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Current Opinion in Psychology

A functional contextual approach to obesity and related problems

Jennifer A Gregg[1], Jason Lillis[2] and Eric M Schmidt[3]

Approximately two-thirds of Americans are overweight or obese. Medical obesity interventions have focused primarily on weight loss, without full consideration of psychological factors. Not surprisingly weight gain following these interventions is common. Third wave behavior therapies utilize an acceptance-based, functional contextual framework to understand psychological and behavioral problems, with an emphasis on increasing values-consistent behavior rather than the reduction of negatively evaluated thoughts and feelings events. The present article summarizes the available literature of functional contextual interventions applied to obesity and collateral health conditions. Overall efficacy of these approaches, potential mediators and moderators, and areas for future research are described. Future research on such factors is warranted to improve understanding of functional contextual factors in obesity treatment.

Addresses
[1] Department of Psychology, San José State University, One Washington Square, San José, CA 95192, United States
[2] Department of Psychiatry and Human Behavior, Brown University, Box G-BH, Providence, RI 02912, United States
[3] Department of Behavioral Sciences, Rush University Medical Center, 1645 W. Jackson Blvd., Ste. 400, Chicago, IL 60612, United States

Corresponding author: Gregg, Jennifer A (jennifer.gregg@sjsu.edu)

Current Opinion in Psychology 2015, **2**:82–86

This review comes from a themed issue on **Third wave behavioural therapies**

Edited by **Kevin E Vowles**

For a complete overview see the Issue and the Editorial

Available online 20th December 2014

http://dx.doi.org/10.1016/j.copsyc.2014.12.019

2352-250X/Published by Elsevier Ltd.

Introduction

Obesity is a major public health problem. More than two-thirds of adults in the United States are now overweight (body mass index [BMI] > 25 kg/m^2) or obese (BMI > 30 kg/m^2) [1]. Despite a sharp increase over the past 40–50 years, the prevalence of obesity remains at 35%, similar to 2003–2008 levels, except for smaller subgroups (e.g., African American and Mexican American women) [1]. It is unknown whether this is a pause in the larger upward trend or a true plateau, however there have been no indications of overweight and obesity rates decreasing among any group or subgroup of US adults.

Overweight and obesity are associated with significantly increased health risks including high blood pressure, high cholesterol, type 2 diabetes, coronary heart disease, congestive heart failure, stroke, and increased all-cause mortality [2,3]; as well as substantial direct health care costs [4,5] and indirect costs incurred through loss of productivity [6,7]. Additionally, obese individuals report significantly impaired quality of life [8,9], reduced quality of interpersonal relationships [10], higher rates of depression [11], and lower self-esteem [10] than non-obese individuals.

Biological factors and genetic differences contribute to individual differences in observed weight; however, the driving factor in the overall increase in prevalence of overweight and obesity has been the changing environment. Major factors include the availability of low cost, highly palatable, energy-dense foods (and co-occurring mass marketing of these foods), the increase in variety/use of sedentary forms of entertainment (e.g., TV, internet, videogames), and the reduction in jobs requiring physical labor [12]. In addition, the use of food as a primary source of positive reinforcement and emotion regulation [13], and the neurobiological changes that result from repeated exposure to certain foods in these contexts [14] have been posited as potentially important factors.

The most common interventions for weight reduction are: firstly, lifestyle intervention, which combines a low or very-low calorie diet, physical activity prescription, and behavior therapy techniques [15], and secondly, weight loss surgery [16]. Medications are rarely used as weight loss interventions on their own, but have been shown to be effective in combination with other treatments [17]. Patients lose on average 7–10% of their body weight as a result of participating in a lifestyle intervention (e.g., 8–9 kg for a 5′6″ female with BMI = 32) [15], however by 3–5 years post treatment, 80% of patients have returned to or exceeded their pretreatment weight [18]. Although some evidence exists that metabolic changes following weight loss contribute to weight gain following intervention [19–22] such changes do not fully explain the weight gain [23–25]. Surgery is most frequently performed on severely obese patients with BMI > 40. Patients lose on average between 20–30 kg [16], depending on starting weight and procedure, however more than 20% experience medical complications, including mortality in rare cases, and weight gain following surgery is still common [26].

Functional contextual conceptualization

One factor that may contribute to weight gain following treatment is the failure of standard treatments to address the *function* of eating and sedentary behaviors for obese

individuals. The overconsumption of energy-dense food at a high rate likely serves other purposes beyond the satiation of hunger or fueling the organism. Recent models have illuminated possible functions of eating behavior, particularly related to a cycle of distress related to external and internalized weight stigma.

Being obese is stressful. Seacat and colleagues [27] found that a group of overweight and obese women filling out a daily diary experienced about 3 weight-stigmatizing events *per day*. Such stigmatizing events may include insulting or critical comments by others, workplace or healthcare discrimination, or derogatory media representation [28]. In addition to stigma from outside sources, obese individuals often develop what has been called 'internalized stigma' or 'self-stigma' whereby stigmatizing beliefs and attitudes about attractiveness, competence, and one's value are adopted by the individual himself or herself [29,30]. Not surprisingly, these experiences are associated with increased negative affect [31]. For some, eating calorie-dense foods appears to serve as a strategy to reduce or change this negative affect [13,32], thus contributing to a cycle where eating helps regulate negative emotions in the short-term, but contributes to the maintenance of weight gain and negative emotions over time [33].

While traditional behavioral treatments seek to address this cycle by attempting to change the content of thoughts and feelings related to internalized stigma, newer functional contextual approaches seek instead to attend to the individual's response to the thoughts and feelings [34]. Since their inception in the 1940s, behavior therapy interventions have evolved from initially focusing primarily only on external, observable behaviors, to concentrating primarily on cognitions, to contemporary treatments which are focused on examining the function of avoiding negatively evaluated experiences [35]. This third wave includes such treatments as acceptance and commitment therapy [36], dialectical behavior therapy [37], and functional analytic psychotherapy [38] among others.

Acceptance and commitment therapy (ACT) [36], the most well-researched third wave behavioral approach in the area of obesity and health-related problems, provides a novel approach to these problems. ACT primarily targets two related processes: firstly, the reduction of short-term negative reinforcement of eating behavior (or experiential avoidance), and secondly, the increase of new, values-consistent behavioral responses. Given the functional contextual approach and available data with obesity, the present paper will focus on this conceptualization.

Experiential avoidance

The first process conceptualized as important from a functional contextual model of health behavior relates to the *function of the problem behavior*. As noted above, overeating and sedentary patterns of behavior are often negatively reinforced through the removal, or 'experiential avoidance', of aversive urges or feelings. Experiential avoidance is defined as the attempted avoidance of negatively evaluated thoughts and feelings, even when doing so incurs negative consequences [39]. In the present context, experiential avoidance may be expressed as overeating, eating unhealthful foods, failing to manage chronic health conditions, adopting a sedentary activity pattern, or other behaviors which serve to reduce or eliminate reminders of one's weight or to reduce short-term distress. These behaviors are negatively reinforced and subsequently maintained through the removal of negatively evaluated thoughts and feelings from awareness.

Not surprisingly, experiential avoidance is associated with higher levels of problematic health behaviors across a variety of health conditions [39]. In one study, weight-related self-stigma and experiential avoidance significantly predicted health-related quality of life in weight-loss patients, (rendering BMI non-significant); and suggesting these are key factors in the functioning of overweight and obese individuals [30].

One specific form of experiential avoidance in overweight and obese individuals is the suppression of thoughts or cravings related to food. Actively suppressing thoughts about food is associated with higher frequency of binge eating among obese women [30]. In analog laboratory studies, thought suppression is related to increased urges to eat calorie-dense food among individuals susceptible to food stimuli [40], and with overweight individuals [41] and well as those without risk factors [42•].

Overweight and obese community-dwelling adults that endorsed higher levels of food thought suppression tended to also report more frequent binge eating, food craving, and other unhealthy eating-related behaviors [43]. In fact, food-related thought suppression may mediate the relationship between psychological stress and weight cycling in women [44].

Clarification of personal values

The second process conceptualized as important in a functional contextual approach is the *function of the new, more healthful behavior*. Given current environmental and social conditions, choices to exercise and eat healthfully may require verbally constructed motivation through pathways related to overarching personal values (e.g., 'I value taking care of my body') rather than default responding, which may be more consistent with sedentariness and eating of energy-dense food.

Recently, intrinsic and autonomous motivation, such as that defined by personal values and goals, has been shown to predict the adoption of more healthful exercise [45] and eating [46] behavior. Additionally, values clarification