.

Central to the success of most health care services is the ability of the customer to adhere to instructions received from the provider (Dellande, Gilly, and Graham 2004). Despite this, adherence rates to instructions to lose weight are less than 50% (Dellande et al. 2004). Health care customers play a significant role in the delivery and consumption of the service. The extent to which the customer can coproduce the service is largely dependent on their understanding of what they have to do in the production process (McKee, Simmers, and Licata 2006). Prior research has established a relationship between the quality of service interface and role clarity (Bowers, Martin, and Luker 1990). Thus, customers with positive service quality perceptions are more likely to have a clearer understanding of their role in performing the service. However, service performance varies considerably depending on the

customer's ability to coproduce the service (Zeithaml and Bitner 2003). Although various individual characteristics have been identified as contributing to service coproduction, two that have received increasing attention are self-efficacy (McKee et al. 2006; van Beuningen, de Ruyter, and Wetzels 2011) and emotional intelligence (Kidwell, Hardesty, and Childers 2008).

Self-efficacy has been identified as a key success factor in behavioral change (McKee et al. 2006; Bandura 1982). Perceived self-efficacy refers to "beliefs in one's capabilities to organize and execute the courses of action required to produce given levels of attainment" (Bandura, 1998, p.624). An individual's perception of their own physiological state has been identified as one of the four sources influencing self-efficacy (Bandura 1977). That is, the role of an individual's emotional state can affect their perceived capabilities. Several studies have examined how emotional reactions and experiences affect both physical and psychological health. Salovey, Bedell, Detweiler, and Mayer (1999), for example, found that individuals who can regulate their emotional states are healthier because they "accurately perceive and appraise their emotional states, know how and when to express their feelings, and can effectively regulate their mood states" (p.161). This view is supported by other researchers who suggest that emotion itself may not necessarily elicit changes in eating behavior, but rather the manner in which the emotion is dealt with (Wiser and Telch 1999; Evers, Stok, and Ridder 2009). This set of customer characteristics, dealing with utilisation, regulation, and appraisal of emotion, referred to as emotional intelligence (EI), suggests a relationship between EI and physical as well as psychological health.

Numerous models have been adopted to identify and examine the pattern of influence of the psychological antecedents in nutrition education and interventions (see Baranowski et al., 2003). However, comparatively fewer studies have examined the mechanisms through which past behavior (adherence) is linked to future intentions. Although marketing outcomes

have been broadened to include social outcomes such as quality of life (Lee and Sirgy 2004; Dagger and Sweeney 2006), the relevance of other social outcomes such as adherence behavior to services marketing and service evaluation in particular, has received little attention. Yet it is in the services context that health behavior such as adherence may be most relevant as an outcome of the consumption process. Customer evaluations of service quality and its subsequent effect on role clarity and self-efficacy play a crucial role in the customer's ability to adhere to a regime.

The prime objective of our study is to therefore explore the antecedents of adherence behavior and whether past adherence behavior predicts future intentions. Specifically, we examine the influence of service quality, role clarity, self-efficacy, and EI in influencing adherence behavior. We also investigate whether past adherence directly affects future intentions.

## **CONCEPTUAL BACKGROUND**

### **Adherence**

Adherence is defined as the extent to which a person's behavior taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider (WHO, 2003). Adherence has been shown to be a key link between process and outcome in medical care (Vermeire et al. 2001). The health literature conceptualises adherence in a multitude of different ways with most studies examining adherence as a behavioural change over time. Vermeire et al. (2001) posit that although over 200 adherence variables have been studied, none of them have been considered as consistently predicting adherence. These factors range from the type of treatment behaviour (e.g., medication, diet, exercise, appointment keeping), to varying health conditions (acutely ill to chronically ill) of the population studied.

Many of the problems with adherence research relate to the complex nature of non-adherence (Stephenson et al. 1993) and issues surrounding its measurement (Leventhal and Cameron, 1987; Roth, 1987) which have resulted in the identification of sub-types of non-adherence. For example, Chatterjee (2006) categorises non-adherence into two types, primary non-adherence (when the patient fails to have the medication dispensed), and secondary non-adherence (when the patient does not take medication as prescribed). Other researchers include categories related to intentionality such as when the doctor's diagnosis or treatment is rejected by the patient (Donovan and Blake, 1992).

Given the weight loss context of our study, we adopt a self-report measure of adherence (DiMatteo and Hays 1980). Measuring adherence to the weight loss regime alone however, is not sufficient to marketers as a consumer outcome. In various contexts, including our chosen context, the issues related to self-report adherence are limited in reality as the ability of customers to follow health regimes in an optimal manner is frequently compromised by barriers which are usually related to different aspects of the regime. For weight loss regimes, these barriers can include social and economic factors, the health care provider, the illnesses associated with obesity, and the individual customer characteristics. In contrast, other traditional marketing outcomes such as behavioral intentions with the service do not necessarily share these limitations. Given the centrality of intentions to the health and services domain with respect to health behavior and organizational performance, we argue that including both outcome measures offer alternative perspectives that enrich our understanding of consumer behavior.

### **Service Quality, Social and Economic Outcomes**

Studies from the services marketing literature show how customer-provider relationships can shape the service delivery experience and the outcomes experienced by customers (Oliver, Rust, and Varki 1998). In particular, studies have shown how the patient-

physician relationship contributes to adherence behavior (e.g., Dellande et al. 2004; Hausman and Mader 2004). Patient-physician interactions that focus on empowering patients with chronic diseases have been linked to positive health outcomes (Mitchie, Miles, and Weinman 2003). On the basis of these studies, we argue that high service quality facilitates customer coproduction which in turn leads to increases in adherence behavior.

In the present study, we define service quality as the customer's evaluation of the standard of service received across the domains of outcome and interaction. That is, we view overall service quality perceptions as comprising an assessment of the technical competence of the provider (outcome quality) and the manner and communication (interaction quality) (Dagger, Sweeney, and Johnson 2007). While the relationship between service quality, satisfaction and behavioral intentions has been well examined (e.g., Cronin, Brady, and Hult 2000), what remains unclear is how perceived service quality affects adherence behavior, and how these relationships impact behavioral intentions.

## **LITERATURE REVIEW**

We begin by discussing the overarching theory for our model, social cognitive theory (SCT). We also draw on role theory and the theory of consumer socialization in developing our model (Figure 1). We then present the qualitative study which we used in conjunction with the literature to develop our hypotheses.

### **Social Cognitive Theory**

Numerous health behavior models have been conceptualized in an attempt to predict and explain the adoption of novel or difficult health behaviors (eg., breast examinations, diet, exercise) (Abraham, Sheeran and Johnston, 1998; Schwarzer 2008). Two of the more prominent models are social cognitive theory (SCT) and the Health Belief Model (HBM). Derived from social learning theory, Bandura's (1989, 1998) SCT explains psychosocial

functioning in terms of triadic reciprocal causation (Bandura 1986). In this model of reciprocal determinism, 1) cognitive, emotional, and other personal resources; 2) action; and 3) environmental factors all operate as interacting determinants that influence each other bidirectionally (Bandura 1991). According to Bandura (1991), each of the major interactants in the triadic causal structure functions as an important constituent in the dynamic environment. Behavioral change, or action, is determined by expectancies and incentives.

Central to the causal structure of SCT are beliefs of personal efficacy (Bandura, 1977). Perceived self-efficacy is distinct from other constructs such as self-esteem or locus of control in that self-efficacy refers to an individual's belief in their capacity to perform a specific task, whereas self-esteem refers to a more global level of self-evaluation which may reflect an aggregation of self-efficacy perceptions across a broad range of specific tasks (Gist, Schwoerer and Benson 1989). Locus of control is concerned with beliefs about outcome contingencies, whether outcomes are determined by one's actions or by forces outside one's control. Because locus of control refers to responsibility attributes relating to outcomes (internal agency versus external causation), Bandura (2006) argues that it is distinct from self-efficacy since it does not concern perceived capabilities.

The HBM is similar to SCT as both are based on the value-expectancy theory and social learning theory (Rosenstock, Strecher and Becker 1988). Rosenstock et al. (1988) suggest the key difference between the two lie in the role of self-efficacy. Whereas self-efficacy is central to SCT, it did not feature in earlier conceptualizations of the HBM since much of the behavioral research using the original HBM focused on simple preventative health behaviours (e.g., immunizations) (Rosenstock et al. 1988). Although other HBM studies have included self-efficacy (e.g., Strecher, McEvoy, Becker and Rosenstock 1986), our study adopts the SCT model given the complex health behavior under study. That is, health enhancing behaviors such as adherence to a weight loss regime requires long-term

changes. Thus, according to SCT, for behavioral change to succeed (adherence to weight loss regime), people must have an incentive to take action (concomitant health issues), feel threatened by their current behavioral patterns, and believe that change will be beneficial by resulting in a valued outcome at an acceptable cost (Rosenstock et al. 1988; [Luszczynska, Schwarzer, Lippke and Mazurkiewicz 2011](#)). Importantly, they must feel confident in their abilities (self-efficacy) to implement that change ([Mishali, Omer and Heymann 2011](#)). However, because people do not necessarily behave in accordance with their intentions, our study includes a post-intentional variable to measure actual behavior (i.e., adherence). This line of enquiry builds on a body of work that addresses the intentions-behavior gap (Sheeran 2002) by measuring at least two behavioral change processes: a motivational one that ends with an intention; and a volitional one that ends with action (Sniehotta, Nagy, Scholz and Schwarzer 2006; Ziegelmann, Lippke and Schwarzer 2006).

Our model recognizes the potential of service perceptions to affect consumer attributes that provide direction for behavior. Among the proposed antecedents to self-efficacy as identified by Bandura (1982, 1997) are verbal persuasion that one can perform such tasks and physiological states from which individuals partly judge their performance capability and vulnerability. Strengthening the willpower and resolve of customers on a weight loss regime may involve training them to have the necessary skills and knowledge to perform the program and providing them with techniques on how to regulate their emotions (EI) in eating. Applying SCT to the present study suggests that service quality evaluations derived through service interactions lead to consumer reactions such as adherence behavior and stronger intentions.

### **Role Theory and Consumer Socialization**

Two inter-related theories were also used to assist in developing our hypotheses, role theory, and the theory of consumer socialization. Role theory refers to service encounters

which can be seen as a set of interactions that must be accomplished by both customers and providers for the encounter to be successful (McKee et al. 2006; Lee, Chiu, Liu and Chen 2011). For example, health service providers are expected to adopt a set of behaviors consistent with their role when interacting with customers (Solomon et al. 1985). Just as the provider is expected to perform their role, the customer's role is composed of a set of learned behaviors which is dependent on the specific service environment and their unique characteristics.

Consumer socialization refers to processes related to the development of customer skills and knowledge (Ward 1974). Health care customers play an essential role in the service production process by providing the necessary inputs (e.g., information provision, clinical attendance). The service outcome is thus dependent on the extent to which the customer participates in the service. Hence, role clarity is a key factor in customer participation. Role clarity has been defined as “the extent to which customers understand what is required of them in service production” (Auh et al. 2007, p.360). The need to follow instructions outside the provision of the health provider is central to adherence behavior and highlights the relevance of role clarity in the context of weight loss services. However, the ability to perform a role requires more than the requisite skills or knowledge, it requires the belief (self-efficacy) that one has the ability to use these resources effectively (Ozer and Bandura 1990). Thus, we argue that both role clarity and self-efficacy are important factors in driving customer adherence behavior.

Insert FIGURE 1

## **THE QUALITATIVE STUDY**

The aim of the qualitative study was to explore customer perceptions of service quality, role clarity, self-efficacy, EI, adherence, and behavioral intentions. Participants were asked about their perceptions of the quality of service, their understanding of what they have



to do in the program, their beliefs regarding their capabilities in adhering to the regime, their perceptions regarding self and social competencies (EI), and their intentions.

The recruitment procedure was two-fold. First, pharmacies and weight loss centers were selected to participate in the study by the parent organization. Participating stores were asked to identify customers who met the criteria and to make initial contact with those customers. Second, details of customers who agreed to participate in the study were referred to the researchers and subsequent contact was made by the research team to arrange interview times. The selection criteria for customers were as follows: participants needed to be 18 years of age or older; speak English; and be on the weight loss program for at least two weeks prior to the interview being conducted. A total of 20 in-depth interviews were conducted with customers from five pharmacies and four weight loss centers in different metropolitan areas in Australia. Each interview was digitally recorded and transcribed verbatim and the average interview time was 45 minutes. Respondents ranged from 18 to 67 years of age, with equal representation of gender. Manual thematic analysis was conducted consistent with the realism paradigm. Data were analysed using content analysis (e.g., Stake 1995; Miles and Huberman 1994). Lincoln and Guba's (1985) parallel criteria for trustworthiness was used given the interpretive design of the study. These techniques helped to promote the study's credibility, dependability, and confirmability.

Customers made frequent statements about service-level attributes reflecting two recurring themes related to the interactions the customer had with the provider and what they received as a result of these interactions (outcome). A number of participants attributed their success in the program to regular attendance and the sense of encouragement this gave them as aspects reflecting outcome quality. Customers also attributed these service aspects to gaining a clearer understanding of their role in service delivery which increased their confidence in completing the program. The following statements are representative of these

themes. “When they talk to you, you know what they’re talking about, they’re knowledgeable, they can give you advice. These girls are nutritionalists so they know what they’re talking about so it encourages you to come back”, and “Being friendly and I think just each one they treat you as an individual, they have time for you, they talk to you when you weigh in and measure, you know to me they’re looking to see if they can help you in any way, if you have any issues or problems it’s as though they want to encourage you to lose the weight and they want you to succeed on the program and that’s what I find, first of all it boosts your confidence and [they] want you to succeed and that’s what you want as well”.

To understand customer resources that impact adherence behavior, we asked participants questions relating to their perceived personal competence (e.g., self-awareness, motivation) and social competence (e.g., social skills, empathy). EI was studied with two hypothetical scenarios (e.g., Gabbott, Tsarenko and Mok 2011; Salovey and Mayer 1990). These scenarios examined an individual’s reaction to a negative interaction in a one-to-one social setting and a group social setting. Overall, participants displayed high levels of EI, with the majority presenting strong personal and social competence self-ratings. Representative statements reflecting high EI include: “I would empathise with them, I wouldn’t necessarily become judgemental about their level of service”; and “I wouldn’t be worried about it, I think they’d just have a problem themselves. I don’t let anyone control me or my emotions, that’s how my nature is, whether it’s you, whether it’s Joe Bloe or whether it’s my family, I do what I feel is right in myself”.

Self-efficacious participants displayed positive beliefs in their capabilities in achieving their weight goal by exhibiting strong completion intentions and self-regulation in terms of eating habits. For example, “I think mind state and will power. Anyone has to want to do something and make it happen. I’m the type of person that if I say I’m going to do something, I’ll do it so when I decided to go on the diet, I told my friends and they knew I

would”, and “You need to be able to have confidence about being yourself, you need to be able to have strong motivation to be able to want to help yourself and you have to pretty much get into a routine or having two shakes a day and cooking your meal at night because if you don’t get into that routine you pretty much...you’re not going to stick to it and you’re going to fail and you’re gonna go off and have side stuff and not stick to the actual routine that you’re ‘sposed to”. Conversely, participants with low SE displayed low confidence in achieving their weight goal and were also found to have a higher relapse rate (breaks from the program) than efficacious participants. For example, “I need to cut out that night time eating that’s my downfall...last night with the cold weather, I wasn’t even hungry and I just ate it, the chips were just sitting there and I ate them...and yeah that’s another thing in the back of my head, I think ‘oh I’ve been for a walk, I can get away with having a few chips’ but the only thing when I actually sit down and watch tele with my husband I’ll do that...when you sit in front of the tv you don’t think, it’s a zombie state and I eat”.

In sum, the findings from the qualitative study suggest that there is a relationship between service factors and social cognitive factors, and that these relationships affect adherence behavior as well as behavioral intentions. Given these tentative findings, we undertook an empirical study to examine the interrelationship between service quality, role clarity, self-efficacy, and EI in predicting adherence behavior and intentions.

## **HYPOTHESIS DEVELOPMENT**

### **Emotional Intelligence and Self-efficacy**

Although the exact process by which emotions affect eating behavior remains unresolved (Leith and Baumeister 1996), a number of studies provide evidence for the relationship between emotions and eating in both obese people who are chronic dieters referred to as “restrained eaters” (Polivy and Herman 2002), and healthy nonrestrained individuals (Nguyen-Rodrigues, Chou, Unger and Spruijt-Metz 2008). Several theories have

been posited to explain the psychological mechanisms behind overeating in emotional situations (e.g., Adriaanse, Ridder and Evers 2011). Evers et al. (2010) for example, suggest that the antecedent for overeating is negative affect. That is, before overeating occurs, individuals experience negative affect that they cannot properly regulate, prompting them to employ maladaptive strategies such as overeating. This body of work has important implications because it suggests that the problem is not necessarily due to negative affect itself, but rather with the lack of emotional resources an individual has to regulate the negative affect. Thus emotional regulation, defined as “the set of processes whereby people seek to redirect the spontaneous flow of their emotions” (Koole 2009, p.6) has received considerable attention given its link to psychosocial functioning (Gross 2007).

Customers on a weight loss regime not only require a degree of emotional regulation to face the challenges in adhering to the regime, but the ability to manage these in combination with cognitive interpretations. These resources have been conceptualised as emotional intelligence (EI). Salovey and Mayer (1990) introduced EI as a type of social intelligence, separable from general intelligence. They define EI as consisting of three adaptive abilities: appraisal and expression of emotion; regulation of emotion; and utilization of emotion (Salovey and Grewal 1990). Appraisal and expression of emotion is comprised of verbal and non-verbal components and non-verbal perception and empathy. Regulation of emotion is comprised of self-regulation of emotion and regulation of emotion in others. Utilization of emotion comprises factors such as flexible planning, creative thinking, redirected attention, and motivation.

In the present study, we suggest that both utilization of emotion and appraisal of emotion influence regulation of emotion. This rationale is based on the general process model of emotion regulation which posits that emotion begins with an evaluation of emotional cues. When attended to and evaluated in certain ways, emotional cues trigger a coordinated set of

response tendencies that involve experiential, behavioral, and physiological systems. Once these response tendencies arise, they can be modulated in various ways (John and Gross 2004). Two common forms of emotion regulation are cognitive appraisal which refers to the way individuals think about a potentially emotion-eliciting situation in order to modify its emotional impact and expressive suppression which involves reducing emotion-expressive behavior once the individual is already in an emotional state. Thus researchers have conceived emotion regulation as relating to the management of all emotionally charged states (Kooze 2009). It is therefore reasonable to suggest that an individual would find it difficult to regulate their emotions without first having appraised them and or utilized them. Specifically, we hypothesize that both utilization of emotion and appraisal and expression of emotion, influence regulation of emotion as expressed in the following hypotheses:

- H<sub>1</sub>:** There is a positive and significant relationship between utilization of emotion and regulation of emotion.
- H<sub>2</sub>:** There is a positive and significant relationship between appraisal of emotion and regulation of emotion.

Self-efficacy theory emphasizes self-awareness and self-regulation as factors influencing the development of self-efficacy. The EI literature also emphasizes the importance of self-awareness and self-regulation, albeit being concerned with the specific awareness and regulation of emotional states (Mayer and Salovey 1995). Notwithstanding, the EI literature does suggest that individuals who exhibit high EI are more likely to experience performance related success than those with low EI (Fox and Spector 2000; Schutte et al. 1998). Kidwell et al. (2008) found that consumers who are more knowledgeable about how emotions influence decision making as well as more confident in their ability to manage their emotions, may be less likely to engage in impulsive eating and make higher-quality food decisions. This discussion suggests that EI can help customers generate the

causal attributions that are least damaging to their self-efficacy beliefs through regulating the emotions these attributions might produce.

While EI is often conceptualized as a higher order latent construct comprising the dimensions of regulation of emotion, utilization of emotion, and appraisal of emotion (Keele and Bell 2008), a limited number of studies have disaggregated the EI construct and focused on its underlying dimensions. We argue that unidimensional measures of EI dilute the multidimensionality of the construct in that they offer little insight on the relative importance of EI's underlying dimensions. In other words, a total composite measure of EI does not offer granular levels of understanding as to what specific dimensions of EI are most influential in driving self-efficacy. Based on this discussion, we suggest that appraisal, regulation and utilization of emotion should have a direct impact on self-efficacy as expressed in the following hypotheses:

**H<sub>3</sub>:** Appraisal and expression of emotion is positively related to self-efficacy.

**H<sub>4</sub>:** Regulation of emotion is positively related to self-efficacy.

**H<sub>5</sub>:** Utilization of emotion is positively related to self-efficacy.

### **Self-efficacy and Adherence**

Adherence is the outcome construct in this research. In order to lose weight, dieters must follow the program as instructed. SCT proposes that behavior is a function of aspects of the environment and of the person, all of which are in constant interaction (Bandura 1997). We suggest that customer perceptions of service quality received during service interactions determine role clarity which increases efficacious beliefs which in turn, increases the customer's ability to adhere to the program. On the basis of findings from previous research which provide evidence for the relationship between self-efficacy and compliance (Jayanti and Burns 1998; Schwarzer 2008), we hypothesize that:

**H<sub>6</sub>:** Self-efficacy is positively related to adherence.

## Service Quality and Behavioral Intentions

Service quality reflects an overall assessment of the standard of service received (Brady and Cronin 2001; Parasuraman, Zeithaml, and Berry 1988) and can be viewed as comprising two fundamental components, outcome quality (technical quality) and interaction quality (functional quality) (Dagger and Sweeney 2006; Grönroos 1984). Technical quality reflects the outcome of the service experience or *what* the consumer receives as a result of service production. Functional quality, on the other hand, concerns the interaction between the buyer and seller or *how* the service is delivered (Grönroos 1984). Although the relationship between these constructs are well-established, we include them for completeness and because outcome and interaction quality may differentially impact customer perceptions of service quality within our study context. We therefore hypothesize:

- H<sub>7</sub>:** There is a significant and positive relationship between outcome quality and overall service quality.
- H<sub>8</sub>:** There is a significant and positive relationship between interaction quality and overall service quality.

The organizational consequences of service quality have been well established in the literature. For example, service quality has been linked with market share (Rust and Zahorik 1993) and various profit growth indices (Zeithaml, Berry and Parasuraman 1996). We therefore investigate the effects of service quality on behavioral intentions. Behavioral intentions reflect the subjective probability that an individual will take a particular action (Fishbein and Ajzen 1975). Studies have found a link between service quality and specific behavioral intentions such as recommending the organization to others (Parasuraman, Berry, and Zeithaml 1991), saying positive things about the company to others (Boulding et al., 1993), and remaining loyal to the company (Zahorik and Rust 1992). To acknowledge that service quality perceptions are likely to drive behavioral intentions, even in the context of weight-loss, we hypothesize:

- H<sub>9</sub>:** There is a significant and positive relationship between overall service quality and behavioral intentions.

### **Service Quality, Role Clarity, and Self-efficacy**

The primary resources in SCT are skills and self-efficacy. Role theorists suggest that role clarity can be increased through high levels of service quality received during service interactions with the provider. In the context of weight loss services, providers must empower their customers with support for their efforts as well as skills in lifestyle modification (Foreyt and Poston 1998). Thus, the onus is on the provider to develop appropriate mechanisms to ensure customers are able to perform the behaviors required to accomplish service production and delivery (Bowen 1986; Kelley, Donnelly, and Skinner 1990).

Much of the customer participation literature is based on the view that service customers are partial employees (Bowen 1986; Mills and Morris 1986). Mills, Chase, and Margulies (1983) found that organizational productivity can be increased if customers learn to perform service-related activities more effectively. Thus, we expect that service quality leads to role clarity, which in turn leads to self-efficacy. Customers who do not receive the necessary level of training through service quality will be less likely to successfully participate in the program and hence the opportunity to develop self-efficacy through enactive mastery, is not presented. Enactive mastery, defined as repeated performance accomplishments (Bandura 1982), has been shown to enhance self-efficacy more than the other kinds of cues (Bandura 1998). We therefore suggest that high levels of service quality positively impacts role clarity which produces efficacious beliefs. Individuals who feel more efficacious within a task or role are more likely to engage in behavior that affords them with opportunities for mastery experience, thereby strengthening their perceived self-efficacy (Tucker and McCarthy 2001) as expressed in the following hypotheses:



**H<sub>10</sub>:** There is a significant and positive relationship between overall service quality and role clarity.

**H<sub>11</sub>:** There is a significant and positive relationship between role clarity and self-efficacy.

### **(Past) Adherence and Future Intentions**

The majority of studies that examine health related eating habits (e.g., Ajzen and Timko 1986; Conner, Norman, and Bell 2002) use the theory of planned behavior (TPB). TPB describes the proximal influences on a person's decision to engage in a behavior (Ajzen and Fishbein 1980). In TPB, behavior is determined by intentions to engage in that behavior and by perceived behavioral control (Armitage and Conner 2000). However, some studies suggest that past behavior offers better prediction than intentions or perceived behavioral control (Sheeran, Orbell and Trafimow 1999; Ouellette and Wood 1998). Perugini and Bagozzi (2001) claim that past behavioral influences tend to control for the previous decision making process towards the target behavior. In other words, a person who has participated in the behavior has already made the decision to engage in the behavior. This makes them more likely to form an intention to engage in the behavior without deliberating over their attitudes, subjective norms, and perceived control provided that the conditions associated with the behavior remain the same (Hagger, Chatzisarantis and Biddle 2001).

We extend this work by investigating how past behavior (adherence) influences future intentions. That is, we argue that past adherence will predict a customer's future behavioral intentions where intentions are conceptualized as recommending the organization to others (Parasuraman et al. 1991), saying positive things about the company to others (Boulding et al., 1993), and remaining loyal to the company (Zahorik and Rust 1992). Thus we hypothesize that adherence (past behavior) directly affects future intentions as expressed in the following:

**H<sub>12</sub>:** Adherence (past behavior) is positively related to intentions.

## **RESEARCH METHOD**

### **Setting**

Weight loss was chosen as the setting for our research primarily because of the global significance of obesity. Specifically, we chose a meal replacement program distributed through pharmacies and purpose built weight loss centers. A meal replacement is defined as food products (either liquid, powder, or snack bar) that can be purchased at commercial weight loss centers or other outlets (Heymsfield et al. 2003). The selected meal replacement program used in this study requires customers to replace one or two meals per day with at least one meal consumed as normal food (e.g., protein and vegetables) and consumed as part of an energy restricted diet. The program or service provision is high involvement, high contact, and ongoing. That is, the degree of interaction between the health care provider and customer is high, the service is provided on a continuous basis, and the customer is required to visit the pharmacy or center and be physically present during all consultations. Thus using a meal replacement program was considered appropriate for achieving the research objectives of this study.

### **Method**

The research sample was derived from a survey administered through 40 pharmacies and weight loss centers. A purposive sample of customers attending participating pharmacies and weight loss centers during the survey period was selected. All respondents were on the same meal replacement program. Participants were asked if they would be interested in completing the survey during in-store visits by the weight loss consultant. A free book on weight loss was offered to participants (courtesy of management from the meal replacement organization) as an incentive. The survey was pre-tested on a representative sample of customers at a weight loss center that did not participate in the empirical study. Of the 2,050 surveys issued, a total of 771 responses were returned (38%). This represented a sufficient

size to achieve a high level of statistical power (McQuitty 2004) and was considered to be acceptable when comparing it to other similar studies (e.g., Dagger et al. 2007; Dellande et al. 2004).

## **Measures**

Scales were derived from the service quality literature and the social science literature. Common method bias was considered when choosing items and designing the survey. Harman's single-factor test found no evidence of such bias (Podsakoff et al. 2003). The overall perceived service quality measure comprised three items adapted from Dagger et al.'s (2007) health service quality scale. We operationalized overall service quality as a consumer's judgement of, or impression about, the weight loss center's overall excellence or superiority (Brady and Cronin 2001; Parasuraman et al. 1988). The sub-dimensions of quality were operationalized to reflect service excellence and superiority. We used all nine items adapted from Dagger et al.'s (2007) health service quality scale for interaction quality, and four items for outcome quality. An additional item was developed for interaction quality based on the findings from the qualitative study (item 10). The six items for behavioral intentions were adopted from scales developed by Zeithaml et al. (1996) and Dagger et al. (2007). We operationalized role clarity as the customer's understanding of what they have to do in the program using five items adapted from Dong, Evans, and Zou (2008). Perceived self-efficacy was operationalized to reflect the customer's capability to regulate their eating habits using five items from Bandura's (2006) self-efficacy to regulate eating habits scale. We operationalized EI to reflect three adaptive abilities (appraisal and expression of emotion, regulation of emotion, and utilization of emotion) (Salovey and Grewal 1990). We used nine items from Schutte et al.'s (1998) emotional intelligence scale to measure EI. The adherence scale was developed based on the domain of interest for this study. Items were subsequently developed on the basis of the literature, the qualitative study, and discussions with

management. A five-point rating scale was used to capture responses to all items measuring the variables. Appendix A provides a list of all scales used in this study.

### **Reliability and Validity of Measures**

The measures used in the study were first subjected to exploratory and then confirmatory factor analyses to assess the reliability, convergent validity, and discriminant validity of our measures. Table 1 presents the descriptive statistics and the results of the measurement model analysis. Scale reliability for all 10 constructs was established by the obtained Cronbach alphas (see Appendix A). The fit indices obtained for the measurement model indicated an adequate representation of the data ( $\chi^2=621.3$ ,  $p<.05$ ,  $df =360$ ,  $RMR=.02$ ,  $GFI=.93$ ,  $NIFI=.95$ ,  $IFI=.97$ ,  $CFI=.97$ ,  $RMSEA=.03$ ). As can be seen in Table 1, construct reliability and average variance extracted were of acceptable levels (Fornell and Larcker 1981). Discriminant validity was also established using Fornell and Larcker's (1981) criteria.

Insert TABLE 1 and TABLE 2

## **RESULTS**

The full structural model was derived from our research hypotheses. Table 2 provides the fit measures and structural parameters. Construct validation of the measurement and structural models was based on a partial disaggregation approach. Model fit was established given the obtained indices ( $\chi^2=755.73$ ,  $p<.05$ ,  $df =386$ ,  $RMSEA=.04$ ,  $RMR=.05$ ,  $IFI=.96$ ,  $TLI=.96$ ,  $GFI=.92$ ,  $NFI=.93$ ,  $CFI=.96$ ). An examination of the structural path estimates indicated that with the exception of two constructs (appraisal/expression of emotion and utilization of emotion), all parameter estimates were significant and in the hypothesized direction, as shown in Table 2.

The results indicate that both utilization and appraisal of emotion has a significant influence on regulation of emotion ( $\beta=.77$ ,  $p <.05$ ,  $\beta=.21$ ,  $p <.05$ ), supporting H<sub>1</sub> and H<sub>2</sub>.

Regulation of emotion, in turn, was found to significantly influence self-efficacy ( $\beta=.82, p <.05$ ) thus supporting H<sub>4</sub>. While regulation of emotion was found to have a significant effect on self-efficacy, the direct effects of utilization and appraisal of emotion on self-efficacy were not statistically significant, hence H<sub>3</sub> and H<sub>5</sub> were unsupported. Thus, regulation of emotion is a full mediator of the relationship between utilization of emotion and appraisal of emotion and self-efficacy. Self-efficacy was found to have a significant influence on adherence ( $\beta=.50, p <.05$ ), supporting H<sub>6</sub>. As expected, the results indicate that both outcome quality and interaction quality had a significant influence on service quality ( $\beta =.21, p <.05$  and  $\beta =.66, p <.05$ , respectively), supporting H<sub>7</sub> and H<sub>8</sub>. Overall service quality was found to have a significant influence on intentions ( $\beta=.41, p <.05$ ) and role clarity ( $\beta=0.41, p <.05$ ), supporting H<sub>9</sub> and H<sub>10</sub>. Role clarity had a significant influence on self-efficacy ( $\beta=.18, p <.05$ ) thus supporting H<sub>11</sub>. Finally, adherence (past behavior) was found to have a significant effect ( $\beta=.21, p <.05$ ) on future intentions, thus supporting H<sub>12</sub>.

## DISCUSSION

The results from our study provide important information on the drivers of customer self-reported adherence. Our findings identify a number of areas where health organizations can increase customer adherence behavior in order to achieve positive health outcomes for the customer. For example, higher adherence to the program increases the likelihood of weight loss which reduces the risk of associated illnesses for overweight people and potentially improves their quality of life. Higher success rates would increase customers to the organization, potentially increasing its market share. Derived effects on both the health care system and the economy would thus result.

We investigated the relationship between EI and self-efficacy on the basis of the literature which suggests the importance of detecting and regulating affective states for developing efficacy (Bandura 1997). The results suggest that both utilization of emotion and

appraisal of emotion significantly influence regulation of emotion. This finding supports the notion that EI functions as a set of interrelated skills (Mayer, Caruso, and Salovey 2000). This result also provides evidence as to the nature and functioning of these skills.

While evidence supporting the link between regulation of emotion and self-efficacy was found, the relationship between appraisal of emotion and utilization of emotion to self-efficacy, was not supported. Indeed, it was found that regulation is a full mediator of the relationship between utilization of emotion, appraisal of emotion, and self-efficacy. This is a novel and significant finding as it demonstrates the critical role emotional regulation plays in driving self-efficacy and ultimately, adherence. Importantly, utilizing one's emotion and appraisal of emotion drive regulation of emotions. Thus, emotion regulation can be enhanced through efforts to improve an individual's ability to utilize or use their emotions and their ability to read and respond to emotional expressions of others. Although this finding partly supports Bandura's (1982) assertion that physiological arousal influences self-efficacy (regulation of emotion → self-efficacy), the insignificant paths of the other two EI dimensions to self-efficacy suggest that other psychosocial interactions should be studied. Possible variables to understand physiological influences to self-efficacy could include locus of control or personality disorders as these constructs have been found to impact health functioning (Schutte et al. 2007; Van Rooy and Viswesaran 2004).

The link between regulation of emotion and self-efficacy can be explained using Salovey and Grewal's (2005) suggestion that people who are able to regulate their intrapersonal and interpersonal relationships are more likely to exhibit higher levels of optimism and enjoy better social relationships. Thus, customers with high regulation of emotion competencies would be more optimistic in nature and better able to harness their emotions to positively affect adherence. The finding that EI operates in different ways and not as a whole, extends the literature by providing a determinant understanding of the

organizing heuristic role among the three components themselves, as well as their effect on developing self-efficacy.

Empirical support for the predictive power of social cognition on health behavior was established with the service quality → role clarity → self-efficacy → adherence path. The findings suggest that health service quality is an important determinant of customer adherence via its impact on role clarity and self-efficacy. That is, the results indicate that customers who view the service positively have a clearer understanding of what is required of them in participating in the service. Our results not only support this effect by providing empirical rigor, but build on the social cognitive theoretical foundation by identifying specific antecedent customer attributes (role clarity and self-efficacy) leading to health behavior. Moreover, our study offers a more granular understanding of specific service attributes leading to overall service quality formations by the significant relationships between outcome quality and interaction quality to overall service quality.

Our results indicate a direct path between past behavior (adherence) and intentions. The results suggest that an individual's ability to adhere to a weight loss program is not only influenced by service interactions and social cognitive perceptions, but that their organizational intentions are likely to be positively impacted by their increased adherence behavior. Bagozzi and Kimmel (1995) report a similar finding indicating that past behaviors predict future intentions, as well as future behaviors. Because our model integrates traditional service factors with social cognitive factors in influencing adherence and its subsequent impact on intentions, it offers an alternative perspective that enriches our understanding of consumer behavior.

## **CONTRIBUTION AND IMPLICATIONS**

Our study makes several important contributions to the literature. First, we are able to extend our knowledge of the transformative role of service in producing social and

organizational outcomes by connecting traditional services perspectives with theoretical frameworks from social science and psychology. The simultaneous examination of service quality perceptions, role clarity, self-efficacy, and EI contributes to theory by considering the individual health and organizational outcomes of these factors. Given that such a framework has yet to be presented in the literature, the model makes an original contribution to theory. Importantly, the model offers a framework for researchers to examine these relationships in other health settings or other high involvement, high contact, and on-going services. For example, adopting this approach allows researchers to explore the individual and joint complexities of service attributes and customer characteristics that impact social and organizational well being in different service settings such as other health services, financial services, and education.

Second, our study contributes to the self-efficacy and EI literature. Although both social cognitive theorists and EI theorists emphasize the importance of self-awareness, self-regulation, and self-control as determinants of self-efficacy, few studies have empirically tested the relationship between EI and self-efficacy. Of the three EI dimensions, our study found only one dimension (regulation) to significantly influence self-efficacy. This finding nevertheless underscores the importance of examining the component model of trait EI as this approach offers a more granular understanding of the effects of EI on self-efficacy.

Third, our study adds to the number of studies demonstrating the impact of past behavior (adherence) on future intentions. The finding of a direct path between adherence and future intentions provides unique insight into the prediction and control of behavior in a number of domains, especially health-related adherence behavior. Because our model integrates traditional service factors as well as social cognitive and psychological factors in examining the antecedents of adherence, it offers important implications for health service providers. Successful intervention strategies depend on understanding the factors that help



customers to adhere to weight loss programs. Our findings suggest that interventions to promote health outcomes should target customer skills and knowledge in service consumption. By providing quality service interactions, health firms can increase the customers' role clarity which helps them develop efficacious beliefs. For example, individual upfront assessments as well as milestone checks throughout the program between the provider and the customer can increase role clarity. Development of provider-customer weight loss programs should be designed to target specific behaviors in a series so that they may be consecutively mastered, with initial tasks being easier than subsequent tasks. Encouragement should be given as a person progresses in the program. Particular focus should be given to recognising the customer's ability to progress in the program and attributing previous accomplishments to their personal abilities. Any lapses in the program should be treated as opportunities to analyse and subsequently identify specific factors triggering the lapse. These suggestions could enhance self-efficacy through enactive mastery (Bandura 1982) as successful performance accomplishments in the program acts to motivate individuals to take on more difficult tasks.

Interventions should also address customer EI training given its role in influencing self-efficacy. The results from our study further assist providers in identifying regulation of emotion factors as the more salient EI dimension affecting self-efficacy. These collective actions could increase customer adherence which could deliver economic benefits to the organization. Our model thus allows researchers to examine these outcomes at a macro psycho-social or service level, as well as at more specific sub levels depending on the nature of the research and information requirements sought.

### **LIMITATIONS AND RESEARCH DIRECTION**

This research provides new insights into the consumer behavior processes on health and organizational outcomes. Nevertheless, a number of limitations, mainly related to methodology,

are acknowledged and suggestions for future research are offered. The model developed in this study represents a static model of adherence behavior as all measures were collected simultaneously, thus representing only a single point in time. A direction for future research could be the application of the model in a longitudinal study to examine how the effects of the variables on organizational and health outcomes change over time. Such studies could, for example, examine other distinctions between pre-intentional motivation processes that lead to a behavioral intention, and post-intentional volition processes that lead to the actual health behavior. Post-intentional factors could include proximal variables such as planning and recovery self-efficacy. Within these stages, interactions between the different patterns of social cognitive predictors and traditional service factors may emerge. These relationships could contribute further to our understanding of the transformative role of marketing in complex health behaviours.

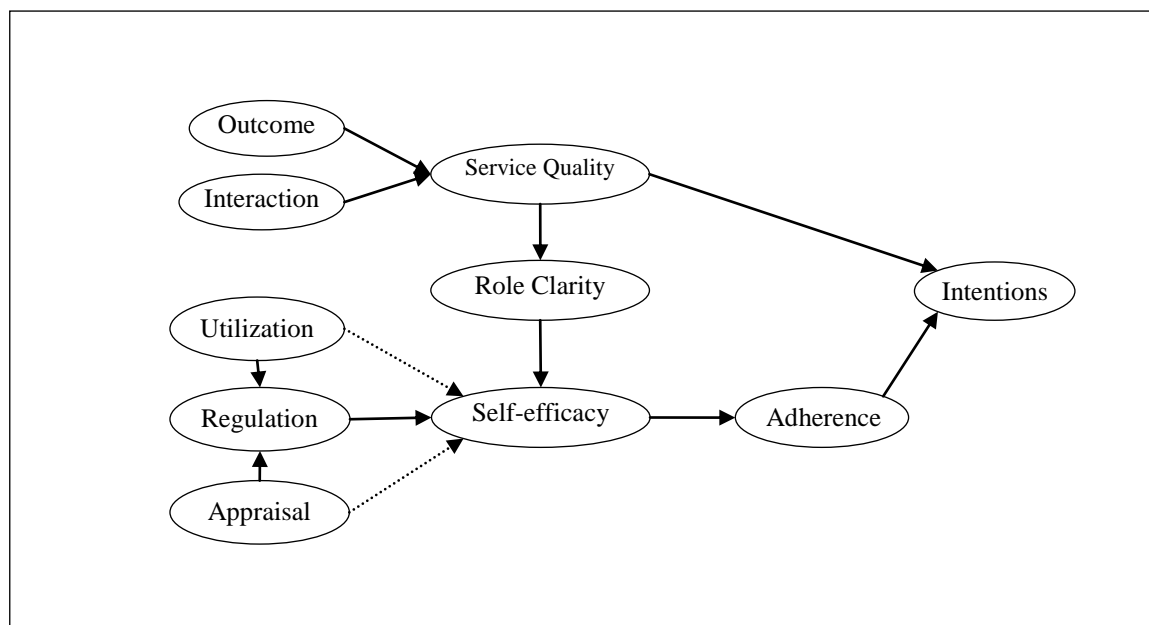
We acknowledge limitations associated with common method bias inherent in cross-sectional designs. Consistency effect refers to the tendency of respondents to try to maintain consistency in their responses to similar questions (Podsakoff et al. 2003). This is likely to be problematic in situations where respondents are asked to provide retrospective accounts, as was the case in our study. This concern was somewhat alleviated as respondents had to be on the weight loss program, thereby producing real-life perceptions. The tendency on the part of individuals to present themselves in a favorable manner relative to prevailing social norms, is a method bias known as social desirability (King and Bruner 2000). We minimized this response bias by applying the safeguards as offered by Bandura (2006) for all scales in the study. These include the anonymous nature of responses to reduce evaluative concerns, and assurances of confidentiality through a number coding (rather than a name) system. Bandura (2006) contends that efficacy judgements are not influenced by a responding bias to appear socially desirable, regardless of the domain of activity (e.g., weight loss, dietary practices).

Another limitation relates to the use of self report measures. Although we acknowledge the limitations associated with self-report measures, it was not possible to access objective adherence in this study. Importantly, support for the use of self-report measures in the business literature (Cummings, Jackson and Ostrom 1989; Heneman 1974; Lysonski 1985), recognition of the value of behavioral variables such as share-of-wallet (Keiningham, Perkins-Munn and Evans 2003), and support for the predictive validity of single item measures (Bergkvist and Rossiter 2007) together argue for the viability our adherence measure.

This study was undertaken within a single service industry. Although this approach may limit the generalizability of the findings, a high quality sample was used. The sample size was large and the response rate achieved was comparatively greater than that reported in other service quality studies (e.g., Bell, Auh and Smalley 2005). However, replications in other service contexts such as other health care services or financial services, would further increase confidence in the research model. These high involvement services also depend on customer co-production where lack of compliance can lead to adverse outcomes for consumers, organizations, and society at large. For example, people who use superannuation services but do not manage their contributions will be adversely affected at retirement. Thus our research has implications beyond health care services.

## TABLES AND FIGURES

FIGURE 1: Conceptual Model



Note: Non significant relationships are indicated by dotted lines.

**TABLE 1**  
**Descriptive Statistics and Measurement Model**

Construct	M	SD	Parameter Estimates CFA	Construct Reliability	AVE	Squared Correlations/ Discriminant Validity									
						1 <sup>a</sup>	2 <sup>a</sup>	3 <sup>a</sup>	4 <sup>a</sup>	5 <sup>a</sup>	6 <sup>a</sup>	7 <sup>a</sup>	8 <sup>a</sup>	9 <sup>a</sup>	10 <sup>a</sup>
1. Outcome quality	4.43	.70	.82-.90	.89	.74	-	.53	.43	.07	.05	.08	.03	.04	.04	.17
2. Interaction quality	4.48	.68	.94-.97	.96	.91		-	.61	.11	.03	.05	.04	.02	.04	.15
3. Service quality	4.49	.63	.87-.91	.92	.79			-	.11	.03	.06	.05	.04	.02	.14
4. Role clarity	4.47	.64	.74-.83	.84	.64				-	.03	.05	.05	.03	.04	.23
5. Self-efficacy	3.63	.85	.83-.89	.89	.73					-	.06	.10	.05	.11	.06
6. Adherence	4.06	.76	.62-.70	.71	.45						-	.35	.25	.05	.06
7. Intentions	4.57	.58	.84-.86	.88	.72							-	.31	.07	.05
8. Utilization	4.00	.72	.68-.75	.76	.51								-	.03	.03
9. Regulation	3.93	.73	.69-.73	.75	.50									-	.05
10. Appraisal	3.89	.71	.67-.74	.76	.52										-

<i>Measurement model results/goodness-of-fit indices CFA</i>									
$\chi^2$	p <	RMR	df	GFI	NFI	IFI	CFI	RMSEA	
621.39	.01	.02	360	.93	.95	.97	.97	.03	

NOTE: CFA=confirmatory factor analysis; AVE=average variance extracted; RMR=root mean square residual; GFI=Goodness-of-Fit index; NFI=Normed Fit Index; IFI=Incremental Fit Index; CFI=Comparative Fit Index; RMSEA=root mean square error of approximation.

a. The calculated values of the squared correlation coefficients between all possible pairs of constructs.

**TABLE 2**  
**Structural Model Estimates**

	Path Estimate <sup>a</sup>	t						
Outcome Quality → Service Quality	0.21	3.96						
Interaction Quality → Service Quality	0.66	12.63						
Service Quality → Role Clarity	0.41	9.02						
Role Clarity → Self-efficacy	0.18	4.12						
Self-efficacy → Adherence	0.50	9.00						
Utilize → Regulate	0.77	10.12						
Appraisal → Regulation	0.21	3.26						
Regulate → Self-efficacy	0.82	2.63						
Utilize → Self-efficacy	-0.39	-1.47						
Appraisal → Self-efficacy	-0.09	-0.95						
Adherence → Intentions	0.21	4.60						
Service Quality → Intentions	0.41	9.74						
<b>Goodness-of-fit indices</b>								
$\chi^2$	<i>df</i>	RMSEA	RMR	IFI	TLI	GFI	NFI	CFI
755.73	386	.04	.05	.96	.96	.92	.93	.96

## APPENDIX A Measures of Study Constructs

### Health Service Quality Scale (coefficient alpha=0.91; AVE=.79)<sup>a</sup>

The overall quality of the service is excellent  
 The quality of the service provided is impressive  
 The service provided is of a high standard

### Interaction (coefficient alpha=0.97; AVE=.91)<sup>a</sup>

The staff always listen to what I have to say  
 The staff treat me as an individual and not just another customer  
 I feel the staff understand my needs  
 The staff are concerned about my well-being  
 I always get personalised attention from the staff  
 I find it easy to discuss things with the staff  
 The staff explain things in a way that I can understand  
 The staff are always willing to answer my questions  
 I believe the staff care about me  
 The staff are always very encouraging, supportive and motivating

### Outcome (coefficient alpha=0.91; AVE=.74)<sup>a</sup>

I believe my success in the program will increase as a result of regular attendance  
 I believe regular visits to the center are worthwhile  
 I leave the center feeling encouraged about my progress  
 I feel hopeful as a result of attending the center

### Behavioral Intentions (coefficient alpha=0.89; AVE=.72)<sup>a,b</sup>

I would recommend the program to anyone who asks  
 I intend to complete the program  
 I say positive things about the program to other people  
 I have no intention of stopping the program  
 I will stay on the program until I have achieved my goal  
 I do not want to change to any other weight loss program

### Role Clarity (coefficient alpha=0.84; AVE=.64)<sup>c</sup>

I feel certain about what I have to do in the program  
 I am NOT sure about what I have to do in the program  
 I know what is expected of me in doing the program  
 The things I need to do in the program are clear to me  
 Directions are vague regarding what I am allowed to eat or drink

### Self-efficacy Scale (coefficient alpha=0.89; AVE=.73)<sup>d</sup>

*At this point in time, how certain are you that you can stick to the program on a regular basis...*

at parties where a lot of appetizing unhealthy food/drinks are served  
 when eating out with others when they are ordering unhealthy meals  
 when you are entertaining visitors  
 when you feel like celebrating with others  
 when someone offers you unhealthy food/drinks

### Emotional Intelligence<sup>e</sup>

#### Appraisal and Expression of Emotion (coefficient alpha=0.76; AVE=.52)

By looking at facial expressions, I recognize the emotions people are experiencing  
 I am aware of the non-verbal messages I send to others  
 I can tell how people are feeling by listening to the tone of their voice

#### Regulation of Emotion (coefficient alpha=0.75; AVE=.50)

I easily recognize my emotions as I experience them  
 I know why my emotions change

I am aware of my emotions as I experience them

#### Utilization of Emotion (coefficient alpha=0.76; AVE=.51)

I expect good things will happen  
 I use good moods to help myself keep trying in the face of obstacles  
 I seek out activities that make me happy

### Adherence Scale (coefficient alpha=0.71; AVE=.45)<sup>f</sup>

*During the previous two weeks on the program, I...*

replaced two meals with meal replacement product  
 ate a palm sized portion of protein a day  
 did not eat any other food other than that allowed by the program

NOTE: all constructs were measured on a five point scale from *strongly disagree* (1) to *strongly agree* (5).

a. Dagger et al.(2007); b. Zeithaml et al. (1996); c. Dong et al.(2008); d. Bandura (2006); e. Schutte et al. (1998); f. Developed for this study

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