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Reliability and concurrent and construct validity of the Strategies for Weight Management measure for adults

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KEYWORDS

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Summary

Introduction: This study evaluates the reliability and validity of the strategies for weight management (SWM) measure, a questionnaire that assesses weight management strategies for adults. The SWM includes 20 items that are categorized within the following subscales: (1) energy intake, (2) energy expenditure, (3) self-monitoring, and (4) self-regulation.

Methods: Baseline and 6-month data were collected from 404 overweight/obese adults (mean age = 22 ± 3.8 years, 68% ethnic minority) enrolled in a randomized controlled trial aiming to reduce weight by improving diet and physical activity behaviours. Reliability and validity were assessed for each subscale separately. Cronbach alpha was conducted to assess reliability. Concurrent, construct I (sensitivity to the study treatment condition), and construct II (relationship to the outcomes) validity were assessed using linear regressions with the following outcome measures: weight, self-reported diet, and weekly energy expenditure.

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Results: All subscales showed strong internal consistency. The strength of the validity evidence depended on subscale and validity type. The strongest validity evidence was concurrent validity of the energy intake and energy expenditure subscales; construct I validity of the energy intake and self-monitoring subscales; and construct II validity of the energy intake, energy expenditure, and self-regulation subscales.

Conclusions: Results indicate that the SWM can be used to assess weight management strategies among an ethnically diverse sample of adults as each subscale showed evidence of reliability and select types of validity. As validity is an accumulation of evidence over multiple studies, this study provides initial reliability and validity evidence in one population segment.

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Introduction

Overweight and obesity is an epidemic affecting two-thirds of the population in the United States [1]. It is associated with an increased risk for many diseases and conditions including heart disease, high blood pressure, diabetes, and certain cancers [2]. It is recommended that individuals with a Body Mass Index (BMI) greater than 25 kg/m² who have weight-related comorbidities lose at least 5–10% of their body weight [3]. Losing this modest amount of weight can improve cardiometabolic risk factors and may attenuate many of the negative consequences of obesity [2].

It is well known that lifestyle behaviour modification that includes reducing energy intake and increasing energy expenditure produces weight loss and should be considered the first line of intervention [3–6]. Weight loss requires a negative energy balance; that is, energy intake must be lower than energy expenditure [7]. To reduce energy intake, obese individuals should increase intake of low energy dense foods, such as fruit, vegetables, and whole grains; decrease intake of fat and added sugar [8]; and increase their awareness of energy content of foods and portion size [9]. To increase energy expenditure, individuals are advised to engage in 30 min or more of moderate-intensity physical activity (PA) on most days of the week [10] and to increase “lifestyle activities”, the PA that can be part of everyday life such as biking or walking instead of driving [11,12].

The strategies for weight management (SWM) measure is a self-report questionnaire assessing use of energy intake and energy expenditure lifestyle modification strategies. It includes 20 strategies commonly recommend in interventions to promote weight management. Items are categorized within the following subscales: (1) energy intake, (2) energy expenditure, (3) self-monitoring, and (4) self-regulation. The SWM was inspired by the

26-item *Eating Behavior Inventory* (EBI), a widely used self-report questionnaire published in 1979 that assesses use of recommended behavioural strategies to promote reduced energy intake and weight management in adults [13]. Development of the SWM also was informed by social cognitive theory (SCT) [14]. A key component of SCT is that human behaviour is explained in terms of a reciprocal model in which behavioural capacities, personal factors, and environmental influences interact. The SWM is different from the EBI because the SWM contains updated eating behaviour strategies and energy expenditure strategies. Development of the SWM, including results of exploratory (EFA) and confirmatory factor analyses (CFA) and correlate models, has been described previously [15]. The 4 subscales found with EFA and CFA are consistent with the underlying theoretical framework of SCT as self-monitoring and self-regulation are key components of this theory.

Researchers can use the SWM to assess use of behavioural strategies to evaluate effectiveness of weight management interventions and to better understand the mechanisms of weight loss. It also can be used to tailor intervention content. For instance, researchers can conduct a baseline assessment of weight management strategies using the SWM to identify unique diet and PA behaviour challenges for each participant. To our knowledge, there is no validated questionnaire similar to the SWM. Other questionnaires that assess diet and energy expenditure behaviours measure food intake patterns or time spent in PA as opposed to behavioural strategies to improve weight management [16,17].

The aim of the current study is to assess reliability and concurrent and construct associations of the SWM with weight, diet, and PA variables. These analyses involve an ethnically diverse sample of overweight or obese adults enrolled in a 6-month weight loss intervention.

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