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Examining motivational interviewing plus nutrition psychoeducation for weight loss in primary care

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ABSTRACT

Objective: Our previous randomized controlled trial found that nutrition psychoeducation (NP), an attention-control condition, produced statistically significantly more weight loss than usual care (UC), whereas motivational interviewing (MI) did not. NP, MI, and UC resulted in medium-large, medium, and negligible effects on weight loss, respectively. To examine whether weight loss could be further improved by combining MI and NP, the current study evaluated the scalable combination (MINP) with accessible web-based materials.

Methods: 31 adults with overweight/obesity, with and without binge-eating disorder (BED), were enrolled in the 3-month MINP treatment in primary care. Participants were assessed at baseline, post, and 3-month follow-up. Mixed-model analyses examined MINP effects over time and the prognostic significance of BED.

Results: Mixed-model analyses revealed that percentage weight loss was statistically significant at post and 3-month follow-up; d' = 0.59 and 0.53, respectively. BED status did not predict or moderate weight loss. Twenty-one percent (6 of 28) and 26% (7 of 27) of participants attained 5% weight loss by post-treatment and 3-month follow-up, respectively. Participants with BED had statistically significantly greater improvements in disordered eating and depression (in addition to binge-eating reductions) compared to those without BED.

Conclusion: MINP resulted in weight and psychological improvements at post-treatment and through 3-months after treatment completion. There did not appear to be additional benefits to combining basic nutrition information with MI when compared to the previous randomized controlled trial testing nutrition psychoeducation alone.

Clinical Trial Registration: NCT02578199.

1. Introduction

Obesity is a prevalent and costly health problem [1] related to increased risk of early death, cardiovascular disease, hypertension, stroke [2,3], cancer [4], and dementia [5]. This insidious public health issue impacts men and women of all races and ages, [1] and the potential consequences of the obesity epidemic cannot be overstated. To manage the public health challenge that obesity poses, developing weight loss treatments that can be broadly disseminated is critically important [6]. For instance, overweight and obesity interventions within primary care offices are a focus of much recent research [7]. Of potential interest to busy primary care centers is Motivational Interviewing (MI) for weight loss. MI is an evidence-based, time limited, person-centered counseling approach for strengthening a person's motivation and commitment to behavior change [8]. Fortunately, MI addresses many barriers to providing weight loss treatment in primary care, which include limited time, resources, and training [9,10], and MI can be implemented effectively by general medical practitioners to treat health-related behavioral concerns [11].

In general, evidence supports the use of MI for weight loss in primary care [12]. A recent review of the literature suggested that MI for weight loss interventions incorporating additional support via technology (i.e., computer materials, internet, and/or emails) may further improve weight loss outcomes [12–19]. Relatively few studies of MI for weight loss in primary care, however, incorporated such technology. Further, when technology was used, it typically involved computer programs/websites that were not easily or financially accessible to primary care centers. In addition, studies of MI for weight loss in primary care mostly utilized MI clinicians such as dieticians, a resource that may not be readily available in typical primary care centers. These

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studies also limited recruitment to individuals with obesity only. Due to individuals' tendency to gain weight annually, [20–23] it is important to include those with obesity and overweight. Further, follow-up assessments were limited to immediately post treatment and did not assess weight loss after a period of treatment cessation, and MI compliance and treatment-fidelity were not included in the studies. Moreover, no studies compared MI to a non-MI attention-control condition, disallowing conclusions about MI's superiority to other primary care weight loss interventions.

Finally, the role that binge-eating disorder (BED) may play in MI for weight loss in primary care settings has not been sufficiently examined in existing studies. BED is common within primary care, particularly among weight-loss treatment seeking individuals, [19] associated strongly with excess weight and poor health-related outcomes, [24] and may negatively impact weight loss treatment outcomes [25]. To our knowledge, only one MI for weight loss in primary care study examined the impact of a BED diagnosis [19] and found no relationship between BED status and weight loss outcomes. Nonetheless, given the possibility that a BED diagnosis may diminish weight loss outcomes when using MI, more work needs to occur in this area.

To address these limitations, we designed and conducted a randomized controlled trial (RCT) with medical assistants as clinicians, recruited individuals with both overweight and obesity, utilized technology and supporting materials that any primary care provider could easily and currently access, thoroughly assessed for and randomized based on presence of BED, systematically evaluated MI implementation, and included 3- and 12-month follow-up assessments [19,26]. In addition to comparing MI to usual care (i.e., participants attending appointments with their primary care provider as they would have prior to enrollment), we included a nutrition psychoeducation intervention designed as an attention-control comparison condition (19). The attention-control condition (nutrition psychoeducation) included basic nutrition information (e.g., how to read nutrition label, healthy sources of protein and carbohydrates) provided by medical assistants (different medical assistants from those providing MI). Discussing goal setting or behavioral changes during attention-control sessions was proscribed; independent fidelity assessment showed that MI elements were not evident in nutrition psychoeducation sessions [19]. The interventions were designed to be scalable and brief (approximately 2 h and 20 min total over 12 weeks). The MI-only intervention did not result in superior weight loss compared to usual care, however, the nutrition psychoeducation intervention led to significantly more weight loss compared to usual care. The weight loss Cohen's d' effect sizes for these scalable weight loss interventions in primary care were considered medium (d' = 0.54), medium-large (d' = 0.77), and small (d' = 0.07) for the MI-only, nutrition psychoeducation (attention-control) only, and usual care, respectively. Both MI-only and nutrition psychoeducation, however, resulted in approximately 25% of participants maintaining/achieving 5% weight loss by the 3-month follow-up assessment. In addition to superior weight loss, the nutrition psychoeducation condition also resulted in decreased triglycerides and depression when compared to usual care.

Based on the previous literature and the Barnes and colleague (2014) results, we designed the current follow-up study to test if combining MI and nutrition psychoeducation may bolster the promising outcomes [19]. The current trial tested a weight loss intervention in primary care matched for attention to the previously published trial, allowing for comparison of MI plus nutrition psychoeducation with dismantled MI-only and nutritional psychoeducation only. It is important to test this combination as one cannot assume that "more is better" for many reasons. Interventions in primary care need to be time limited, so it was unclear if interventionists could provide MI and nutrition psychoeducation within the same time frame as they previously provided just one or the other. Additionally, it is possible that psychoeducation could be delivered in a manner at odds with MI. MI relies on the individuals' interests/desires, rather than providing potentially unsolicited information as in psychoeducation. We tested if medical assistants could provide MI-consistent treatment while including nutrition psychoeducation. We followed the same recruitment procedures and eligibility requirements and we monitored enrollment on several demographic variables (i.e., sex, race, age, body mass index, and BED status) to ensure a highly similar participant group. We hypothesized that the MI plus nutrition psychoeducation weight loss trial in primary care would result in significant decreases in weight, and related physiological and psychological improvements.

2. Materials and methods

2.1. Participants

Participants were 31 adults (body mass index [BMI] between 25 and 55) with overweight or obesity receiving primary care services at an urban university-based medical healthcare center. They were recruited through primary care provider referrals and flyers placed in waiting/patient rooms. Recruitment continued until the current enrolled sample size was like the previous trial (n = 30 per condition) and current participants' demographics did not differ significantly from those in the previous trial [19]. Recruitment was intended to enhance generalizability by utilizing relatively few exclusionary criteria. Exclusion criteria included over 65 years old, severe psychiatric (e.g., schizophrenia) or medical problems (e.g., cardiac disease), pregnancy/breastfeeding, or uncontrolled liver, thyroid disease, hypertension, or diabetes. The Physical Activity Readiness Questionnaire (PAR-Q) [27] was used to exclude individuals with cardiovascular problems, chest pains, and unexplained/frequency dizziness. Participants endorsing high blood pressure, physical conditions that may prohibit physical activity, or explainable/infrequent dizziness were required to obtain primary care provider consent to participate. Participants were required to have regular internet and telephone access.

2.2. Measures

The Eating Disorder Examination (EDE)[28], a semi-structured interview for assessing eating disorders including BED, has demonstrated good inter-rater and test-retest reliability with samples of individuals with BED [29,30]. The EDE-Global score provides an overall index of eating disorder symptomatology, with higher scores reflecting greater severity. The EDE also assesses frequency of loss of control over eating with both unusually large amounts of food (objective binge-eating episodes) and regular/small amounts of food (subjective binge-eating episodes). For the current analyses, we examined number of days in the past 28 days that the participants reported these episodes.

The Beck Depression Inventory (BDI)[31] is a self-report measure of current depression symptoms with higher scores reflecting increased severity; the BDI has excellent reliability and validity [32].

The Autonomous Motivation (AMQ)[33] subscale of the Treatment Self-Regulation Questionnaire is a self-report measure of internal/personal reasons for losing weight with satisfactory reliability. Higher scores reflect higher levels of motivation.

2.3. Physical measurements

Height was measured at baseline only using a wall measure. Weight was measured at all assessment points using a large-capacity digital scale. Blood pressure and resting heart rate were measured using automated blood pressure monitors, recorded readings were an average of two measurements obtained in a standardized manner by the clinicians. Waist circumference was measured using the umbilicus as a reference point. Assessments were completed at baseline, mid-treatment (week 6), post-treatment (week 12), and 3-month follow-up (week 24) except for the EDE which was not administered at mid-treatment (week 6). Fasting blood work was drawn and analyzed by Quest Diagnostics at baseline and post only.