

Dyadic Coping and Weight in Hispanic Males Enrolled in a Weight Loss Intervention: the Role of Moderators

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Abstract

Purpose: The aims of our study were to assess the following in Hispanic men enrolled in a weight loss intervention: 1) the association between dyadic coping and weight, and 2) potential moderators including self-efficacy for weight loss, stress, and age. **Methods:** A community sample of 50 Hispanic men enrolled in gender- and culturally-sensitive weight loss intervention (GCSWL). Participants completed surveys and were weighed at baseline, 12 weeks, and 24 weeks. The weight loss intervention included two arms: 1) a GCSWL, and 2) a wait-list control including a GCSWL plus mHealth technology. Participants completed the Dyadic Coping Inventory, the Weight Efficacy Lifestyle Questionnaire, the Perceived Stress Scale, and demographic questionnaires. **Results:** Contrary to our hypothesis, dyadic coping was positively associated with the subsequent measure of weight (intervals of 12 weeks), $b = 0.11$, $se = 0.04$, $p < 0.01$, 95% CI (0.03, 0.19). Self-efficacy and stress did not moderate the relationship between dyadic coping and weight. However, age was a significant moderator, for this relationship, $b = 0.01$, $se = 0.003$, $p = 0.03$, 95% CI (0.001, 0.02

Background

- The Hispanic population in the United States is increasing (US Census Bureau, 2014).
- Hispanic men experience the highest levels of overweight and obesity in the US after African American men (Flegal et al., 2016; Fryar, Carroll, & Ogden, 2016).
- As obesity is associated with myriad diseases including cardiovascular disease, diabetes, and cancer, weight loss is becoming increasingly important for this at-risk group.
- Weight loss activities such as diet restriction and exercise can be stressful and influence well-being (Green, Elliman, & Kretsch, 2005).
- As a minority in the US, Hispanics in the US are disproportionately affected by stressful, socio-environmental and structural factors including, low-income, little education, occupational factors, as well as less access to healthcare (Velasco-Mondragon, et al., 2016).
- During stressful times, couples often rely on each other to cope with the situation at hand (Bodenmann, 1997).
- Dyadic coping may be especially important for Hispanics who value close, supportive, familial relationships (Campos, Ullman, Aguilera, & Dunkel Schetter, 2014).
- We use the framework presented by Pietromonaco, Uchino, and Dunkel Schetter (2013) which uses major elements of attachment theory (Collins & Feeney, 2010) to present how relationship processes influence physiological responses, health behavior, and health outcomes.
- We also test three moderators based on prior literature that found that self-efficacy (Johnson, Anderson, Walker, Wilcox, Lewis, & Robbins, 2013), stress (Bodenmann, 1997), and age (Kiecolt-Glaser, & Newton, 2001) may be important factors affecting relationship processes and health related outcomes and behaviors.

Methods

Procedures

- Data were collected as part of a randomized controlled trial (ANIMO project) that assessed the feasibility of a gender- and culturally-sensitive weight loss intervention (GCSWLI). A community sample of 50 Hispanic men completed surveys and were weighed at baseline, 12 weeks, and 24 weeks. The weight loss intervention included two arms: 1) a GCSWLI, and 2) a wait-list control including a GCSWLI plus mHealth technology.

Measures

- Dyadic Coping Inventory (DCI).** The DCI, a 37-item scale was used to measure dyadic coping. A sum score was calculated from all items. Scores ranged from 61 – 172, with higher scores indicating higher levels of dyadic coping.
- Perceived Stress Scale (PSS).** The PSS, a 10-item scale was used to measure perceived stress. A sum score was calculated from all items. Scores ranged from 4 – 39, with higher scores indicating higher levels of stress.
- Weight Efficacy Lifestyle Questionnaire (WEL).** The WEL, a 20-item scale was used to measure dyadic coping. An average score was calculated from all items. Scores ranged from 0 – 9, with higher scores indicating higher levels of self-efficacy.

Data Analyses and Results

Hypotheses

- We predicted that dyadic coping would be inversely related to weight.
- We predicted that dyadic coping would be moderated by stress, such that higher levels of stress coupled with low levels of dyadic coping would be associated with higher weight at the subsequent weight measurement.
- We predicted that the inverse relationship between dyadic coping and weight would be greater for those reporting higher levels of self-efficacy for weight loss, and older Hispanic men.

Data Analyses:

- Dyadic coping was person-mean-centered to disaggregate within-person and between-person longitudinal effects. Linear mixed models using an unstructured mean and covariance were utilized to assess all models. Control variables in adjusted models included age, education, treatment condition (treatment vs. wait-list control), diabetes diagnosis status, acculturation, and BMI at baseline.
- Model 1) Dyadic coping was used to predict weight at the subsequent measurement.
- Model 2) Dyadic coping interacted with self-efficacy for weight loss was used to predict weight at the subsequent measurement.
- Model 3) Dyadic coping interacted with stress for weight loss was used to predict weight at the subsequent measurement.
- Model 4) Dyadic coping interacted with age for weight loss was used to predict weight at the subsequent measurement.
- An unadjusted model and an adjusted model was fit for each predictor-outcome pair.

Table 1. Demographic and Summary Statistics for Hispanic Men Enrolled in a Culturally Sensitive Weight Loss Intervention (N = 50)

	Baseline	12 Weeks	24 Weeks
Age Mean(SD)	43.3(11.4)	--	--
Relationship Status N(%)			
Coupled	46(92%)	--	--
Uncoupled	4(8%)	--	--
Education N(%)			
<HS Diploma	15(30%)	--	--
HS Diploma	11(22%)	--	--
Some College	14(28%)	--	--
Bachelors +	10(20%)	--	--
Diabetes N(%)	4(8%)		
Acculturation	0.54(1.45)	--	--
Self-Efficacy for Weight Loss	6.74(1.92)	7.19(1.49)	6.66(1.75)
Stress	17.82(6.46)	17.85(6.70)	18.66(8.23)
Dyadic Coping	117.43(24.91)	114.71(24.27)	116.93(24.30)
Weight ^a (Kg)			
GCSWLI (treatment)	103.2(19.2)	100.9(17.77)	101.5(18.43)
Wait-list Control	102.1(18.4)	101.4(19.5)	100.3(21.65)

Note. SD = standard deviation; ^aWeight was assessed at 6 weeks and 18 weeks post-baseline, but these measures are not displayed here.

Table 2. Estimates for a Main Effects Model and Three Moderation Models Predicting Weight at the Subsequent Measurement

Model	Unadjusted			Adjusted ^a		
	<i>b</i>	(<i>se</i>)	95%CI	<i>b</i>	(<i>se</i>)	95%CI
Dyadic Coping	0.11**	0.04	(0.03, 0.19)	0.10*	0.04	(0.03, 0.18)
Dyadic Coping Self-Efficacy	0.03	0.02	(-0.02, 0.08)	0.04	0.03	(-0.01, 0.09)
Dyadic Coping Stress	-0.001	0.01	(-0.01, 0.009)	-0.00	0.01	(-0.01, 0.009)
Dyadic Coping Age	0.01*	0.004	(0.001, 0.02)	0.01*	0.003	(0.001, 0.02)

Note. ^a Models are adjusted for treatment group, age, education, diabetes status, acculturation, and BMI at baseline, *se* = standard error

Dyadic Coping and Weight Change Moderated by Age

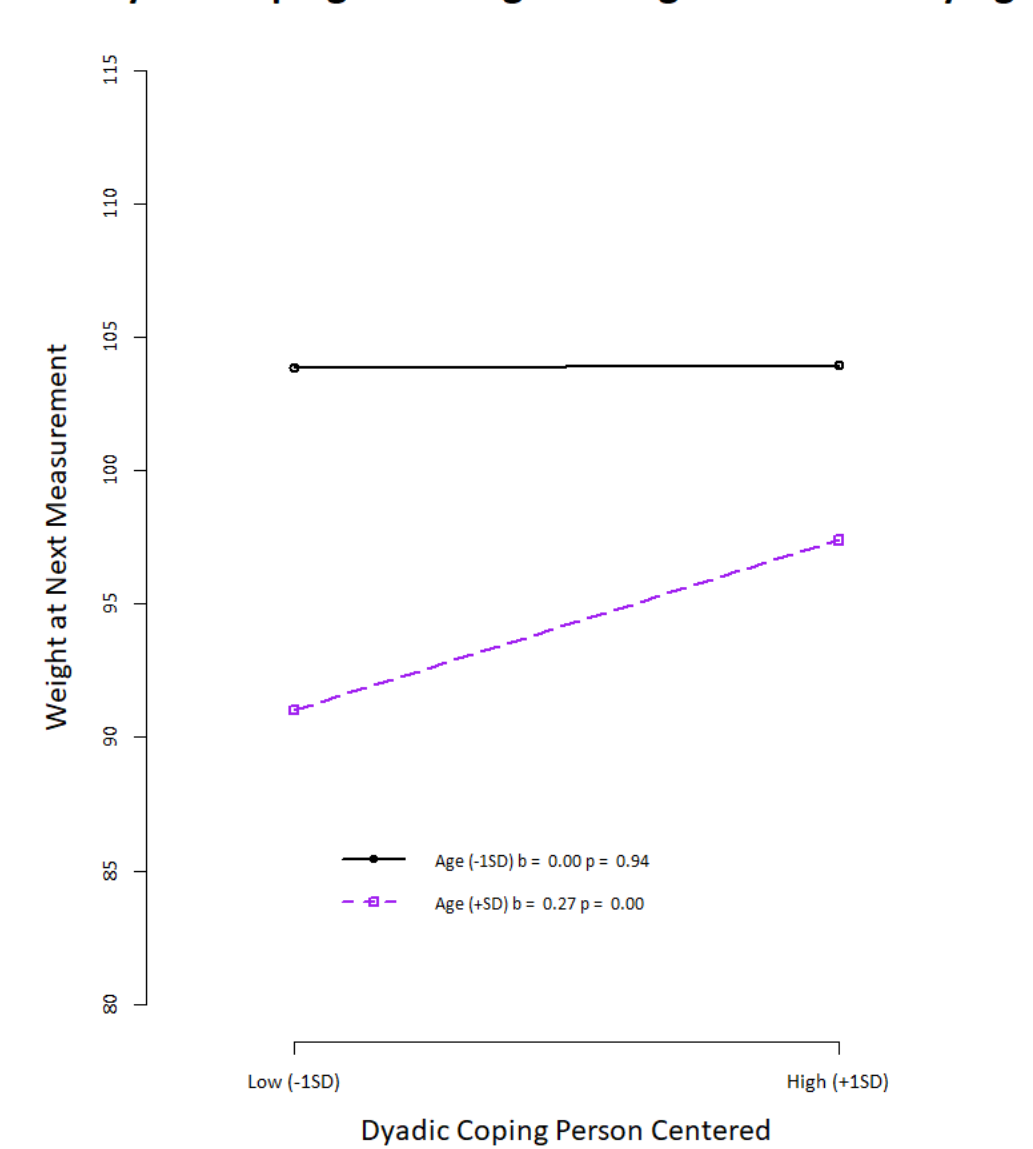


Figure 2. Interaction of dyadic coping and age on weight at the subsequent measure. (Model 4) Estimates are adjusted for education, treatment condition (treatment vs. wait-list control), diabetes diagnosis status, acculturation, and BMI at baseline.

Results Continued

Results:

- Men had a mean age of 43.3, and a mean, baseline BMI of 34.4 kg/m².
- Only 46 men reported having a significant other, and 37 men reported being married or cohabiting with their partner.
- Model 1) Dyadic coping was positively, significantly associated with weight at the next measurement.
- Model 2) The interaction between dyadic coping and self-efficacy was not associated with weight at the next measurement.
- Model 3) The interaction between dyadic coping and stress was not associated with weight at the next measurement.
- Model 4) The interaction between dyadic coping and age was associated with weight at the next measurement. Specifically, younger men with high ratings of dyadic coping had higher levels of weight at the next weigh-in when compared to younger men with low levels of dyadic coping.

Conclusions and Implications

Findings:

- Contrary to our hypotheses, dyadic coping was positively associated with weight at the subsequent measurement.
- Age moderated the relationship between dyadic coping and weight.
 - Younger men exhibited this relationship; older men did not.

Implications:

- Further research should investigate potential mechanisms to explain the positive relationship between dyadic coping and weight. Future research may benefit from considering the important aspects of partner and spousal influences on health in this population.

Limitations:

- The sample size in the ANIMO study was relatively small given it's aims for feasibility. This study should be replicated in a larger sample as statistical power may not be sufficient to see moderation effects (stress, self-efficacy).
- Data from spouses and partners were not collected. These data would make interpreting relational processes more clear. Future studies should consider collecting data from partners and immediate family.



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