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Do participants with children age 18 and under have suboptimal weight loss?

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ABSTRACT

Objectives: Parenthood is a time marked by behaviors that may promote risk for weight gain, including decreased physical activity and increased unhealthy eating. Little is known about parents in the context of behavioral weight loss, such as whether they differ in weight losses, and related barriers, or behaviors.
Method: We compared parents of children aged 18 and younger (n = 105) to other participants who did not have children, or whose children were in adulthood (n = 215) in a behavioral weight loss program to evaluate six-month weight losses, and weight loss barriers and behaviors.
Results: Parents of minor children lost less weight than other participants, and parental status interacted with gender such that men without minor children lost the most weight. Although parents of minor children identified greater stress, depression, time-related barriers to physical activity, and had less adherence to calorie goals, they did not differ from other participants in session attendance, emotional overeating, disinhibited eating, or physical activity.
Discussion: Parents of minor children appear to have greater weight loss barriers, greater difficulty adhering to calorie goals, and less weight loss. Additional research is needed to identify ways to better serve parents in behavioral weight loss programs.

1. Introduction

Approximately half of individuals who undergo behavioral weight loss interventions do not experience the expected magnitude of weight loss during the first six months of treatment (Diabetes Prevention Program Research Group, 2002; Jakicic, Tate, Lang, et al., 2012; Lundgren, Malcom, Binks, & O'Neil, 2009). This is problematic because suboptimal weight losses are linked to less reduction of cardiovascular risk factors (J. D. Brown, Buscemi, Milsom, Malcolm, & O'Neil, 2016). One important, yet understudied, potential challenge to weight loss is parental status, specifically for those with one or more minor children. This is a challenge in need of further study, given that there is evidence that the transition to parenthood is associated with decreased physical activity (PA), increased unhealthy eating, and a steepened weight gain trajectory over time known as the "child effect" (Aschemann-Witzel, 2013; Bellows-Riecken & Rhodes, 2008; Hull et al., 2010; Laroche et al., 2013; Laroche, Hofer, & Davis, 2007; Umberson, Liu, Mirowsky, & Reczek, 2011). Longitudinal data suggest that the effect of parenting minor children on weight continues beyond the transition to parenthood (Laroche et al., 2013; Umberson et al., 2011). Additionally, those with poorer health shortly after becoming a parent experiencing faster declines in health over time (Hsu & Wickrama, 2017). Overall, findings suggest that the "child effect" on parents' weight and health behaviors is sustained over the child rearing years.

There are several reasons why parenting minor children may pose a barrier to weight loss. First, the greater stress and negative emotions that parents face (Nelson, Kushlev, & Lyubomirsky, 2014) may pose challenges for adherence to healthy eating and physical activity goals. Personal/family stress was one of the top obstacles to weight management identified by individuals who previously completed a weight loss program (DePue, Clark, Ruggiero, Medeiros, & Pera, 1995). Although DePue and colleagues do not specify whether this category specifically pertains to parenting stressors, their respondents were on average 43 years old, 75% female, and 76% married, a demographic that likely includes at least some parents. Additionally, stress and negative affect are positively associated with, and may trigger, emotional eating (Jansen et al., 2008; Macht & Simons, 2000; Richardson, Arsenault, Cates, & Muth, 2015). More specifically, motherhood-related stress has been cited as a contributing factor to unhealthy eating patterns (Chang, Nitzke, Guilford, Adair, & Hazard, 2008). Second, parents

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with minor children may have reduced time to devote to planning and executing key weight loss behaviors (Chang et al., 2008) that are closely related to outcomes (Elfhag & Rössner, 2005). Time has been cited as a barrier to PA (Mailey, Huberty, Dinkel, & McAuley, 2014), as well as healthy eating and food preparation among parents (Horning, Fulkerson, Friend, & Story, 2016; Jabs et al., 2007; Nuss, Clarke, Klohe-Lehman, & Freeland-Graves, 2006). Reduced free time may also impact attendance at intervention meetings, which is a major component in acquiring the necessary skills for successful weight loss. Parents with minor children may also be more likely to have high calorie foods and beverages in the home, increasing the challenge of adherence to calorie goals.

It is also possible that the effect of parental status may differ by gender. Some have suggested the "child effect", pertaining to steepened weight gain trajectories for parents, is actually only present for mothers (Laroche et al., 2013). While there are some physiological effects of becoming a parent that are unique to women (e.g., pregnancy-related weight gain and potential weight retention), there are other barriers that may contribute to the "child effect" for women well beyond the postpartum period. Women often dedicate more time and resources to childcare and family needs than men (Kotila, Schoppe-Sullivan, & Kamp Dush, 2013; Nomaguchi & Milkie, 2003; Yavorsky, Kamp Dush, & Schoppe-Sullivan, 2015), and some preliminary research supports the idea that barriers to weight control behaviors may be especially pronounced for mothers. Multiple role expectations, including provision of child care, a sense of commitment to others, along with time burdens, fatigue, and limited family support, have been cited as an influence on PA levels among women (Belza & Warms, 2004; P. R. Brown, Brown, Miller, & Hansen, 2001; O'Dougherty et al., 2008; Ransdell, Vener, & Sell, 2004), and as factors influencing attrition from a weight loss program (Jordan et al., 2008). Perceived barriers to activity are higher, and PA levels are lower, among mothers of young children compared to similarly aged women who do not have children (W. J. Brown, Mishra, Lee, & Bauman, 2000; Verhoef & Love, 1994). It is possible therefore that the potential reduction in time to devote to weight loss behaviors, competing caretaking demands, and associated stress may be greatest for women who have minor children. Subsequently, this may negatively impact their weight loss success the most.

To date, no published research has investigated the individual effect of parental status, or the combined impact of parental status and gender on weight loss, during a behavioral weight loss (BWL) intervention. Since BWL programs produce suboptimal effects for a substantial portion of participants, and the weight trajectory of parents compared to others suggests a need for effective weight loss interventions, it is important to identify whether parents differ from other participants in weight loss. Studies that have evaluated BWL among parents have often done so in single gender designs involving just mothers [e.g.,(Hartman, Hosper, & Stronks, 2011; Herring, Cruice, Bennett, Davey, & Foster, 2014; Jordan et al., 2008)], or less commonly, just fathers [e.g., (Morgan et al., 2014)], which removes the possibility of evaluating gender effects within these paradigms. Greater understanding of the effects of parental status, and their interaction with gender, has important clinical implications for optimizing outcomes in BWL.

The primary aim of this study was to determine whether parental status predicted weight loss during behavioral intervention. This study also tested whether gender moderated the relationship between parental status and weight loss. Specifically, we expected that women with minor children would have the smallest weight losses, while men without minor children would have the greatest weight losses. To better understand the impact of parental status on our primary outcome of interest (i.e. weight loss), we planned to explore potential factors that may contribute to reduced weight loss among parents of minor children. Specifically, we planned to determine whether participants with versus without minor children differed in specific weight loss barriers (i.e., stress, negative affect, or perceived time available for weight control efforts), weight loss behaviors (i.e., session attendance, calorie goal adherence and PA), and problematic eating behaviors (i.e., emotional overeating, disinhibited eating).

2. Materials and methods

2.1. Participants and procedures

The sample (N = 320) was 78% female with a mean age of 52.77 (SD = 10.32). At the start of the study, BMI averaged 35.12 kg/m^2 (SD = 4.76). The sample self-identified as approximately 70.4% white, 24.8% black or African American, 1.6% Asian, 2.8% more than one race, and < 1% American Indian/Native Alaskan. The majority of participants (96%) were not Hispanic or Latino. We operationalized minor children as youth ≤18 years old to capture the parenting responsibilities that occur through the end of a child's high school years. Please note, for readability and simplicity, this paper refers to participants with children ≤18 years old at baseline as "parents of minor children" and uses the term "other participants" to refer to participants who did not have children, or whose children were > 18 years old at baseline.

We elected to collapse non-parents and parents of older-aged children into a single comparison group for several reasons: 1) parenting stressors may change once children are able to assume greater responsibility (e.g., less acute caregiving needs/supervision) and as such the stressors parents of children over 18 may more closely resemble general family stressors that non-parents also face, 2) after children reach the age of majority they may leave home to pursue independent endeavors (e.g., college, full-time employment) which may also change the extent to which they influence their parents' weight control behaviors, 3) there was no theoretical reason to expect that those who never had children in the home would differ from those who had adult children who likely were no longer in the home, in the context of current weight control behaviors. In sum, we believed that parents of children over 18 were likely to be more similar to non-parents in that they presumably had greater control over their time and ability to practice weight control behaviors. For these reasons, we elected to include all participants without children ≤18 in the "other participant" group.[1]

Approximately one-third of the sample indicated that they had at least one child ≤18 years old. More specifically, 33% of female participants (n = 83) and 31% of male participant (n = 22) had one or more minor child at the time of study enrollment. Most (80%) parents of minor children were currently married. The remainder were divorced or separated (12%), never married (7%), or widowed (1%). Half (51.5%) reported having one child ≤18 years old, while 36.6% reported having 2, 6.9% reported having 3, and 5.0% reported having 4. The children ranged in age from < 1 year old to 18 years old; the average age was 12.9 years old (SD = 4.2). Most (97.4%) parents of minor children reported that they lived with their children at baseline. Two participants who were parents of minor children reported that they did not reside with their children, who were aged 17 and 18, respectively; we elected to retain these cases in analyses given that our aims focused on parental status rather than living arrangements.[2]

This study was approved by the Institutional Review Board of Drexel University. Informed consent was obtained from all individual

[1] Please note, analytically, there were no differences in key study variables between participants with adult children, and participants without children. Specifically, comparisons were as follows: BMI (t (214) = 0.129, p = 0.90), time for PA (t (206) = 0.34, p = 0.73), time for weight control (U (215) = 5484, p = 0.53), negative affect (t (214) = −0.57, p = 0.57), stress (U (153) = 2445.5, p = 0.10), session attendance (t (214) = −0.22, p = 0.83), calorie goal adherence (t (210) = 0.27, p = 0.79), PA (t (208) = −0.36, p = 0.72), emotional overeating (t (170) = −0.34, p = 0.74), disinhibited eating (t (177) = 1.36, p = 0.18).

[2] Please note, analyses were re-run excluding cases in which parents of minors did not reside with their children. These cases appear to have had a minimal impact on the overall findings. The p-values of the analyses excluding these cases did not differ in significance from those reported in text.