



Theoretical correlates of overweight in a Hispanic community sample

Julie Blow, B. S., Ivan Torres, B. S., Romina Perez, Alexandra Garcia, Itzel Zambrano, & Theodore V. Cooper, Ph. D.
Department of Psychology, University of Texas at El Paso



Abstract

In the U. S., Mexican-Americans show significantly higher rates of overweight and obesity relative to other ethnocultural groups. However, there is a paucity of literature regarding theoretically-based constructs related to weight control. The aims of this study included observing theoretically based correlates of weight in an overweight / obese Hispanic sample to inform future intervention efforts.

Two hundred and thirty one self-reported Hispanic participants (64.1% female) were recruited from a local community healthcare clinic. Inclusion criteria for the study included being Hispanic, aged 18 or over, and having a body mass index (BMI) of 25 or greater. Participants completed measures that included demographics and theoretical constructs from Self-Determination Theory (SDT; e. g. perceived competence), Transtheoretical Model (TTM; e. g. pros and cons of weight loss), and Social Cognitive Theory (SCT; e. g. perceived self-efficacy). Participants' height, weight, and waist circumference were also measured.

Descriptive analyses assessed participant characteristics and weight-related risk factors. Inferential analyses included three hierarchical regression models with measured weight as the dependent variable and constructs from SDT, TTM, and SCT entered into the second steps of Models 1, 2, & 3, respectively. Descriptive findings suggest a large portion of the sample meet clinical recommendations for weight loss (beyond BMI). Inferential findings suggest, after controlling for age, sex, and height, higher weight was associated with SDT decreased perceived competence for diet ($\beta = -.22, p = .032$), TTM increased pros of weight loss ($\beta = .36, p = .003$), and TTM increased helping relationships ($\beta = .25, p = .015$). There are no associations between weight and SCT constructs,

Implications include a clear need for intervention within this population with SDT and TTM-based components, specifically focusing on social support, decisional balance, and perceived competence.

Introduction

- Obesity and overweight, which is defined as a body mass index (BMI) of 25 or greater (Centers for Disease Control and Prevention [CDC], 2010) is associated with many diseases, such as type 2 diabetes, certain cancers, high blood pressure and high cholesterol (Weight Control Information Network, 2007).
- The rates of obesity and overweight in Mexican-American populations in the U. S. are significantly higher than the national average, with 35.9% of men and 45.1% of women being obese, and 80% of men and 76.9% of women being overweight (Flegal et al., 2010).
- There is a dearth of literature with regard to what theoretically-based components should be incorporated into weight loss interventions for Hispanic populations.
- Behavioral weight loss interventions have primarily been derived from one of three theoretical models: Self-Determination Theory (SDT) (Ryan & Deci, 2000), the Transtheoretical Model (TTM) (Prochaska & Velicer, 1997), and/or Social Cognitive Theory (SCT) (Bandura, 1997).
- SDT is a motivation-based model, which purports that successful behavior change occurs when one moves from being amotivated to being externally motivated and then to being internally motivated. SDT has three constructs: autonomy, competence, and relatedness.
- TTM is a motivation-based model that seeks to increase readiness to change a behavior using five stages of change: precontemplation, contemplation, preparation, action, and maintenance.
- SCT purports that behavior change stems from the interaction of environment and personal beliefs. The factors in SCT that are believed to affect behavior are: goals, perceived self-efficacy, outcome expectancies, facilitators, and impediments.

Aims and Hypotheses

- Primary aims include observing theoretically based correlates of weight in an overweight / obese Hispanic sample to build the best fitting model to use in future weight loss interventions with Hispanic community populations. Theoretical constructs derived from SDT, TTM, and SCT were assessed.
 - Hypotheses were that lower weight would be associated with:
 - Higher scores on SDT constructs
 - Increased readiness to change (TTM)
 - Higher scores on all SCT constructs with the exception of impediments.

Methods

Participants

- A community sample of 232 overweight/obese Hispanic participants were recruited at a local health care clinic.
 - Inclusion criteria
 - Hispanic descent (self-reported)
 - Age 18 or older
 - BMI of 25 or greater
- 64.1% female
- Age: 45.07 years ($SD = 13.81$)
- 27.7% reported a personal history of type 2 diabetes.
- 23.8% reported a personal history of high blood pressure.
- Over 50% reported a family history of type 2 diabetes or high blood pressure.
- 20.4% reported not exercising regularly.

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Methods continued

Measures

The following measures were used for the purposes of this study:

- A brief screening form which assessed age, ethnicity, and self-reported height and weight was used to determine eligibility.
- Typical demographic information and information regarding risks associated with obesity and overweight was obtained.
- SDT
 - Treatment Self-Regulation Questionnaires for Diet and Exercise** (TSRQ D & E; Deci & Ryan, 1985): Two 15-item measures that assess why a participant would engage in a healthy diet or exercise program. Each has three subscales: autonomous, controlled, and amotivation. Each subscale is averaged to determine a score. All subscales demonstrated adequate internal reliability with the lowest being the TSRQ amotivation subscale for diet, whose reliability was .63.
- Perceived Competence Scales for Diet and Exercise** (PCS D & E; Deci & Ryan, 1985): Two 4-item measures that assess confidence in maintaining a diet or exercise program. Items are averaged to obtain a score. PCS D: $\alpha = .96$; PCS E: $\alpha = .97$.
- Health Care Climate Questionnaires for Diet and Exercise** (HCCQ D & E; Deci & Ryan, 1985): Two 6-item measures that assesses whether a health care provider is perceived as autonomously supportive versus controlling when maintaining a diet or exercise program. Items are averaged to obtain a score. HCCQ D: $\alpha = .96$; HCCQ E: $\alpha = .95$.
- TTM
 - Exercise Stage of Change (Short Form)** (ESC; Marcus, Selby, Niaura, & Rossi, 1992): A single item algorithm which assesses if one is currently engaged or plans to engage in regular exercise. The answer determines which stage of change one is in.
 - Weight Decisional Balance** (WDB; O'Connell & Velicer, 1988): A 20-item measure that assesses the perceived pros versus the cons of losing weight. Items are summed to create pro and con scores. WDB Pros: $\alpha = .85$; WDB Cons: $\alpha = .86$.
 - Weight Stage of Change (Short Form)** (WSC; Prochaska et al., 1992): A 4-item algorithm that assesses if a participant is actively trying to lose weight or is thinking about losing weight. The answers determine which stage of change s/he is in.
 - Weight Process of Change** (WPC; Prochaska et al., 1992): A 48-item measure that assesses thought processes in deciding to change weight. The measure contains 12 subscales. Each subscale is summed to obtain a score. All subscales demonstrated good internal reliability with the exception of Counterconditioning (.59) and Social Liberation (.48).
- SCT
 - Weight Efficacy Lifestyle Questionnaire** (WEL; Clark, Abrams, Niaura, Eaton, & Rossi, 1991): A 20-item measure which assesses efficacy for managing weight. Items on each of the five subscales are summed to obtain a score. Each subscale demonstrated acceptable internal reliability in this study.
 - Exercise Confidence Survey** (ECS; Sallis, Pinski, Grossman, Patterson, & Nader, 1988): A 12-item measure that assesses confidence in motivating oneself to engage in regular exercise. Each item in the subscale is averaged. Sticking to It: $\alpha = .89$; Making Time to Exercise: $\alpha = .76$.

Procedure

- Institutional Review Board approval was obtained.
- All assessment materials were offered in English or Spanish.
- Potential participants were screened using a brief form in order to determine eligibility.
- All eligible participants provided informed consent and completed the survey packet.
- The researcher then measured the participant's height and weight, as well as waist circumference.
- After completion of survey materials and measurements, participants were debriefed and given a \$10 gift card to Wal-Mart. Participants also had the opportunity to be chosen randomly to receive one of five additional \$50 gift cards to Wal-Mart.

Approach to Analyses

- Descriptive analyses assessed participant characteristics and weight-related risk factors.
- Inferential analyses included three hierarchical regression models.
 - Measured weight was entered as the dependent variable.
 - Age, sex, and measured height were entered in Step 1 as control variables.
 - Constructs from SCT, TTM, and SDT entered into the second steps of Models 1, 2, & 3, respectively.

Results

- SDT
 - Lower weight was associated with greater Perceived Competence for Diet ($\beta = -.22, p = .032$).
- TTM
 - Higher weight was associated with greater endorsement of the Pros in the Weight Decisional Balance measure ($\beta = .36, p = .003$).
 - Higher weight was associated with greater endorsement of Helping Relationships in the Weight Process of Change measure ($\beta = .25, p = .015$).
- SCT
 - There were no significant associations with weight and components related to SCT.

Results

Variable	B	SE B	β	
Table 1. Significant Constructs Associated with Measured Weight (SDT)				
Step 1				
Height	4.33	1.13	.37**	
R ²				.15**
Step 2				
Height	3.76	1.18	.32**	
PCS D	-5.74	2.65	-.22*	
ΔR^2				.10*

Note: Step 1 R² = .15; Step 2 R² = .25

*all values significant at the .05 level

**all values significant at the .001 level

Results

Variable	B	SE B	β	
Table 2. Significant Constructs Associated with Measured Weight (TTM)				
Step 1				
Height	4.01	1.18	.35**	
R ²				.13**
Step 2				
Height	3.86	1.17	.34**	
WDB Pros	1.86	.61	.36*	
WPC Helping Relationships	2.29	.93	.25*	
ΔR^2				.19*

Note: Step 1 R² = .13; Step 2 R² = .31

*all values significant at the .05 level

**all values significant at the .001 level

Discussion

Participant Risk Factors

- A high proportion of the sample reported personal and family histories of high blood pressure and diabetes.
 - Future interventions could incorporate diabetes management and/or prevention as a health education component in order to stress the importance and benefits of weight loss.
- More than 20% of the sample reported not exercising regularly.
 - Future interventions should encourage participants to discuss potential physical limitations with their healthcare providers and then develop an exercise regimen that is both beneficial and safe.

Weight and Theory

- Consistent with previous findings and hypotheses, lesser Perceived Competence for diet (SDT) was associated with higher weight (Ryan & Deci, 2000; Teixeira et al., 2006; Williams, Grow, Freedman, Ryan, & Deci, 1996).
 - Future interventions should focus on implementing components designed to increase perceived competence for diet in order to encourage the adoption of healthier diets.
- Contrary to hypotheses, higher weight was associated with greater endorsement of the positive aspects of weight loss and utilizing the support of others when attempting to change behavior (TTM) .
 - Future interventions should focus on highlighting the positive aspects and assist participants in minimizing the negative aspects of weight loss, as well as assisting participants in garnering support from their existing social network.

Limitations and Strengths

- Limitations of the current study are its cross-sectional design and use of a clinical population, which potentially limits generalizability to other overweight/obese populations.
- The lack of inclusion of normal weight individuals limits the ability to compare associations across other weight classes.
- Strengths of the current study are the assessment within an underserved population and of multiple theoretical constructs which could be utilized in future interventions in Hispanic populations.

Conclusions and Future Directions

- It appears that constructs from the Transtheoretical model are better suited to the characteristics of the current sample and contribute best to understanding weight and warrant inclusion in pilot weight loss programs with Hispanic populations.
- Pilot programs should also consider adding components designed to bolster perceived competence for diet.
- Future interventions are clearly warranted, and at present, the inclusion of TTM based assessments and intervention components seems most fitting in an effort to reduce overweight and obesity in Hispanic populations.

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