UNIVERSITY OF CALIFORNIA

Santa Barbara

The Harmful Impact of Weight Stigma on Eating Pathology and Health Behaviors among White and Latinx Adolescents

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy in

Counseling, Clinical, and School Psychology

by

Hannah L. Weisman

Committee in charge:

Professor Maryam Kia-Keating, Chair

Professor Michael Furlong

Professor Merith Cosden

Professor Karen Nylund-Gibson

Professor Nancy Collins

September 2017

The dissertation of Hannah L. Weisman is approved.

Michael Furlong

Merith Cosden

Karen Nylund-Gibson

Nancy Collins

Maryam Kia-Keating, Committee Chair

September 2017

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ACKNOWLEDGEMENTS

I could not have completed this dissertation without the support of my mentors, family, and friends. I want to acknowledge and express gratitude for the following people:

To Maryam Kia-Keating: thank you for taking on a graduate student with different interests than your own, and going above and beyond to support me every step of the way. You looked for opportunities that fit my research interests and pushed me to become a better researcher, writer, and psychologist. Most importantly, your ability to support me as a whole person, and not just as a developing psychologist, was invaluable.

To my parents: you have listened to me go through every hurdle, every stressor, and every success of graduate school. Thank you for being my champions, even as you questioned why I would sacrifice my sanity for a PhD. Your support made graduate school manageable. Thank you especially to my mom, who has heard the ups and downs of almost every single day of the past six years.

To my committee members: thank you for your thought-provoking questions and feedback. Thank you, Karen Nylund-Gibson, for the statistics training and support, and for fielding my last-minute and sometimes complicated M*plus* questions.

To the teachers who allowed me to collect data in your classrooms: thank you for valuing research and letting me take up your class time. I know how important your work is and I hope this project contributes valuable knowledge to what you do.

To my lab mates, who were my friends and support system in navigating graduate school: Sheila Modir, Diana Santacrose, Sabrina Liu, Christine Schock, Laurel Brown, Joceyln Levitan, and Cally Sprague-Knapp, thank you for being an awesome group of people

to work with and creating such a supportive lab. I feel lucky whenever I get to see each of you.

To my friends in graduate school, thank goodness for you! Our shared laughs and attempts at self-care got me through the hardest parts of graduate school. And especially to Kevin Delucio, thank you for doing it all with me: laughing, crying, TV-watching, paper-writing, analyzing, relaxing, and serious discussion-having.

To all of my friends and family outside of graduate school, thank you for your endless love, support, and caring as I navigated this journey. Your faith in me got me through.

And to Barr Taylor, who originally set me on the path to becoming a psychologist, being interested in eating disorders and health, and knowing the value of an ounce of prevention: thank you.

CURRICULUM VITAE OF HANNAH L. WEISMAN

June 2017

EDUCATION

07/16 – present **University of Texas Health Science Center at San Antonio**
Predoctoral Intern
Internship completion expected June 2017

09/11 – present **University of California, Santa Barbara (UCSB)**
Doctoral Candidate in Counseling, Clinical, and School Psychology (clinical track)
Emphasis in Quantitative Methods in the Social Sciences
PhD expected June 2017

08/05 – 05/09 **Pitzer College**
B.A. in Psychology with Honors, Minor in Mathematics

RESEARCH EXPERIENCE

04/15 – present **Dissertation Research, UCSB**
Dissertation Committee Chair: Maryam Kia-Keating, Ph.D.
- Title: The Harmful Impact of Weight Stigma on Eating Pathology and Health Behaviors among White and Latinx Adolescents
- Awarded a Graduate Division Dissertation Fellowship to support the completion of dissertation activities during the Spring 2016 quarter
- Proposed in June 2015
- Defense scheduled for June 2017

09/11 – 06/16 **Research Practicum, UCSB**
Faculty Mentor: Maryam Kia-Keating, Ph.D.
- Developed and implemented a program evaluation protocol to assess the effectiveness of a sixth grade mental health stigma reduction program run by a local community organization
- Awarded the American Psychological Foundation's 2012 Violet and Cyril Franks Scholarship to support this research

09/14 – 03/15 **Graduate Student Researcher, Fresh Start Program Evaluation, UCSB**
Principal Investigator: Merith Cosden, Ph.D.
- Help with data management for an evaluation of a residential program for mothers and their children

04/14 – 06/14 **Graduate Student Researcher, CSDC Program Evaluation, UCSB**
Principal Investigator: Merith Cosden, Ph.D.
- Assisted with data management and preparation of a bi-annual report for a SAMSHA-funded program evaluation of the Clean and Sober Drug Court (CSDC)

04/12 – 12/12 **Graduate Student Researcher, Daily Diary Study, UCSB**
Principal Investigator: Maryam Kia-Keating, Ph.D.

- Administered baseline assessments and facilitated daily diary use for a study on daily fluctuations in stress, coping, and eating behaviors among new therapy clients in a community clinic
- Assisted with data analysis and conference presentation for pilot results

07/09 – 07/11 **Research Assistant, Eating Disorders Prevention Project, Stanford University**
Principal Investigators: C. Barr Taylor, M.D. (Stanford), and Denise Wilfley, Ph.D. (Washington University in St. Louis)
- Assisted with a randomized controlled trial of an online eating disorder and comorbidities prevention program for college women at high risk of developing an eating disorder
- Authored and tested an online body image culture change program for high school students
- Aided with baseline and follow-up data analysis in SPSS

08/09 – 02/10 **Research Assistant, Veteran's Affairs Palo Alto & Stanford University**
Principal Investigators: Robyn Walser, Ph.D. (VA Palo Alto) and C. Barr Taylor, M.D. (Stanford)
- Tracked participants and assisted with data entry for a VA project examining the dissemination and implementation of Acceptance and Commitment Therapy for depression among veterans

08/08 – 04/09 **Honors Thesis in Psychology, Pitzer College, Claremont, CA**
Faculty Mentor: Mita Banerjee, Ph.D.
- Researched the source of implicit gender attitudes

06/08 – 08/08 **Intern, Gottman Relationship Research Institute, Seattle, WA**
Principal Investigator: John Gottman, Ph.D.
- Aided in recruitment, data entry and organization, and creating SPSS Builder forms
- Observed and helped set up psycho-physiological and video equipment during in-home interviews for the Creating Healthy Relationships Project study

05/07 – 08/07 **Intern, The Learning in Informal and Formal Environments Center, UW, Seattle, WA**
Principal Investigator: Philip Bell, Ph.D.
- Assisted with a project seeking to extend and unify knowledge on human learning
- Digitized and synced hours of ethnographical video tapes

05/06 – 08/06 **Research Assistant, Institute for Learning & Brain Sciences, UW, Seattle, WA**
Principal Investigator: Rebecca Williamson, Ph.D.
- Worked one-on-one with a postdoctoral fellow in Dr. Andrew Meltzoff's lab to conceptualize, develop, pilot and conduct experimental research on imitation in toddlers

PUBLICATIONS

Weisman, H., Kia-Keating, M., Lippincott, A., Taylor, Z., & Zheng, J. (2016). *Mental health stigma reduction: Pilot testing a novel, language arts curriculum-based approach for youth. Journal of School Health, 86,* 709-716. doi: 10.1111/josh.12427

Taylor, C. B., Kass, A. E., Trockel, M., Cunning, D., **Weisman, H.,** Bailey, J., Sinton, M., Aspen, V., Schecthman, K., Jacobi, C., & Wilfley, D. E. (2016). Reducing eating disorder onset in a very

high risk sample with significant comorbid depression: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 84,* 402-414. doi: 10.1037/ccp0000077

Kass, A. E., Trockel, M., Safer, D. L., Sinton, M. M., Cunning, D., Rizk, M. T., Genkin, B. H., **Weisman, H. L.,** Bailey, J. O., Jacobi, C., Wilfley, D. E., & Taylor, C. B. (2014). Internet-based preventive intervention for reducing eating disorder risk: A randomized controlled trial comparing guided with unguided self-help. *Behaviour Research and Therapy, 63,* 90-98. doi: 10.1016/j.brat.2014.09.010

Aspen, V., **Weisman, H.**, Vannucci, A., Nafiz, N., Gredysa, D., Trockel, M., Wilfley, D. E., & Taylor, C. B. (2014). Psychiatric co-morbidity in women presenting across the continuum of disordered eating. *Eating Behaviors, 15,* 686-693. doi: 10.1016/j.eatbeh.2014.08.023

Weisman, H. L., Patten, E., Montanez-Leaks, M., Yee, M., Darcy, A., Mazina., V., Zhang, A., Bailey, J. O., Jones, M., Trockel, M., & Taylor, C. B. (2014). Validation of a six-item male body image concerns scale (MBICS). *Eating Disorders: The Journal of Treatment and Prevention, 22,* 420-434. doi: 10.1080/10640266.2014.925768

Vannucci, A., Theim, K. R., Kass, A. E., Trockel, M., Genkin, B., Rizk, M., **Weisman, H.,** Bailey, J. O., Sinton, M. M., Aspen, V., Wilfley, D. E., & Taylor, C. B. (2013). What constitutes clinically significant binge eating? Association between binge features and clinical validators in college-age women. *International Journal of Eating Disorders, 46,* 226-232. doi: 10.1002/eat.22115

Vannucci, A., Kass, A. E., Sinton, M. M., Aspen, V., **Weisman, H.**, Bailey, J. O., Wilfley, D. E., & Taylor, C. B. (2012). An examination of the Clinical Impairment Assessment among women at high risk for eating disorder onset. *Behaviour Research and Therapy, 50,* 407-414. doi: 10.1016/j.brat.2012.02.009

Winzelberg, A., **Weisman, H.**, Aspen, V., & Taylor, C. B. (2012). Digitally delivered approaches to preventing body image problems. In T. F. Cash (Ed.), *Encyclopedia of Body Image and Human Appearance* (Vol. 2, pp. 669-673). San Diego, CA: Academic Press.

Weisman, H., Bailey, J., Winzelberg, A., & Taylor, C. B. (2011). Computer-based approaches to prevention. In T. F. Cash & L. Smolak (Eds.), *Body image: A handbook of science, practice, and prevention* (2nd ed., pp. 442-450). New York, NY: Guilford.

PRESENTATIONS

Weisman, H. (2017, May). *The impact of weight stigma on teens and implications for practice.* Paper presented at the UT Health San Antonio Department of Psychiatry Research & Quality Improvement Day in San Antonio, Texas.

Weisman, H., & Kia-Keating, M. (2016, October). *Body size attitudes among teens.* Paper presented at the Binge Eating Disorders Association Annual Conference in San Francisco, CA.

Kia-Keating, M., **Weisman, H.,** Capous, D., & Kim, A. (2014, November). *Understanding the daily lives of trauma-exposed clients: Stress, coping, and emotion regulation.* Poster presented at the International Society for Traumatic Stress Studies 30th Annual Meeting in Miami, Florida.

Capous, D., Kia-Keating, M., **Weisman, H.,** & Kim, A. (2014, November). *Treatment motivation and therapeutic alliance in the context of trauma: A longitudinal study.* Poster presented at the International Society for Traumatic Stress Studies 30th Annual Meeting in Miami, Florida.

Weisman, H. L., Kia-Keating, M., & Taylor, C. B. (2014, March). *The relationship between thin ideal and weight stigma internalization: A review of the literature.* Poster presented at the International Conference on Eating Disorders, New York, New York.

Weisman, H. L., Trockel, M., Patten, E., Scholtes, G., Mazina, V., Jones, M., & Taylor, C. B. (2014, March). *Evidence of changing body image culture in high schools with* The Whole Image *online program.* Poster presented at the International Conference on Eating Disorders, New York, New York.

Aspen, V., **Weisman, H.,** Bailey, J., Friedman, R., Nguyen, J., Lock, J., & Taylor, C. B. (2013, September). *The role of attention biases in the development, maintenance, and treatment of eating disorders.* Poster presented at the 19th Annual Meeting of the Eating Disorders Research Society, Bethesda, Maryland.

Weisman, H. L., Patten, E., Montanez-Leaks, M., Yee, M., Darcy, A. M., Mazina, V., Zhang, A., Bailey, J. O., Jones, M., Trockel, M., & Taylor, C. B. (2013, August). *Validation and application of a short Male Body Image Concerns Scale (MBICS)*. Poster presented at the 121st Annual Convention of the American Psychological Association, Honolulu, Hawaii.

Zhang, A., Mazina, B., Trockel, M., **Weisman, H.,** Patten, E., Taylor, C.B., & Jones, M. (2013, May). *The Whole Image: Eating Disorder Prevention and Culture Change Program for College Students.* Poster presented at the International Conference on Eating Disorders, Montreal, Canada.

Mazina, V., Trockel, M., Zhang, A., **Weisman, H.,** Jones, M., & Taylor, C. B. (2012, October). *Social Determinants of Body Image Survey: Factor Analysis, Internal Consistency, and Predictive Validity using Weight and Shape Concerns.* Paper presented at the Annual National Eating Disorders Association Conference, St. Petersburg, Florida.

Weisman, H., Trockel, M., Yee, M. A., Bailey, J. O., Patten, E., Montanez-Leaks, M., Mazina, B., Burrows, A., Zhang, A., Jones, M., & Taylor, C. B. (2012, May). *The Effectiveness of* The Whole Image: *An Intervention to Change Body Image Culture in High Schools.* Paper presented at the International Conference on Eating Disorders, Austin, TX.

Vannucci, A., **Weisman, H.,** Aspen, V., Nafiz, N., Gredysa, D. M., Trockel, M., Kass, A. E., Wilfley, D. E., & Taylor, C. B. (2012, May). *Association between features of binge eating and psychiatric comorbidity in college-age women.* Paper presented at the International Conference on Eating Disorders, Austin, TX.

Weisman, H., Trockel, M., Bailey, J. O., Mazina, V., Cunning, D., Thurston, A., Peters, H., Shorter, A., & Taylor, C. B. (2011, November). *Changing body image culture in high schools: A controlled pilot study of an online prevention program.* Poster presented at the Renfrew Center Foundation Conference, Philadelphia, PA.

Kass, A.E., Trockel, M., Safer, D., Sinton, M., Cunning, D., Rizk, M.T., Genkin, B.H., **Weisman, H.**, Bailey, J., Nafiz, N., Wilfley, D.E., & Taylor, C.B. (2011, September). *Does moderation help? A randomized controlled trial of an internet-based intervention for college women at risk for eating disorder onset.* Paper presented at the Eating Disorder Research Society Annual Meeting, Edinburgh.

Taylor, C. B., Taylor, K., Jones, M., Bailey, J., **Weisman, H.**, Romer, P., Redman, M., Redzic, N., Shorter, A., Cunning, D., Yee, M., Genkin, B., Burrows, A., Kass, A., Rizk, M., Jacobi, C., Williams, J., Trockel, M. T., Wilfley, D. E. (2011, September). *Obesity Prevention in Defined (High School) Populations.* Paper presented at the Obesity Summit, Stanford, CA.

Weisman, H., Vannucci, A., Sinton, M. M., Trockel, M., Nafiz, N., Bailey, J. O., Chang, V., Wilfley, D. E., & Taylor, C. B. (2011, April). *Feelings of power or powerlessness moderate the relationship between body shame and eating pathology in college women.* Paper presented at the International Conference on Eating Disorders, Miami, FL.

Bailey, J., Nafiz, N., Sinton, M., **Weisman, H.**, Rizk, M., Chang, V. Y., Wilfley, D. E., & Taylor, C. B. (2010, November). *The impact of social networking site use on weight and shape concerns in women at high risk for developing eating disorders.* Poster presented at the Annual Association for Behavioral and Cognitive Therapies Convention, San Francisco, CA.

Aspen, V., Sinton, M. M., Rizk, M., Genkin, B., Nafiz, N., Bailey, J., **Weisman, H.**, Kass, A., Findley, H., Wilfley, D. E., & Taylor, C. B. (2010, October). *Impact of family history and comorbid psychopathology on risk for onset of eating disorders.* Poster presented at the Eating Disorder Research Society Annual Meeting, Boston, MA.

Kass, A.E., Sinton, M.M., Aspen, V.A., Trockel, M., **Weisman, H.**, Taylor, C.B., & Wilfley, D.E. (2010, October). *Self-injurious behaviors in college women at high risk for eating disorders.* Poster presented at the Eating Disorder Research Society Annual Meeting, Boston, MA.

Taylor, C. B., Bailey, J., & **Weisman, H.** (2010, June). *Media standards and practices: Considerations for body image, weight stigma, and eating disorders.* Invited presentation for Disney Corporation Department of Standards and Practices.

Vannucci, A., Sinton, M. M., Fittig, E., Genkin, B., Rizk, M., Bailey, J. O., **Weisman, H.**, Chang, V., Jacobi, C., Wilfley, D. E., & Taylor, C. B. (2010, June). *A dimensional approach to understanding loss of control eating in high risk college women.* Poster presented at the Annual International Conference on Eating Disorders, Salzburg, Austria.

Taylor, C. B., Taylor, K., Osier, H., Jones, M., Bailey, J., **Weisman, H.,** & Jacobi, C. (2010, May). *How to prevent eating disorders.* Paper presented at the American Psychiatric Association Annual Meeting, New Orleans, LA.

CLINICAL EXPERIENCE

07/16 – present **Intern, University of Texas Health Science Center at San Antonio**
Training Director: Cindy McGeary, Ph.D.
Supervisors: Lindsay Bira, Ph.D.; David Roberts, Ph.D.; Jodi Arnold, Ph.D.; Jeslina Raj, Psy.D.
Hours/week: 45 (15-20 intervention hours)
Client population: veterans with PTSD, adult clients recently hospitalized, adults with bipolar disorder, adults with anxiety and mood disorders

- Completing year-long rotations at the South Texas Research Organizational Network Guiding Studies on Trauma and Resilience (STRONG STAR) and the Transitional Care Clinic (each for 2 days per week)
- Attending didactic trainings on a wide variety of topics such as treatment of chronic pain, working with diverse populations, primary care behavioral health, military culture, and suicide risk, assessment, and intervention (4 hours per week)
- Conducting structured diagnostic interviews (CAPS-5, MINI) with potential participants with PTSD and implementing Cognitive Processing Therapy with STRONG STAR research participants
- Providing short term individual psychotherapy as part of an interdisciplinary treatment team for clients who have recently transitioned out of the hospital at the Transitional Care Clinic
- Working with two long-term individual clients through a community-based clinic
- Facilitating a weekly therapeutic support group for adults with bipolar disorder

07/15 – 03/16 **Clinic Coordinator and Student Supervisor, Hosford Clinic, UCSB**
Supervisor: Toni Zander, Ph.D.
Hours/week: 20 (1-2 intervention hours in the form of supervision of other graduate students)
Client population: individuals, couples, and families seeking psychotherapy in community-based department training clinic; no clients with psychosis, severe substance abuse, or high level suicidality accepted

- Watched intakes and psychotherapy sessions via livestream video and provided on-the-spot supervision for second-year clinicians
- Ensured that the clinic ran smoothly by assisting the clinic director, running weekly case assignment meetings, planning clinical trainings, and attending to administrative needs

09/14 – 06/15 **Psychology Extern, Sanctuary Centers of Santa Barbara**
Supervisors: Denise Mock, Ph.D. (individual) and Lisa Moschini, LMFT (group)
Hours/week: 15 (~8 intervention hours)
Client population: adults with severe mental illness—primarily schizophrenia and bipolar disorders—living in a residential facility or supported housing

- Facilitated individual psychotherapy for adult clients and several groups, including a Mindful Eating Group (based off the evidence-based curriculum "Food Education for People with Severe Psychiatric Disabilities") and three Dialectical Behavior Therapy (DBT) skills groups
- Administered, interpreted, and wrote reports on assessments for clients, including the MCMI, MMPI, Wechsler Memory Scale—III, and symptom checklists

01/15 – 03/15 **Basic Practicum Student Supervisor, Hosford Clinic, UCSB**
Supervisor: Heidi Zetzer, Ph.D.
Hours/week: 8 (3 intervention hours supervising other graduate students)
Client population: undergraduate students volunteering to participate in a brief 3-session psychotherapy experience in order to receive course credit

- Co-facilitated weekly group supervision for 3 first-year clinicians
- Provided training and feedback on clinical skills, session notes, assessment administration, and professional behavior
- Received supervision of supervision using video clips from group supervision

09/13 – 08/14 **Psychological Assistant, Child Abuse Listening & Mediation (CALM), Santa Barbara, CA**
Supervisor: Jessica Adams, Ph.D. (individual and group)
Hours/week: 20 (~10 intervention hours)
Client population: children, parents, and families affected by or at risk for child abuse; common presenting problems included domestic violence, parenting issues, PTSD, substance abuse, and borderline personality features

- Provided individual and family psychotherapy children and adolescents, individual psychotherapy for parents, and couples psychotherapy for couples experiencing domestic violence
- Received extensive training in providing trauma-informed treatment
- Co-facilitated a psychoeducational group for children affected by domestic violence, a psychoeducational and process group for mothers who had experienced domestic violence, and two DBT skills group (one general skills group and one that focused on applying the skills to parent-child relationships)
- Attended weekly DBT consultation team meetings that included didactic training in DBT from a trained DBT therapist as well as case consultation

01/12 – 07/14 **Student Clinician, Psychology Assessment Center, UCSB**
Hours/week: Assessment batteries were typically administered on a schedule convenient for the client (usually 3-6 hours per testing session)
Client population: community members seeking assessment services at a community-based department training clinic; presenting problems included ADHD, learning disabilities, traumatic brain injury, fetal alcohol syndrome, academic problems, personality features, test anxiety, and mood disturbances

- Administered, scored, interpreted, and provided a written report and in-person feedback on psychodiagnostic, cognitive, and neuropsychological assessment batteries for clients seeking comprehensive assessment services
- Worked with children, adolescents, and adults

09/12 – 08/13 **Assessment Specialist, Child Abuse Listening & Mediation (CALM), Santa Barbara, CA**
Supervisor: Jessica Adams, Ph.D. (group)
Hours/week: 10 (0 intervention hours)
Client population: families affected by or at risk for child abuse

- Scored, interpreted, and wrote reports for clinicians based on periodic assessments given to new and continuing clients
- Frequent assessments completed by caregivers included the Child Behavior Checklist, Child Sexual Behavior Inventory, Eyberg Child Behavior Inventory, Parenting Stress Index, Stress Index for Parents of Adolescents, Adult-Adolescent Parenting Inventory, and Trauma Symptom Checklist for Young Children
- Frequent assessments completed by clients (children or adults) included the Trauma Symptom Checklist, Youth Self Report, Trauma Symptom Inventory, Brief Symptom Inventory, Inventory of Altered Self-Capacities, Conflict Tactics Scale, and the Center for Epidemiological Studies Depression Scale

09/12 – 06/13 **Student Clinician, Hosford Clinic, UCSB**
Supervisor: Maryam Kia-Keating, Ph.D. (group)
Hours/week: 10 (~5 intervention hours)
Client population: young adults and families seeking psychotherapy in a department training clinic; presenting problems included depression, anxiety, PTSD or other trauma-related problems, adjustment difficulties, and identity issues

- Conducted individual and family psychotherapy
- Co-facilitated a 6-week Finding Emotional Balance psychotherapy group that drew from DBT and ACT techniques
- Conducted, scored, and wrote up intake assessments that included a clinical interview, Mini Mental Status Exam, Multigroup Ethnic Identity Measure, and several psychodiagnostic measures and symptom checklists

01/12 – 06/12 **Basic Practicum Student, Hosford Clinic, UCSB**
Supervisors: Cally Sprague, M.A., and Jocelyn Levitan, M.A. (advanced graduate students who provided group supervision and were supervised by Heidi Zetzer, Ph.D.)
Hours/week: 6 (3 intervention hours)
Client population: undergraduate students volunteering to participate in a brief 3-session psychotherapy experience in order to receive course credit

- Focused on basic helping skills (e.g. empathy, reflecting feelings, restatement of thoughts and feelings, asking open-ended questions) and case conceptualization with 6 undergraduate students during 3 psychotherapy sessions each

07/09 – 12/11 **Research Assistant, Eating Disorders Prevention Project, Stanford University**
Supervisors: C. Barr Taylor, M.D., (in-person) and Denise Wilfley, Ph.D (by phone and email)
Hours/week: variable
Client population: college-age women (ages 18-30); about one-fifth of participants were recruited for having very low body image concerns while the remaining women had moderate to high levels of body image concerns and eating pathology

- Received formal training on how to administer Eating Disorder Examinations (EDEs) and Structured Clinical Interviews for DSM Disorders (SCIDs)
- Conducted 99 EDEs and SCIDs to determine eligibility of potential participants
- Conducted 37 one-year and 12 two-year follow-up EDEs and SCIDs

CLINICAL OUTREACH

11/11 – 06/16 **Volunteer, Mental Health Matters, Santa Barbara, CA**
Supervisor: Ann Lippincott, Ph.D. at the Mental Wellness Center
Hours: 88 program development/outreach programming intervention hours total
Population: sixth grade students and high school health class students

- Taught sixth grade students about mental health disorders through a language arts curriculum that aimed to increase knowledge and reduce stigma
- Worked collaboratively with other volunteers including teachers, mental health professionals, and community members whose lives had been affected by mental illness
- Attended monthly committee meetings dedicated to continually improving or updating the content and teaching approach
- Co-taught the first iteration of a similar mental health education program for high school health class students

01/13 – 04/13 **Presenter, How to Eat Healthy and Feel Good About Your Body, UCSB**
Supervisor: Heidi Zetzer, Ph.D.
Hours: 4 program development/outreach programming intervention hours total
Population: UCSB employees, community depression support group

- Acted as team leader for a group of UCSB graduate students providing outreach presentations to the local community
- Designed an educational powerpoint presentation on body image, cultural influences, disordered eating, and how to help someone suspected of having an eating disorder

SELECT CLINICAL TRAININGS ATTENDED

09/16 **Military Culture: Core Competencies for Health Care Professionals**
Facilitator: VA- and DoD-sponsored online course offered via the Veterans Health Administration Employee Education System

- Completed four modules: Self-Assessment and Introduction to Military Ethos, Military Organization and Roles, Stressors and Resources, and Treatment Resources and Tools
- Total of 8 hours of interactive online training

07/16 **Cognitive Processing Therapy (CPT) Foundational Workshop**
Facilitator: Katherine Dondanville, Psy.D., A.B.P.P. (Director of Research at the Fort Hood site of the STRONG STAR Consortium)

- Two-day training on Cognitive Processing Therapy for individuals who have PTSD
- Recorded sessions and received individual supervision from a CPT trainer (Kirsten Dillon, Ph.D.) on two CPT certification cases

07/16, 10/16 **Foundations of Motivational Interviewing & Advanced Motivational Interviewing**
Facilitator: Erin Espinosa, Ph.D.

- Foundations training: two-day training on the basic MI approach and skills
- Advanced training: two-day training focused on advancing MI skills and practicing core strategies

10/15, 02/16 **Gottman Method Couples Therapy Level 1 and 2 Trainings**
Facilitators: John Gottman, Ph.D., and Julie Gottman, Ph.D. (via video)
- Level 1 training: two-day video-based training on the research basis and foundations of the Gottman approach to couples therapy
- Level 2 training: four-day video-based training on Gottman method assessment and intervention techniques
- Received certification as a Level 2 Gottman Therapist

10/14 **Life After Trauma: Using ACT to Revitalize Interrupted Lives**
Facilitator: Robyn Walser, Ph.D. (Associate Director of Research and Training at the National Center for PTSD, VA Palo Alto Healthcare System)
- Full day training on using Acceptance and Commitment Therapy for clients who have experienced trauma

01/13 **Mindfulness Skills in Treating Addiction and Loss**
Facilitators: Rebecca Williams, Ph.D. (VA San Diego Healthcare System) and Michael Reider, Ph.D. (Private Practice, San Diego)
- Half day training on the use of mindfulness and acceptance skills when treating addiction recovery and relapse prevention

12/12 **Suicide Prevention, Intervention, and Postvention**
Facilitator: Lisa Firestone, Ph.D. (Director of Research and Education at The Glendon Association, Santa Barbara, CA)
- Full day training on working with clients at risk for or with a history of suicide

07/09, 08/10, 08/11 **Using the Eating Disorders Examination**
Facilitators: Denise Wilfley, Ph.D. (2009 and 2010) and Vandana Aspen, Ph.D. (2011)
- Attended several trainings on how to administer and score the Eating Disorders Examination in a reliable and valid way, including a 4-hour training in 2009, 4-hour training in 2010, and 8-hour training in 2011

TEACHING EXPERIENCE

04/2015 – 06/2015 **Teaching Associate, UCSB**
- Instructor of record for Introduction to Applied Psychology

01/2014 – 06/2014 **Teaching Associate, UCSB**
- Instructor of record for Introduction to Applied Psychology for two quarters

09/2013 – 12/2013 **Teaching Assistant, UCSB**
- Attended lecture and taught a section for Introduction to Applied Psychology

08/2013 – 09/2013 **Teaching Assistant, UCSB**
- Assisted with an intensive Pedagogy of Applied Psychology summer course

01/2013 – 06/2013 **Teaching Assistant, UCSB**
- Taught a three hour lab section once per week for Advanced Research Methods

09/2007 – 12/2007 **Teaching Assistant, Pitzer College**
- Assisted with grading, proctoring tests, and helping students with in-class assignments and homework for a Calculus I class

HONORS & AWARDS

02/2017 **Department of Psychiatry, UT Health San Antonio, TX**
- Selected as the Research Intern of the Year
- Invited to present my dissertation research at the annual Department of Psychiatry Research & Quality Improvement Day

05/2016 **Department of Counseling, Clinical, and School Psychology, UCSB**
- Granted the CCSP Alumni Fellowship to award timely progress on my dissertation

05/2015 **Graduate Division, UCSB**
- Awarded the Graduate Division Dissertation Fellowship to support dissertation activities during the Spring 2016 quarter

03/2014 **Hosford Research Committee, UCSB**
- Recipient of the Hosford Fellowship Research Award

02/2014 **Department of Counseling, Clinical, and School Psychology, UCSB**
- Awarded a travel grant for the International Conference on Eating Disorders

11/2013 **Mental Wellness Center, Santa Barbara, CA**
- Honored with the Volunteer of the Year award

05/2013 **Hosford Counseling & Psychological Services Clinic, UCSB**
- Awarded the 2013 Ray E. Hosford Award for Excellence in Professional Behavior

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ABSTRACT

The Harmful Impact of Weight Stigma on Eating Pathology and Health Behaviors among White and Latinx Adolescents

by

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Western body image ideals and concern about the negative effects of obesity have contributed to widespread weight stigma in the United States. People with larger bodies are often perceived by others as lazy, unsuccessful, unmotivated, less intelligent, slow, unhealthy, and unattractive (Puhl & Heuer, 2009). A growing body of research has documented that experiences of weight-based victimization tend to lead to exercise avoidance, binge eating, and further weight gain rather than weight loss. The current study extends this line of research with a sample of primarily White and Latinx adolescents from high schools in central California ($N = 365$). Participants completed a battery of measures one day during class. Results indicated that among participants who perceived themselves to be overweight, experiences of weight teasing were associated with exercise avoidance, but not binge eating. Lower internalized weight bias was not found to be protective against the effects of weight teasing. Weight-stigmatizing attitudes were found to be a distinct construct from ideal body internalization. Among the Latinx participants ($n = 163$), there was some support for the idea that lower levels of orientation to U.S. mainstream culture (and higher orientation to Latinx culture) was associated with less internalization of Western body image ideals. Levels of acculturation were not found to be related to weight-stigmatizing attitudes. Implications for eating disorders and obesity prevention programs are discussed. More

research is needed on ways that weight-based victimization intersects with other forms of bias and discrimination, and on community and policy level interventions.

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CHAPTER ONE: INTRODUCTION

In the past several decades, both academic literature and public media have declared that obesity is a growing epidemic that threatens the health and well-being of Americans in the United States (e.g., Main, 2015; Mokdad et al., 1999; Wang & Beydoun, 2007). Obesity is associated with a wide range of physical health concerns, including type-2 diabetes, hypertension, some cancers, sleep apnea, and mortality (Dixon, 2010). These public health problems place a considerable burden on the economy with over $75 billion in direct medical costs (Dixon, 2010). Particular attention has been given to obesity and weight loss among children and youth, given that about one-fifth of young children and one-third of older children and adolescents are classified as overweight or obese (Ogden, Carroll, Kit, & Flegal, 2012). Higher adiposity has been assumed to be the direct cause of poor health outcomes associated with obesity, and as a result, healthcare providers typically recommend weight loss for patients whose body mass index (BMI) places them into the overweight or obese category. Weight loss is assumed to be an attainable goal that will increase the health and well-being of patients (Campos, Saguy, Ernsberger, Oliver, & Gaesser, 2006a, 2006b). Below, I highlight research that challenges these assumptions, explore the overlap between obesity and eating disorders prevention efforts, and detail the rationale for the current research study.

Obesity, Health, and Weight Loss

A growing minority of researchers have expressed concern about the assumptions that adiposity causes disease and that long-term weight loss is both beneficial and feasible (Bacon & Aphramor, 2011; Campos et al., 2006a; Mann et al., 2007; Miller, 1999). For example, Blair and Brodney (1999) conducted a review of the literature and concluded that (a)

overweight or obese persons with higher levels of physical activity had less risk for morbidity and mortality than overweight or obese persons with lower levels of physical activity, and (b) "Overweight or obese individuals who were active and fit had morbidity and mortality rates that were at least as low, and in many cases lower, than normal weight individuals who were sedentary" (p. S660). Their results suggested that exercise and cardiovascular fitness were better predictors of poor health outcomes than weight status, and that obesity is not necessarily a harmful condition. Blair and Church (2004) argued that even when physical activity is accounted for in research studies on obesity and health outcomes, it is often not adequately assessed. Other researchers suggest that adiposity on its own causes cardiovascular disease and mortality, though there is a consensus in the field that exercise can lessen the impact (Hu et al., 2004; Van Gaal, Mertens, & Christophe, 2006). This viewpoint is more aligned with public opinion that obesity is a harmful disease (Campos, Saguy, Ernsberger, Oliver, & Gaesser, 2006a).

Even if adiposity is the direct cause of some health problems, very few weight loss programs have shown successful long-term outcomes, and "success" has not been clearly defined. Although a small subset of individuals in weight loss interventions manage to lose a meaningful amount of weight and keep it off (after 4+ years), most individuals regain some or all of the weight, even if they maintain the diet and exercise program (Bacon & Aphramor, 2011; Brownell, 2010; Mann et al., 2007; Wadden et al., 2011). Despite these findings, sustainable weight loss has been touted as an achievable goal by some academic researchers. For example, the authors of a recent peer-reviewed article published in the *British Journal of General Practice* wrote that "Three randomised controlled trials have provided strong evidence that Weight Watchers® is an effective weight-loss programme" (Madigan, Daley,

Lewis, Jolly, & Aveyard, 2014). Out of these three trials (Heshka et al., 2003; Jebb et al, 2011; Jolly et al., 2011), two included a 1-year follow-up (Jebb et al., 2011, Jolly et al., 2011) and one included a 2-year follow-up (Heshka et al., 2003). The studies found that participants lost 9 to 11 pounds on average at the 1-year follow-up; at the 2-year follow-up, Heshka et al. (2003) found that participants had lost an average of 6 pounds from baseline, in line with previous research that suggests that individuals who lose weight tend to regain the weight over time (Bacon & Aphramor, 2011; Mann et al., 2007; Wadden et al., 2011). It seems doubtful that participants in these studies would consider 6 pounds lost over 2 years as meaningful weight loss, particularly if they go on to regain additional weight. It is apparent that guidelines for weight loss success are not clear-cut, and there is a paucity of research looking at long-term effects of most weight loss programs (when long-term is defined as 4 or more years).

Furthermore, dieting and weight loss can have negative long-term outcomes. Neumark-Sztainer et al. (2006) found that adolescents who reported unhealthful but common dieting practices such as fasting, restricting food intake, skipping meals, or taking diet pills were more likely to binge eat and be overweight 5 years later than their peers who did not diet. Similarly, Robinson and Sutin (2007) reported that children who were perceived as overweight by their parent at ages 4 or 5 gained more weight over the next decade as compared to children who were not perceived as overweight by their parents, and this outcome was partially explained by more frequent dieting attempts on the part of the children identified as overweight. Counterintuitively, weight loss attempts often result in weight gain in the long term. In addition to psychological factors that may link weight loss attempts with weight gain, recent research has begun to explore the biological explanations for this

phenomenon. Calorie restriction, a cornerstone of most diets, has been shown to lead to increases in cortisol (Tomiyama et al., 2010), persistent changes in hormones that lead to increased appetite and fat storage (Sumithran et al., 2011), and eventual metabolic slowing that facilitates weight gain (Fothergill et al., 2016).

Outside of academia, the multibillion dollar diet industry perpetuates the myth that weight loss is easy and attainable (it is worth noting that the industry benefits from consumers returning to the diet industry each time they regain weight). There are negative consequences of maintaining the idea that people are healthier at lower weights and that sustainable weight loss is an achievable goal. Weight status has become equated with health in the U.S., and individuals with larger bodies are often viewed by others as unhealthy without knowledge of their personal health habits (Cogan & Ernsberger, 1999; Phelan et al., 2015). In addition, the idea that weight is controllable fits with American ideology of self-determination; fat people are then seen as lazy or lacking the willpower or self-control to lose weight (Crandall & Martinez, 1996; Puhl & Brownell, 2003).

Negative perceptions of fat individuals have been generalized to a pervasive stereotyping called *weight stigma*, also referred to as weight-stigmatizing attitudes, internalized weight stigma, or weight bias. People with larger bodies are often perceived by others as lazy, unsuccessful, unmotivated, less intelligent, slow, unhealthy, and unattractive (Puhl & Heuer, 2009). This stigma has a negative impact on education, employment, healthcare, interpersonal relationships, and mental health for those perceived as overweight (Puhl & Heuer, 2009). Weight-stigmatizing attitudes have been observed in children as young as 2-years-old (Di Pasquale & Celsi, 2017), and children face emotional and physical health consequences when stigmatized for their weight (Puhl & Latner, 2007). Experiencing

weight stigma is more likely to lead to weight gain than weight loss, as well as other negative health outcomes, as discussed further below.

The above evidence suggests that a focus on weight, weight category, or BMI may not be helpful in measuring or promoting health among youth or adults. Instead, public health policies and prevention programs that help establish healthy eating and exercise lifestyles early on in life are preferable (Battle & Brownell, 1996; Brownell, Schwartz, Puhl, Henderson, & Harris, 2009). However, many obesity prevention programs for youth have included a focus on weight, portion size, or calorie counting. The messages promoted by these programs were at times in direct contrast to prevention programs for another public health concern, eating disorders.

Prevalence and Impact of Eating Disorders

Eating disorders are serious mental disorders associated with high levels of suicidality, social impairment, and comorbid substance, mood, and anxiety disorders (Hudson, Hiripi, Pope, & Kessler, 2007; Neumark-Sztainer et al., 2002; Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011). Those with anorexia nervosa have the highest mortality rate of any psychiatric disorder, and individuals with bulimia and unspecified eating disorders have relatively high rates of mortality compared to other psychiatric disorders as well (Arcelus, Mitchell, Wales, & Nielson, 2011). Approximately 3% of males and 6% of females develop a full syndrome eating disorder during their life (Hudson et al., 2007), with onset often occurring during adolescence (Swanson et al., 2011). Partial syndrome eating disorders are even more prevalent; approximately 56% of ninth-grade females and 28% of males report current disordered eating behaviors (Croll, Neumark-Sztainer, Story, & Ireland, 2002). Body image problems and disordered eating behaviors are

both risk factors for eating disorders, and pose risks to the psychological health of adolescents on their own (Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006; Stice, Ng, & Shaw, 2010). The prevalence of disordered eating, particularly among females, and the severity of the consequences of clinical eating disorders led to an active line of research on how to prevent these harmful disorders (Shisslak, Crago, Neal, & Swain, 1987).

Shared Risk Factors for Eating Disorders and Obesity

Because of the overlap between behaviors and attitudes targeted by obesity and eating disorders prevention programs, recent research has focused on identifying shared risk factors for developing eating disorders and weight-related problems (Haines, Kleinman, Rifas-Shiman, Field, & Austin, 2010; Haines & Neumark-Sztainer, 2006; Neumark-Sztainer et al., 2007). Neumark-Sztainer (2005) highlighted some of the difficulties in bridging the fields of obesity and eating disorders prevention:

> In some ways, the goals of obesity and eating disorder prevention, and in particular, treatment, seem contradictory. Behaviors that are often integral to the treatment of weight management such as monitoring weight, food and activity logs, and food restrictions, can be viewed as symptoms of eating disorders if taken to an extreme.
>
> There are language differences between the fields. Within the obesity field, overweight is probably the most common term used. It is typically viewed as more scientifically accurate and less offensive than terms such as fat and even obese. But, when I have used this term at eating disorder meetings I have been asked. ‘‘Over whose or what weight?’’ The term fat is often promoted within the eating disorder field, and even more so within fat-acceptance groups, possibly to break the negative connotation associated with this word. (p. 222)

However, ultimately Neumark-Sztainer (2005) concluded that "Although challenges in bridging the fields of obesity and eating disorders exist, they are not insurmountable, and indeed on closer examination, we can see a number of solutions" (p. 223). Research since then has supported the feasibility of targeting the two issues simultaneously (Sánchez-Carracedo, Neumark-Sztainer, & López-Guimera, 2012), and recent prevention programs that target healthy lifestyle behaviors and attitudes have been developed with this goal (e.g., Wilksch & Wade, 2013).

As part of these efforts, researchers began to cross-reference the large and growing bodies of literature on risk factors for eating disorders and risk factors for obesity. It is useful to distinguish between different types of risk factors. Kraemer et al. (1997) categorized risk factors into correlates, fixed markers, or variable risk factors. A correlate is a factor that is associated with a given outcome, but temporal precedence has not or cannot be established (as is typically the case with cross-sectional data). Fixed markers have established temporal precedence to the given outcome, but cannot change or be changed. A variable risk factor has been established as having temporal precedence to the given outcome, and can change or be changed over time. Kraemer et al. also defined causal risk factors (when it has been demonstrated that manipulation of a variable risk factor changes the outcome).

Sánchez-Carracedo et al. (2012) identified four groups of factors that influence eating disorders and obesity:

> (i) individual factors such as use of dieting and unhealthy weight-control behaviours, media use, body dissatisfaction, weight and body concerns, and self-esteem issues;
>
> (ii) family- and peer-related factors such as family meal patterns, parental and peer modelling of dieting behaviour, and exposure to weight-related teasing from family

> and peers; (iii) school and community factors such as eating and weight-related attitudes and behaviours of coaches and teachers, and food availability; and (iv) societal factors such as socio-cultural norms for the ideal body, weight discrimination and media messages about eating, physical activity and body image. (p. 2)

In a longitudinal study with 2,516 adolescents, Neumark-Sztainer et al. (2007) found that weight concerns at baseline was the only variable risk factor that predicted all three outcomes—overweight status, binge eating, and extreme weight control behaviors—at the 5-year follow-up for both girls and boys. They measured weight concerns by taking the average of participants' responses to two items: "How strongly do you agree with the following statements? (a) I think a lot about being thinner, and (b) I am worried about gaining weight" (p. 369.e1). Weight concerns emerged as an important shared risk factor for obesity and eating disorders among adolescents.

Adolescent weight concerns can arise from media exposure, peer/social environments, and family environments. Weight stigma may contribute to weight concerns, and hence increase risk for eating disorders and weight-related problems. For example, weight concerns may be increased by experiences of being stigmatized or discriminated against based on weight (Puhl & Luedicke, 2012). According to social learning theory (Bandura, 1977, 1986), adolescents could also internalize weight-stigmatizing attitudes based on messages seen in the media, peers, or families, and this could lead to weight concerns (Ata & Thompson, 2010; Eisenberg, Carlson-McGuire, Gollust, & Neumark-Sztainer, 2014; Hussin, Frazier, & Thompson, 2011; Puhl & Heuer, 2009). In the current study, it was hypothesized that weight-stigmatizing attitudes would be particularly harmful for adolescents who perceived themselves as overweight because the social identity of these individuals

would be threatened (Hunger, Major, Blodorn, & Miller, 2015; Major, Hunger, Bunyan, & Miller, 2014).

The Impact of Weight Stigma on Eating Disorders- and Obesity-Related Risk Factors

Among adults, the experiences of weight stigma and internalization of weight-stigmatizing attitudes has been associated with binge eating behaviors and avoidance of exercise, rather than an increase in healthy lifestyle behaviors (Mensinger & Meadows, 2017; O'Brien et al., 2016; Puhl, Moss-Racusin, & Schwartz, 2007; Vartanian & Novak, 2011). In one study comparing a weight-neutral with a weight-focused healthy living program for adult women with high BMI, women with high internalized weight stigma did not report significant changes in eating behaviors after 6 months regardless of program, whereas women with low internalized weight stigma reported adaptive changes after 6 months; the women in the weight-neutral program maintained these changes at the 2-year follow-up (Mensinger, Calogero, & Tylka, 2016). Weight-stigmatizing experiences have been shown to result in increased levels of stress, cortisol, and weight gain, even when controlling for BMI (Jackson, Beeken, & Wardle, 2014; Schvey, Puhl, & Brownell, 2014; Sutin et al., 2016; Sutin & Terracciano, 2013; Tomiyama et al., 2014). Unsurprisingly, weight-stigmatizing experiences have also been associated with negative mental health outcomes over time (Sutin et al., 2016).

Several recent theoretical models have been developed to account for these relations. Tomiyama (2014) developed the cyclic obesity/weight-based stigma (COBWEBS) model, which posits that weight stigma is a stressor that feeds into a "vicious cycle" (p. 8) of stress, increased eating and increased cortisol, and subsequent weight gain and further experiences of weight stigma. Tomiyama hypothesized that it is difficult but not impossible for

individuals to escape this cycle via long-term weight loss or by internalizing more body-positive attitudes such as those promoted by the Health At Every Size® movement (Bacon, 2010; Bacon et al., 2002).

A complimentary model of how weight stigma leads to deleterious outcomes is based on social psychology research on stereotype threat (Steele, 1997) and social identity threat (Steele et al., 2002). Hunger et al. (2015) delineated a social identity threat model based on the idea that being overweight is a shared, devalued social identity that individuals might belong to if they perceive themselves as overweight, or if they believe that others might perceive them that way. Since most overweight individuals are aware of the negative stereotypes that exist about those perceived as overweight or obese (Puhl, Moss-Racusin, Schwartz, & Brownell, 2008), they may experience weight-based social identity threat:

> Weight-based social identity threat is a situationally triggered psychological state in which an individual is concerned that they have been or will be devalued, discriminated against, rejected, or negatively stereotyped because of their weight. Weight-based social identity threat can be activated in situations in which discrimination is directly experienced, such as being told by others that one should lose weight; suspected, such as wondering whether a job rejection was due to one's weight; or anticipated, such as when one first meets a potential dating partner. Weight-based social identity threat can also be activated by messages and behaviors that explicitly or implicitly devalue or justify devaluation of overweight people, such as "fat jokes" or media coverage about the costs to society of obesity (Hunger et al., 2015, p. 257).

Hunger et al. (2015) described a model in which weight-based social identity threat leads to physical and mental manifestations of stress, reduction in abilities to self-regulate, increases in motivation to avoid stigmatizing situations, and ultimately poor mental and physical health outcomes.

The Impact of Weight Stigma among Adolescents

The majority of the research on weight stigma discussed above has been conducted with adults. Adolescents are vulnerable to the mental health effects of weight stigma (Brewis, 2014; Greenleaf, Chambliss, Rhea, Martin, & Morrow, 2006; Puhl, Peterson, & Luedicke, 2013b) and given that a third of adolescents are considered overweight or obese (Ogden et al., 2012), it is important to examine the impact of weight-stigmatizing attitudes among adolescents and to understand the ways that internalized weight stigma may be negatively affecting adolescents' body image, risk for developing eating pathology, and health behaviors.

Haines, Neumark-Sztainer, Eisenberg, and Hannan (2006) used a longitudinal design to examine the impact of weight-related teasing among a diverse sample of over 4,000 middle school and high school students. Approximately 50% of participants completed a follow-up survey 5 years later. At Time 1, approximately one-fifth of males and females reported that they had been teased about their weight at least a few times a year. When adjusting for age, race/ethnicity, and socioeconomic status, weight teasing at Time 1 significantly predicted binge eating with loss of control at Time 2 among males, and was a marginally significant predictor of binge eating among females. In addition, weight teasing at Time 1 predicted unhealthy weight control behaviors at Time 2 for males, and dieting at least five times per year at Time 2 for females. These results indicate that weight-based

victimization (in this case, weight-related teasing) is predictive of disordered eating behaviors among adolescents, and of weight control strategies that are unlikely to be successful among male adolescents.

Puhl and Luedicke (2012) examined how adolescents coped with weight-based teasing or bullying that occurred at school. They focused on a sub-sample of 394 high school students (mostly White) who reported weight-based victimization at school within the previous year, which was approximately one-quarter of their full study sample. The researchers asked students to indicate where the teasing had occurred (e.g., in the classroom, bathroom, gym class, locker room). Survey responses indicated that 28-40% of males and 45-59% of females "who experienced weight-based victimization reported that it made them feel sad, depressed, worse about themselves, bad about their body, and angry" (p. 33). Emotional responses did not differ significantly between participants in different weight categories (healthy weight versus overweight/obese). Teasing incidents were not predictive of health behaviors or binge eating when examined as a whole, but among males, teasing that occurred in more private settings (in a locker room or bathroom) significantly predicted binge eating. Finally, Puhl and Luedicke found interesting associations with negative affect: increased negative affect in response to the victimization significantly predicted coping with avoidance strategies (avoidance of exercise, gym class, eating in front of others, and being social), and eating more or binge eating. This study provided further evidence that weight stigma among adolescents, in particular experiencing weight-based teasing or bullying at school, has a negative impact on mental and physical health.

Similarly, Juvonen, Lessard, Schacter, and Suchilt (2017) found that approximately one-third of a diverse sample of 5,128 seventh-grade students reported that they had

experienced weight-based victimization by their peers that year. Experiences of weight-based peer discrimination in seventh grade was a significantly stronger predictor of emotional problems (body dissatisfaction, social anxiety, and loneliness) in eighth grade than BMI. Among girls, experiences of weight stigma in seventh grade was also a stronger predictor of somatic symptoms in eighth grade than BMI. Taken together, the findings of Juvonen et al. (2017) and Puhl and Luedicke (2012) suggest that weight stigma experienced at school has a serious negative impact on mental and physical development throughout adolescence. More research is needed to replicate previous findings and further understand the impact of experiences of weight stigma on adolescents' own weight-stigmatizing attitudes, weight concerns, and health outcomes. In addition, further examination of differences between genders and ethnic groups would bolster our knowledge of how to address weight stigma among diverse groups of adolescents.

Weight Stigma and Internalization of Societal Attitudes about Body Size

Not enough is known about the relation between internalization of weight-stigmatizing attitudes and a known risk factor for eating disorders among adolescents: internalization of "ideal" body types. Among women, internalization of the thin ideal has been established as a causal risk factor for body image concerns and eating disorders (Stice et al., 2010). Body image ideals vary for women of different cultures, with a more curvaceous figure being the ideal for Latina and African American women (Overstreet, Quinn, & Agocha, 2010; Romo, Mireles-Rios, & Hurtado, 2016). However, the idealized figure still has a slender waist, and this holds true across ethnic or racial groups. Men have a different body ideal, the lean-and-muscular body (Pope et al., 2000). Internalization of the lean-and-muscular ideal has been shown to correlate with eating pathology (Croll et al., 2002).

Together, I refer to these as *internalization of body ideals*, though it is important to note that the body ideals differ for males and females. I use the term *internalization* to refer to high endorsement of these body size attitudes, not to mean that the attitudes are self-directed.

Although internalization of body ideals and internalization of weight stigma both represent internalization of Western body image ideals (i.e., thin or lean=good and fat=bad), and both have been associated with eating pathology, few studies have examined these types of body size attitudes concurrently (Weisman, Kia-Keating, & Taylor, 2014). Levitt (2003) argued that drive for thinness and fear of fat and are two distinct but overlapping constructs. However, beliefs about one's own body image may not always mirror beliefs about other people's bodies, and it is worth a separately examining the overlap between body ideal internalization and weight stigma internalization (Durso & Latner, 2008). One of the aims of the current study was to examine whether internalization of weight-stigmatizing attitudes was correlated with binge eating and exercise avoidance among adolescents, and to investigate the relationship between internalization of weight stigma and internalization of body ideals to determine if these are two distinct concepts, or tapping into the same latent variable.

A strength of this study was a sample that was approximately 45% Latinx[1,2]. Eating disorders are often stereotyped as a problem exclusive to middle to upper class White females. Literature in the 1980s and 1990s began to challenge this assumption (e.g., Crago,

[1] I use the term *Latinx* to be inclusive of all gender identities. I use *Latino*, *Latino males/men*, *Latina*, or *Latina females/women* when referring to individuals or groups who identified as male or female. The language of measures in the current study had more traditional uses of the terms Latino and Latina (e.g., using "Latino cultural activities" to refer to Latinx individuals of all genders), and results of these scales are reported according to the language used in the measure.

[2] I use the term *Latinx* rather than *Hispanic* because it was the preferred terminology of the geographic region in which the study was conducted.

Shisslak, & Estes, 1996; Smith, 1995), with recent national surveys confirming the presence of eating disorders among ethnic minority groups. In particular, recent literature suggests that rates of eating disorders among Latinx may be similar to Whites, and possibly higher for some diagnoses (Alegria et al., 2007; Marques et al., 2011; Reyes-Rodriguez et al., 2010). As the population of Latinx increases in the United States, it becomes increasingly important to understand when and how prevention programs should be tailored to this group.

Body Image, Weight Stigma, Eating Disorders, and Obesity among Latinx Adolescents

National epidemiological studies indicate that eating disorders occur among Latinas in the U.S. at approximately similar rates as White females, and that eating disorders (particularly binge eating) may be more common among Latino males as compared to males in other ethnic groups (Alegria et al., 2007; Marques et al., 2011). Among adolescents, Latinx report the highest lifetime prevalence of full syndrome bulimia nervosa (BN; 1.6%) and a trend toward a higher prevalence of binge eating disorder (BED; 2.4%) when compared to Whites (0.7% for BN and 1.4% for BED, respectively), African Americans (1.0% BN, 1.5% BED), and a broad "other" racial group (1.3% BN, 1.4% BED; Swanson et al., 2011). Latinx adolescents also have higher rates of overweight risk and overweight status than White adolescents (Ogden et al., 2012), and gain weight more rapidly than White individuals during the transition from adolescence to adulthood (Harris, Perreira, & Lee, 2009). These epidemiological statistics suggest that it is important to include Latinx individuals in research on eating disorders and obesity prevention.

In general, the existing body of research on eating disorders among Latinx in the United States (US) has not investigated differences between Latinx subgroups, such as Mexican American, Puerto Rican, Cuban, Brazilian, or Salvadoran. One notable exception is

a study that examined psychosocial risk factors for eating disorders among female undergraduate students who were of Latinx or White ethnicity. Results indicated that Dominican, Venezuelan and Columbian participants had significantly higher levels of eating disorders risk than White and Central American/Mexican participants. The authors pointed out that,

> Individual [sub]groups have their own distinct culture and customs (Huerta & Macario, 1999; Naranjo & Dirksen, 1998), which may have an impact on the concern for and perception of women about their physical appearance. In addition, Hispanic subgroups may be influenced by the media and feel social pressure for thinness to different degrees. (George, Erb, Harris, & Casazza, 2007, p. 2)

Hence, it is important to keep in mind that reported findings often pertain to one subgroup, or the subgroup identities are not assessed. In addition, more research has been done on Latina females than Latino males, even though Latinos appear to have similar eating disorder prevalence rates as Latinas (Franko, 2007; Reyes-Rodriguez et al., 2011). The Latinx in the current study were primarily Mexican-American adolescents.

With the above caution in mind, a handful of studies have examined the construct of body image and ideal body image representations among Latinas in the U.S. A study by Erickson and Gerstle (2007) assessed whether body image was a valid construct among Latina preadolescents and found that the construct was similar for Latina/bi-ethnic Latina and White preadolescents, and significantly predicted disordered eating for both groups. However, a qualitative study using a focus group of African American and Latina women ages 18 to 60 found that the women believed “body ethics” were more important than aesthetics; i.e., they expressed that it is more important to treat your body well and accept it

than to conform to a body image ideal (Rubin, Fitts, & Becker, 2003, p. 55). This is an important distinction that could inform prevention and treatment efforts, which may place too much emphasis on accepting appearance rather than taking care of the body. A more recent qualitative study used a focus group of college Latina women to assess how prevention of eating disorders and obesity might be tailored for this population (Franko et al., 2012). Participants' responses suggested that the women received conflicting messages about ideal body types from their Latin American and U.S. cultural influences, with a curvier body type being more favorable in Latinx cultures (particularly among older generations) and the thin ideal prevailing in U.S. mainstream culture. Participants also discussed conflicting messages from family members on whether they needed to lose weight or not; put another way, participants received conflicting information on the degree of stigma assigned to overweight individuals.

Other studies have similarly focused on the idealized body shape and body dissatisfaction among Latinas. One such study compared ideal body shapes among White, African American, and Latina college women. The researchers found that White and Latina women both selected slightly thinner ideal body shapes than African American women. This suggests that White and Latina women hold similar body image ideals (Gordon, Castro, Sitnikov, & Holm-Denoma, 2010), though, as noted earlier Latina women tend to value a slightly curvier body shape with a thin waist (Romo et al., 2016). Most research suggests that Latinas have similar levels of body image concerns as White women (Cachelin & Striegel-Moore, 2006; Hrabosky & Grilo, 2007; Robinson et al., 1996), and some studies have found higher levels of body image concerns among Latinas (George et al., 2007).

Although there is more acceptance of a curvy body type among Latinx communities, weight stigma is not absent and has been found in adolescents at comparable levels to White adolescents (Greenleaf et al., 2006). Holding negative views of overweight and obese people has been found to be positively related to body dissatisfaction among Latinas (Pepper & Ruiz, 2007). Rosenthal et al. (2015) examined the impact of weight and race-related bullying on health outcomes in a study with 644 seventh- and eighth-grade students, primarily Black and Latinx, from socioeconomically disadvantaged areas. Survey data from two years earlier (when the participants were in fifth and sixth grade) was used to control for health variables. Results and implications were summarized by the authors:

> Through the mechanism of greater emotional symptoms, greater experiences of weight- and race-based bullying were indirectly associated with increased systolic blood pressure, diastolic blood pressure, and BMI, as well as decreased overall self-rated health across 2 years, among predominantly Black and Latino, socioeconomically disadvantaged adolescents. Because of the negative emotional consequences, weight- and race-based bullying each is associated with negative changes in health across the span of 2 years in this sample. This suggests that the experience of stigmatization during adolescence may have implications for health outcomes in early adulthood. Stigmatization that occurs during adolescence is certainly important because of the emotional and physical consequences experienced at that time of development, and it is also critical because for some people it may be one piece of a longer trajectory of experiencing stigmatization throughout the lifetime. The accumulation of these experiences over time can build and contribute to

> adverse trajectories of health that may help explain large and persistent health disparities found in adults in the United States." (p. 408)

Indeed, weight stigma is often one type of stigmatization and discrimination experienced, and intersects with other forms of discrimination. For example, weight-based teasing is often based on racial stereotypes about appearance (Larkin & Rice, 2005).

Another important area to consider when examining eating pathology and obesity among Latinx is the role of acculturation, or the degree to which a person adapts mainstream culture, beliefs, and practices. Early studies in this vein found that higher levels of acculturation were associated with higher levels of disordered eating among adolescent Latinas (Pumariega, 1986). Research since then has generally supported the finding that ethnic identity may be a protective factor against thin ideal internalization among Latinas (Schooler & Daniels, 2014). Pepper and Ruiz (2007) found that Latina women who were highly acculturated had similar levels of weight-stigmatizing attitudes as White women, whereas Latinas who were less acculturated or had a bicultural orientation had lower levels of weight-stigmatizing attitudes. A recent study of Latina mother-daughter dyads found that mothers who were more acculturated had daughters with significantly higher levels of unhealthy weight control behaviors (Olvera et al., 2016). However, other research has indicated that the relation between acculturation and eating disorders risk may be complicated. A study with Mexican American children and adolescents found that the children (but not adolescents) were more dissatisfied with their bodies the more they identified with Mexican culture (Ayala, Mickens, Galindo, & Elder, 2007). Other studies have begun to explore additional factors in the relations between acculturation, body image, and disordered eating. In a study with five generations of Mexican American immigrant

families, second generation women endorsed the most disordered eating patterns (Chamorro & Flores-Ortiz, 2000). This may be because second generation women experience a high degree of acculturative stress, defined as negative mental and physical consequences of conflict between the native culture and the new majority culture. Accordingly, one study found that acculturative stress, but not acculturation, was positively associated with a drive for thinness among Latina college women (Gordon et al., 2010). However, Rudmin (2009) recommended that acculturative stress not included as a measured construct in research studies because of the overlap with confounding factors.

Acculturation is a difficult construct to measure and the differences in measurement may account for variation in findings (Carter-Pokras & Bethune, 2009; Lopez-Class, González Castro, & Ramirez, 2011; Rudmin, 2009; Thomson & Hoffman-Goetz, 2009). Schwartz, Unger, Zamboanga, and Szapocznik (2010) presented a model of acculturation that they hoped would help account for many of the complex processes involved in acculturation. More specifically, they delineated the importance of assessing cultural practices, values, and identifications for both the culture of origin (e.g., Mexican) and the new majority culture (e.g., North American or White). This approach is in line with theories of biculturalism, or the idea that an individual can be highly acculturated to more than one culture and integrate these identities (Berry, 1997). Schwartz et al. (2010) suggested that a bicultural orientation may lessen acculturative stress as compared to individuals who are acculturated to one culture but not the other. This model has not yet been applied in the context of eating and weight-related outcomes.

Another approach taken by Warren, Castillo, and Gleaves (2010) differentiated between behavioral acculturation and cognitive acculturation:

> We conceptualize behavioral acculturation to reflect the degree to which an individual engages in activities common to a given culture (e.g., language use, food choice and consumption, dress, music and TV preferences) whereas cognitive acculturation is the level of attitudinal acceptance of and comfortability with the values, beliefs, and behaviors of a given culture. (p. 46)

Warren et al. (2010) found that behavioral acculturation moderated the relationship between awareness of White values of appearance and internalization of these values; for Latinas that were highly behaviorally acculturated, levels of internalization of White values of appearance were high regardless of levels of awareness. For women that were not highly behaviorally acculturated, levels of internalization were low if awareness was low, and levels of internalization were high if awareness was high. In addition, Warren et al. (2010) examined the role of cognitive marginalization, or being behaviorally acculturated but not cognitively acculturated (not accepting the attitudes and beliefs of the majority culture regardless of participation in mainstream behaviors). They found that cognitive marginalization was a moderator in the association between internalization of White values of appearance and body dissatisfaction. Women who were more cognitively marginalized had a stronger association between internalization and body dissatisfaction, whereas the association between these two variables was less strong for women who were less cognitively marginalized.

The relation between acculturation and body image is complicated, and further research is needed, particularly to examine these relations with Latino males. The model presented by Schwartz et al. (2010) appears to be a useful one that may illuminate the role that values, practices, and identifications contribute to eating and weight outcomes. It is clear

that this is an important area for prevention and treatment of eating disorders and obesity among Latinx.

The Current Study

The current study used cross-sectional survey data from adolescents to examine several gaps in the literature. First, I examined whether experiences of weight-based victimization predict binge eating and exercise avoidance among teens who perceived themselves as overweight, even when controlling for BMI. I also looked at weight-stigmatizing attitudes as a moderator of these associations. Second, the relation between two presumably overlapping constructs, weight-stigmatizing attitudes and ideal-body internalization, was investigated. Finally, the contribution of different facets of acculturation on body size attitudes, eating psychopathology, and exercise avoidance was tested among participants that identified as Latinx.

Significance

To encourage healthy adolescent development, it is critical to understand the influence of weight stigma on body image, weight concerns, eating pathology, and lifestyle behaviors such as exercise and nutrition. The presence of weight stigmatization has been shown to increase body image problems and eating pathology among adults (including binge eating and exercise avoidance), rather than encourage healthy weight regulation practices. Initial research with adolescents has found similar results, but further research is needed to replicate these findings and understand the role of internalized weight stigma for individuals who perceive themselves to be overweight. This study also investigated the relation between a known risk factor for eating disorders, ideal-body internalization, and a more recent variable of interest, weight stigma internalization. An important strength of the study was the

inclusion of males and a large Latinx subsample, which allowed for exploration of body size attitudes among adolescents with varying levels of acculturation.

In the long term, this study may help inform future eating disorders and obesity prevention efforts. A better understanding of weight stigma may inform approaches to reducing weight concerns among adolescents of varying body sizes and ethnicities. Also, it is possible that existing adolescent prevention programs that target ideal-body internalization may also be significantly reducing weight stigma internalization, suggesting that additional intervention is not warranted. Alternatively, targeting weight stigma internalization may increase the effectiveness of these prevention programs, particularly among overweight populations. A cohesive understanding of these concepts among adolescents is needed, beginning with an assessment of the correlation between the two concepts and their associations with other risk factors for eating disorders and obesity.

Research Questions and Hypotheses

Research Question 1. After controlling for BMI, are experiences of weight-based victimization associated with binge eating, eating psychopathology, poor nutrition, exercise avoidance, and low levels of physical activity among teens who perceive themselves as overweight, and does internalized weight stigma moderate these relations?

Hypothesis 1. Experiences of weight-based victimization will be significantly associated with binge eating, eating psychopathology, poor nutrition, exercise avoidance, and low levels of physical activity.

Hypothesis 2. Internalized weight stigma will moderate these associations such that teens with higher levels of internalized weight stigma will have a stronger association between experiences of weight-based victimization and the dependent variables, whereas

teens with lower levels of internalized weight stigma will have a weaker association between experiences of weight-based victimization and the dependent variables.

Research Question 2. Are ideal-body internalization and weight stigma internalization two distinct concepts, or are they tapping into the same latent variable (internalized societal attitudes about body size)?

Hypothesis 3. Based on a literature review of studies that examined these constructs concurrently (Weisman et al., 2014a), I expect to find a significant, moderate correlation between ideal-body internalization (IBSS-R for females and DFLS for males) and weight-stigma internalization (F-scale) overall. I will also examine the correlation between these variables for each gender, ethnic group, and perceived weight status groups, but the dearth of research in this area (and particularly with adolescents) does not permit specific hypotheses on differences in strength of the association between these groups.

Hypothesis 4. Experiences with weight-based victimization will have similar predictive relationships with ideal-body internalization and weight stigma internalization. Ideal-body internalization and weight stigma internalization, in turn, will have similar predictive relationships with body image concerns (WCS for females and MBICS for males), eating pathology (YEDE-Q global score), and exercise avoidance.

Research Question 3. How does level of acculturation relate to body size attitudes and eating psychopathology among Latinx adolescents?

Hypothesis 5. Adolescents with higher U.S. orientations will have higher levels of ideal-body internalization and weight-stigmatizing attitudes than adolescents with lower U.S. orientations. Similarly, adolescents with higher Latino/a orientations will have lower levels

of ideal-body internalization and weight-stigmatizing attitudes than adolescents with lower Latinx orientations.

Hypothesis 6. Higher levels of ideal-body internalization and weight-stigmatizing attitudes will be associated with significantly higher eating psychopathology.

CHAPTER 2: METHOD

Participants

Participants were 371 high school students ages 12-18 recruited from large public high schools in two areas (labeled "North County" and "South County") on the central coast of California. The student population in the region is majority Latino/a and White. Schools ranged from approximately 30% to 80% socioeconomically disadvantaged students and 40% to 75% Latino/a.

A total of six participants were excluded from analyses: two for low English proficiency (identified by the teachers and apparent during survey completion), and four who reported that they answered "only some" or "hardly any" items honestly. No participants were excluded for mischievous responding (see description in Measures section). The resulting sample size used in analyses was 365 participants. See Figure 1 for a recruitment flowchart.

Out of the 365 participants (M_{age} = 15.0, SD = 0.98), 52.3% identified as male, 46.3% as female, and 1.4% as gender-nonconforming. The participants were primarily in ninth grade (75.6%), with smaller numbers from tenth, eleventh, and twelfth grades (11.2%, 8.2%, and 4.7%, respectively). Most of the participants were recruited from South County schools (62.2%). The sample was ethnically diverse: participants identified as White/Caucasian (38.9%), Latino/Hispanic (34.5%), multiethnic (17.5%), Asian/Asian American (4.1%), African American/Black (2.2%), Pacific Islander (0.5%), or Other (2.2%). Among the 64 participants who identified as multiethnic, 31 specified or wrote in Latino/Hispanic as one of their ethnic groups. The sample was also socioeconomically diverse, with participants reporting that the highest level of education attained by a parent was less than high school

(15.9%), high school graduate (13.2%), some college (12.3%), college graduate (23.3%), some graduate school (2.5%), graduate degree (21.6%), or they didn't know (11.0%).

Participants' self-reported height and weight were used to calculate BMI (M = 22.7, SD = 4.54) and BMI percentiles (M = 64.0, SD = 28.16) according to Barlow and the Expert Committee (2007) recommendations, using the Centers for Disease Control and Prevention (2015a) BMI-for-age calculation tool. Out of the 355 students who self-reported their height and weight, 4% were considered underweight (<5th percentile), 64% were considered normal weight (5th to 85th percentile), and 32% were considered overweight or obese (>85th percentile). Fourteen percent of the sample fell into the obese range (>95th percentile). There were some sex and ethnicity differences, with more males (39%) than females (24%) and more Latinx (42%) than White (18%) adolescents considered overweight or obese. These prevalence rates were similar to reported rates of overweight/obesity among adolescents in California from the 2009 and 2011-12 California Health Interview Surveys (CHIS; Wolstein, Babey, & Diamant, 2015) and the High School Youth Risk Behavior Survey (YRBS; Centers for Disease Control and Prevention, 2015b). The CHIS data indicated that 32% of California youth ages 12-17 met criteria for overweight/obesity, including 40% of Latinx and 20% of White adolescents. The YRBS similarly found an overall rate of overweight/obesity of 30%, including 39% among Latinx and 25% among White adolescents, and 36% among males and 25% among females.

Procedures

All procedures were approved by the Institutional Review Board at the University of California, Santa Barbara. Approval was also obtained from the participating school districts and school principals prior to study implementation.

Study implementation took place in spring 2016 in 18 health classes, two physical education classes, and one freshman seminar course. It was noteworthy that the two physical education classes were comprised of an all-male freshman and varsity football team, which made up 22% of the males in the current study. Recruitment took place in classrooms of seven teachers from four high schools who agreed to participate in the study. Interested students took home a letter and consent form explaining the study to their parents. Consent forms were available in English and Spanish. Parents had at least two weeks to sign the consent form. Students also had to provide their assent to participate. The parental consent rate was 60.2%, and 86.9% of students with parent consent provided assent and completed a survey. The school health department was given $100 per teacher whose classroom(s) participated as an incentive for the teachers to allow the recruitment in their classrooms.

All study materials were completed during class. There were four different versions of the survey, each containing the same measures in different orders; this was done to minimize repeated missing data patterns (e.g., for students who were unable to complete the survey within the allotted time period). After reviewing the assent form (see more detail below), I read the instructions for the Youth Eating Disorders Examination Questionnaire (YEDE-Q; Goldschmidt, Doyle, & Wilfley, 2007) aloud and provided an opportunity for students to ask clarifying questions.

Several steps were taken to ensure participant anonymity. First, prior to starting the survey, I reviewed the anonymous assent form which was attached to the front of the survey, and asked students to check whether they did or did not assent for their responses to be used in the research study. Once this process was complete (and I had read the YEDE-Q instructions aloud), I instructed students to return to the beginning of their survey packet and

begin. All students in the classroom were given the opportunity to complete the survey, regardless of whether they had obtained parental consent. While the students were completing the survey, I walked around the classroom to quietly ask each student for their name. I put a check mark on the front of their survey if they had obtained parental consent, or an "X" if they did not. I later destroyed surveys that were completed by students who did not have parental consent. This procedure allowed for the survey responses to be anonymous.

After completing the survey, the students were given a debriefing statement that summarized existing weight stigma and health outcomes research, and reiterated the purpose of the study. Students were provided with a list of local eating disorder and mental health treatment resources, which had also been attached to the parental consent form.

Measures

Perceived weight status. Participants were asked to indicate their perceived weight status from the following options: *very underweight*, *somewhat underweight*, *about the right weight*, *somewhat overweight*, or *very overweight*.

Experiences of weight-based victimization. Participants completed a 3-item measure that assessed how frequently they had been teased or bullied because of their weight at school, home, or somewhere else on a scale from 1 (*never*) to 5 (*very often*). The brief measure was based on a longer measure of weight-based victimization (Puhl et al., 2011; Puhl, Peterson, & Luedicke, 2013a; Puhl et al., 2013b). Internal consistency in the current sample was $\alpha = .71$.

Weight-stigmatizing attitudes. Attitudes toward obese or fat people were assessed using the short form of the Fat Phobia Scale (F-scale; Bacon, Scheltema, & Robinson, 2001). This measure asks participants to indicate their perceptions of fat people using 14 different

pairs of adjectives (e.g. 1, *unattractive* to 5, *attractive*). The F-scale has demonstrated high internal consistency (α = .89) among a large sample of adolescent males and females (Puhl, Luedicke, & Heuer, 2011). This measure was chosen for several reasons. First, the measure itself may be less stigmatizing for overweight adolescents to complete as it offers word pairs with positive and negative options. Second, the scale is succinct and quick to complete compared to other existing measures (Ruggs, King, Hebl, & Fitzsimmons, 2010). Third, although recent research highlights the importance of assessing internalized stigma directed at the self, rather than stigmatizing attitudes directed at others (Durso & Latner, 2008), these self-directed items may also be stigmatizing for adolescents to complete (e.g., "I hate myself for being overweight"). Use of the F-scale is congruent internalization of body ideals measures which do not reference the self. The measure can be considered a measure of self-directed stigma for participants who perceived themselves as overweight.

Internalization of body ideals. The Ideal-Body Stereotype Scale-Revised (IBSS-R; Stice et al., 1996) was used to assess thin ideal internalization among females. This 6-item scale assesses how much participants agree that thin or slender women are more attractive and has shown high internal consistency (α = .91), 2-week test-retest reliability (r = .80), and predictive validity of bulimic symptoms (Stice, Shaw, Burton, & Wade, 2006), and has been previously used with adolescents (Stice, Rohde, Gau, & Shaw, 2012).

Although the IBSS-R has been extensively researched in eating disorder prevention research among females, it is not a valid measure for males. Hence, the 6-item Drive For Leanness Scale (DFLS; Smolak & Murnen, 2008) was included to assess internalized body image ideals among males. The DFLS was validated with a college-age population and showed excellent psychometric properties among males (α = .83).

Body image concerns. Body image concerns among females was assessed with the Weight and Shape Concerns Scale (WCS; Killen et al., 1993, 1994). The WCS consists of 5 items that assess worry about weight and shape, fear of gaining 3 pounds, last time the respondent went on a diet, importance of weight, and feelings of fatness. The measure was originally developed for use with adolescent girls. Internal consistency has not been reported in studies with adolescents, but a recent study with ethnically diverse college-age women found adequate internal consistency ($\alpha = .76$). Responses to the WCS have been shown to correlate significantly with the Eating Disorder Inventory (Killen et al., 1994), have demonstrated stability across a 7-month ($r = .71$; Killen et al., 1994) and 12-month period ($r = .75$; Killen et al., 1996), and have been sensitive in detecting eating disorder cases (Killen et al., 1993). The WCS has been used to predict the onset of eating disorders in two studies (Killen et al., 1994, 1996).

Body image concerns among males was assessed with the Male Body Image Concerns Scale (MBICS; Weisman et al., 2014b). The MBICS is a 5-item measure that asks about weight, shape, and muscle size concerns, as well as a desire to become more "fit and healthy." In a validation study with a diverse sample of adolescent males, the MBICS was significantly correlated with the Male Body Attitudes Scale (Tylka, Bergeron, & Schwartz, 2005), $r = .65$, and demonstrated internal consistency ($\alpha = .81$) and high 2-week test-retest reliability ($r = .76$). Body image concerns has cross-sectional support as a risk factor for male eating disorders (Ricciardelli & McCabe, 2004), though males with eating disorders typically endorse fewer body image concerns than their female counterparts (Darcy et al., 2012).

Both the WCS and the MBICS produce standardized scores that range from 0 to 100, allowing the creation of a single body image concerns variable.

Eating psychopathology. Eating disorder symptoms were measured with the Youth Eating Disorder Examination Questionnaire (YEDE-Q; Goldschmidt, Doyle, & Wilfley, 2007) global composite score. The YEDE-Q is a 39-item measure that has demonstrated significant correlations with the Child Eating Disorder Examination (ChEDE), a semi-structured interview that is the "gold standard" for assessing eating disorder symptoms among children (Bryant-Waugh, Cooper, Taylor, & Lask, 1996). Responses on the YEDE-Q can be used to calculate four subscale scores (Restraint, Eating Concern, Weight Concern, and Shape Concern) and a Global score, which mirror the subscales and global score of the ChEDE. The internal consistency of the subscales was .63, .69, .78, and .89, respectively, in the validation study (Goldschmidt et al., 2007). A more recent study with adolescents with Type 1 diabetes found higher internal consistency of the subscales (.78-.95; d'Emden et al., 2012). One limitation of this measure is that it tends to overestimate the prevalence of binge eating compared to the ChEDE (Goldschmidt et al., 2007).

The internal consistency of the original subscales was acceptable in the current study (.80-.94). However, given that the factor structure of the scale had never been examined, a confirmatory factor analysis (CFA) was run to examine whether the theorized factors fit the data. The global fit statistics suggested poor to moderate support (Brown, 2015) for the proposed factor structure, $\chi^2 = 1064.23$, $df = 202$, $p < .001$; RMSEA = .11, 90% C.I. [.10, .12], CFI = .87, TLI = .86, SRMR = .07. An exploratory factor analysis (EFA) was conducted with a randomly split sample ($n = 192$) to determine a more fitting factor structure. A three-factor or four-factor structure was supported by the global fit statistics (see Table 1), and a parallel analysis supported the three-factor solution. In order to improve fit of the three-factor solution even further, items were deleted if they did not have a factor loading of .50 or

higher (item 9), had a ratio of less than 2:1 to the next highest factor loading (items 5 and 16), or both (items 2, 11, and 12). Item 37 was also deleted because it was a Heywood case, with a standardized loading higher than 1.0. The final model resulted in three factors: eating restraint (3 items), loss of control eating (3 items), and weight and shape concerns (12 items). See Table 2 for factor loadings. A CFA with the other half of the randomly split sample (n = 173) indicated poor to moderate support for the three-factor model, $\chi^2(132) = 425.60$, $p <$ .001; RMSEA = 0.11, 90% C.I. [10, .13], CFI = 0.89, TLI = 0.87, SRMR = .06. A CFA with the same split sample (n = 173) using the original subscales indicated even poorer fit $\chi^2(203)$ = 876.00, $p <$ .001, RMSEA = 0.14, 90% C.I. [.13-.15], CFI = 0.80, TLI = 0.78, SRMR = .08. Given these findings, and the fact that the factor structure was not examined in the development of the YEDE-Q, I decided to use the revised factor structure found using the EFA with the current sample. Internal consistency of the revised scales in the current study were .76 for the global scale, .80 for the loss of control eating subscale, .87 for the restraint subscale, and .96 for the weight and shape concerns subscale.

For the purposes of this study, *binge eating* was operationalized as the loss of control eating subscale of the YEDE-Q. Previous research has shown that loss of control eating is indicative of clinical impairment among youth, regardless of the amount of food eaten (Goldschmidt et al., 2008).

Avoidance of exercise. Exercise avoidance was assessed with a 3-item measure of motivation to avoid exercising that has demonstrated internal consistency with adults (α = .79, Vartanian & Novak, 2011). Items were slightly altered to be more appropriate for an adolescent population.

Physical activity. Physical activity was measured with the PACE+ Adolescent Physical Activity Measure (Prochaska, Sallis, & Long, 2001), a brief screening measure developed for use with adolescents and that was one of three measures found to be valid, reliable, and endorsed by a panel of experts on measuring physical activity in youth (Biddle, Gorely, Pearson, & Bull, 2011). The measure was adapted from the Youth Risk Behavior Survey (Heath, Pate, & Pratt, 1993) and consists of two items: "Over the past 7 days, on how many days were you physically active for a total of at least 60 min per day?" and the same question "over a typical or usual week." A definition of physical activity is provided.

Nutrition. The PACE+ Fruit and Vegetable Measure (Prochaska & Sallis, 2004) is a 2-item, previously validated screening measure of fruit and vegetable intake. The measure was initially validated with a diverse middle school sample and was found to correlate significantly with a food record of fruit and vegetable intake. The two questions are: "In a typical day, how many servings of fruit do you eat?" and similarly, "In a typical day, how many servings of vegetables do you eat?" A definition of one serving is provided for both items, and response options range from 0 to 4 or more servings.

Acculturation. The construct of acculturation was assessed according to recommendations of Schwartz et al. (2010); cultural practices, values, and identifications were examined for both Latinx and U.S. culture. The measures below were used in a recent study of acculturation with 302 Hispanic adolescents from the Miami and Los Angeles areas and demonstrated internal consistency with the sample ($.73 \leq \alpha \leq .91$; Schwartz et al., 2014). One change is that the shorter Multigroup Ethnic Identity Measure—Revised (MEIM-R; Phinney & Ong, 2007) was used in the current study instead of the original Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992) to limit participant burden.

Practices. Cultural practices were measured with the Bicultural Involvement Questionnaire – Short Version (BIQ-S; Guo et al., 2009). This measure was validated with 893 Hispanic adolescents as well as 880 parents/guardians near Miami, Florida. The measure has four factors: comfort with use of Spanish language, comfort with use of English language, enjoyment of Hispanic cultural activities, and enjoyment of American cultural activities. Internal consistency was moderate to high in the validation study ($.75 \leq \alpha \leq .96$). Concurrent validity was not examined.

Values. Cultural values were operationalized as levels of individualism and collectivism. Although there are other cultural values that may differ between individuals with varying levels of acculturation, individualism-collectivism is a commonly cited difference between Latinx culture and U.S. culture. Sixteen items developed by Triandis and Gelfand (1998) were used to determine individualism and collectivism subscale scores. The items were rated on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Some items were adapted to be more appropriate for an adolescent population (e.g., changing the item, "the well-being of my coworkers is important to me" to "the well-being of other students is important to me"). Internal consistency was .78 for individualism and .86 for collectivism in the current sample.

Identifications. The Multigroup Ethnic Identity Measure – Revised (MEIM-R; Phinney & Ong, 2007) was used to assess identification with the heritage culture. This measure consists of six items that make up two correlated factors: exploration of ethnic identity and commitment. The MEIM-R is a shorter version of the original Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992). The six items had loadings of .40 or above on the original MEIM factors (Phinney & Ong, 2007). The internal consistency of these subscales

was adequate among the diverse undergraduate validation sample (α = .76 for exploration and .78 for commitment).

The American Identity Measure (AIM; Schwartz et al., 2012) was used to assess American identification. The measure mirrors that MEIM items, but replaces the term "my ethnic group" with "the United States." The measure was adapted for this study to only include the six items on the MEIM-R; hence, it is referred to as the American Identity Measure – Revised (AIM-R). Internal consistency was acceptable in the current sample of Latinx youth (α = .83 for exploration and .85 for commitment).

Mischievous or dishonest responding. Mischievous responding can cloud study results, but it is possible to detect mischievous responders (Furlong, Fullchange, & Dowdy, 2016; Robinson-Cimpian, 2014). For this study, students were asked in the demographics section (a) if they were deaf or had a hearing impairment, (b) if they were blind or had a severe vision impairment, and (c) when their last visit to the dentist occurred (within the past 6 months, about a year ago, or about 2 years ago). While it is likely that some participants would honestly endorse these items (having a hearing impairment, vision impairment, or not having been to the dentist in a long time), it is not plausible that an honest participant would endorse all these low incidence items.

The second strategy used to assess the reliability of responses was to ask about honest responding directly. Two questions were included on the last page of the survey: How many questions in this survey did you answer honestly? And, how many other students at your school do you think answered the questions in this survey honestly? (*All of them*, *most of them*, *only some of them*, *hardly any of them*). Four participants were removed from analyses based on answering that they answered only some ($n = 2$) or hardly any ($n = 2$) questions

honestly. Out of the remaining 365 participants, 82% indicated that they answered all questions honestly, and 12% indicated that they answered most of the questions honestly (6% did not answer the questions, which is unsurprising given that in all of the versions of the questionnaire, these were the last questions). Participants had slightly less favorable impressions of their peers, with 7% of participants indicating that other students probably answered all questions honestly, 68% indicating most of them, 18% indicating only some of them, and 1% indicating hardly any.

Analysis

I examined assumptions of structural equation modeling prior to running the main analyses. These include univariate normality, multivariate normality, collinearity between variables, homoscedasticity, relative variances, and score reliability (Kline, 2011). See Table 3 for approaches to examining these assumptions and addressing severe violations. I also examined baseline differences between demographic groups and study sites (North County versus South County) on predictor and outcome variables before conducting analyses. Analyses were conducted separately by gender (except where indicated otherwise) in accordance with previous research that has found different prevalence rates, risk factors, attitudes, and relationships between variables for disordered eating and weight-related behaviors between genders. Analyses were controlled for other demographic variables (ethnicity, county, BMI) by regressing each path onto the covariates. For analyses with males, their status as a member of the two classrooms that were exclusively comprised of football team players was also included as a covariate.

Data entry and descriptive statistics were conducted using IBM SPSS Statistics software version 23.0. Path models and structural equation models were conducted using

M*plus* software version 7.4 (Muthén & Muthén, 1998-2015). Global model fit was assessed using several indicators according to recommendations by Hu and Bentler (1999) and Brown (2015). Brown (2015) suggested that a large sample size tends to result in a significant χ^2 value ($p < .05$) even if the model fit is good; he recommended that other fit statistics be examined even when χ^2 is significant. Other fit statistics that were examined included the standardized root mean square residual (SRMR), root mean square error of approximation (RMSEA), comparative fit index (CFI), and Tucker-Lewis index (TLI). Hu and Bentler (1999) suggested that a SRMR value of .08 or below and a RMSEA value of .06 or below indicates reasonably good model fit. Brown (2015) noted that the guidelines for interpreting the RMSEA index vary, with some researchers stating that values of .08 or below "suggest adequate model fit" (p. 74). Brown (2015) indicated that the CFI and TLI should fall above .90 in models with acceptable fit and above .95 in models with reasonably good fit.

For the LCA models the use of multiple fit statistics is recommended. Specifically, the Bayesian Information Criterion (BIC), Adjusted BIC (ABIC), Bootstrap Likelihood Ratio Test (BLRT), Lo-Mendell-Rubin Adjusted Likelihood Ratio Test (LMRT), Bayes Factor (BF), and Correct Model Probability (cmP) were used to examine model fit and to compare models (Kline, 2011). Simulation studies have shown that the BIC and BLRT are the most reliable indicators of model fit (Nylund, Muthén, & Asparouhov, 2007). In practice, when we fit LCA models, we fit a one-class model and then subsequently add classes.

Sample size estimation. Figure 2 depicts the hypothesized model for the main analyses. One approach to estimating the necessary sample size is to multiple the number of parameters by 10; this approach is not ideal but gives a rough estimate of the number of participants needed (Kline, 2011). By this approach, a sample size of 440 individuals would

be needed who view themselves as overweight, or believe that other people see them that way, to have approximately 220 individuals for each analysis by gender (22 free parameters * 10). This estimate did consider covariates aside from BMI percentile. Less than half of the sample was expected to fall into this overweight category (Ogden et al., 2012), making an ideal sample size somewhere between 880 to 1,320 participants. This sample size was not possible for the scope of the current study, making the study inherently underpowered. It was expected that not all hypothesized variable relations would be observed. I ran Monte Carlo analyses post-hoc to examine level of power in the current study to examine the hypothesized effects given the current sample size and estimated parameters (Muthén & Muthén, 2002).

Research question 1. After controlling for BMI, are experiences of weight-based victimization associated with binge eating, eating psychopathology, poor nutrition, exercise avoidance, and low levels of physical activity among teens who perceive themselves as overweight, and does internalized weight stigma moderate these relationships?

Hypothesis 1. Experiences of weight-based victimization will be significantly associated with binge eating, eating psychopathology, poor nutrition, exercise avoidance, and low levels of physical activity.

Data analysis for hypothesis 1. Analyses were conducted separately by gender. Pearson correlations were used to examine the associations between experiences of weight-based victimization and health behaviors. Due to the small sample size, and expected collinearity between the outcome variables, a path analysis was used to examine experiences of weight-based victimization as a predictor of two outcome variables: binge eating and exercise avoidance (see Figure 2 for the path model). Path analysis is form of regression that allows for multiple independent and dependent variables, and is an improvement over

multiple regression because it represents the researcher's *a priori* hypotheses regarding direct and indirect effects (Kline, 1991). For the current model, each path was controlled for the effects of BMI percentile, as well as other covariates (ethnicity, county, and football player status among males).

Hypothesis 2. Internalized weight stigma will moderate these associations such that teens with higher levels of internalized weight stigma will have a stronger association between experiences of weight-based victimization and the dependent variables, whereas teens with lower levels of internalized weight stigma will have a weaker association between experiences of weight-based victimization and the dependent variables.

Data analysis for hypothesis 2. Internalized weight stigma was added to the path models from hypothesis 1 (see Figure 2). Each path was controlled for the effects of BMI percentile and the other covariates mentioned above.

Research question 2. Are ideal-body internalization and weight stigma internalization two distinct concepts, or are they tapping into the same latent variable (internalized societal attitudes about body size)?

Hypothesis 3. Based on a literature review of studies that examined these constructs concurrently (Weisman et al., 2014a), I expect to find a significant, moderate correlation between ideal-body internalization (IBSS-R for females and DFLS for males) and weight-stigma internalization (F-scale) overall. I will also examine the correlation between these variables for each gender, ethnic group, and perceived weight status groups, but the dearth of research in this area (and particularly with adolescents) does not permit specific hypotheses on differences in strength of the association between these groups.

Data analysis for hypothesis 3. Pearson correlations were used to examine the strength of the associations. A CFA was conducted to examine the association between the factor scores.

Hypothesis 4. Experiences with weight-based victimization will have similar predictive relations with ideal-body internalization and weight stigma internalization. Ideal-body internalization and weight stigma internalization, in turn, will have similar predictive relationships with body image concerns (WCS for females and MBICS for males), eating pathology (YEDE-Q global score), and exercise avoidance.

Data analysis for hypothesis 4. Path models were used to observe and compare standardized regression weights for females and males (see Figure 3).

Research question 3. How does level of acculturation relate to body size attitudes and eating psychopathology among Latinx adolescents?

Hypothesis 5. Adolescents with higher U.S. orientations will have higher levels of ideal-body internalization and weight-stigmatizing attitudes than adolescents with lower U.S. orientations. Similarly, adolescents with higher Latinx orientations will have lower levels of ideal-body internalization and weight-stigmatizing attitudes than adolescents with lower Latinx orientations.

Data analysis for hypothesis 5. The hypothesized structural regression model is depicted in Figure 4. Given the difficulty of measuring acculturation, two exploratory models were also considered post hoc. The first exploratory model (see Figure 5) examined each acculturation component (values, practices, and identifies for U.S. and Latinx orientations) as a predictor of body size attitudes, following the example of Schwartz et al. (2014). It is possible that different aspects of acculturation (values, practices, identities) might have more

of an impact on body size attitudes than others, and these effects could be missed by combining the components into factor scores for U.S. and Latinx orientations. The second exploratory model used latent class analysis (LCA) to allow the data to explore the presence of acculturation patterns, using the same components of acculturation as indicators (values, practices, and identities for U.S. and Latinx orientations). Following the class enumeration process used to decide the number of latent classes, distal outcomes were added to examine class membership as a predictor of weight-stigmatizing attitudes and eating psychopathology using the BCH method (Bolck, Croon, & Hagenaars, 2004). The BCH method is currently the preferred method for examining distal outcomes of latent class membership (Bakk & Vermunt, 2016). The small sample size prohibited running an LCA by each gender, and so gendered outcomes (ideal body internalization) were not examined in this exploratory model. See Figure 6.

Hypothesis 6. Higher levels of ideal-body internalization and weight-stigmatizing attitudes will be associated with significantly higher eating psychopathology.

Data analysis for hypothesis 6. The hypothesized model (see Figure 4) and post-hoc models (Figures 5 and 6) included eating psychopathology as an outcome variable.

CHAPTER 3: RESULTS

Data Cleaning, Screening, and Descriptives

See Table 4 for univariate normality statistics, comparison of variances, and score reliability. Independent samples *t*-tests were used to examine mean differences in responses between participants from the two geographic areas (Table 5) and participants of different genders (Table 6). Mean differences between participants from the two largest ethnic groups, White and Latinx, where also compared (Table 7); participants who identified as multiethnic and included Latinx as one of their ethnic groups were included in the Latinx group. Independent samples *t*-tests were also used to compare males from the football team with other males in the study (see Table 8). Collinearity was examined via correlation tables for the variables included in each research question (see Table 9 through Table 13).

Missing Data

Scale scores were calculated if at least 80% of the scale items had been completed. The amount of missing data for all scale scores was below 5% (see Table 4). The low amount of missing data, and the use of surveys with four different measure orders, suggest that the data that was missing could reasonably be considered missing at random.

BMI Percentiles and Perceived Weight

Research question 1 is focused on students who perceived themselves as overweight, rather than whose BMI percentile placed them into the overweight or obese category (objective weight status). Differences between perceived weight status and objective weight status were examined to better understand differences between the two approaches. In terms of perceived weight status, half of participants (49.6%) identified themselves as “about the right weight.” A smaller group identified themselves as somewhat underweight (13.7%) or

very underweight (3.0%). One-third of participants identified themselves as somewhat overweight (27.9%) or very overweight (5.8%). This distribution roughly aligns with the distribution of objective weight status categories, though more participants perceived themselves to be underweight than would be considered objectively underweight. Based on BMI percentile, 4.0% of the sample would be categorized as underweight, 61.9% as normal weight, 17.3% as overweight, and 13.4% as obese (height and weight information was not completed by 3.6% of the sample).

There were additional differences in perceived versus objective weight status ratings. Out of the 112 participants whose BMI percentile indicated that they were overweight or obese, only 79 (70.5%) perceived themselves as somewhat or very overweight. Forty-three participants perceived themselves to be somewhat or very overweight, but were not categorized as such according to their BMI percentile. The BMI percentiles of those who perceived themselves as somewhat or very overweight ranged from 42.3 to 99.4 (M = 85.0, SD = 14.9).

Weight-Based Victimization and Weight-Stigmatizing Attitudes

Among the full sample, 43.6% of participants reported any form of weight-based victimization in the past year. Out of the three settings assessed (school, home, somewhere else), participants indicated that teasing occurred most frequently at school (29.6%) and at home (28.5%), followed by other settings (21.4%). Most students reported that the teasing occurred *rarely*; only 76 students (20.8%) reported teasing that occurred *sometimes, often,* or *very often* in any setting. More females (53.8%) than males (33.5%) reported any weight-based victimization. Weight teasing was also more commonly experienced by Latinx students (50.9%) than White students (38.0%). Latinas reported the highest rate of weight

teasing (60.7%), followed by White females (46.8%), Latino males (44.6%), and White males (26.6%). Among participants who perceived themselves to be overweight (n = 123), 63.4% reported experiencing any weight-based victimization, with 42 individuals (34.1%) reporting that it had occurred *sometimes, often,* or *very often* in any setting.

In terms of weight-stigmatizing attitudes, the average scores for the full sample (M = 3.24, SD = 0.71, median = 3.21) were indicative of a neutral response (a rating of 3 was midway between negative and positive descriptors of obese or fat people). Approximately half of the sample had a score that indicated small to high levels of weight-stigmatizing attitudes. The results were similar for participants who perceived themselves to be overweight (M = 3.30, SD = 0.63) as well as for participants who were objectively overweight (M = 3.27, SD = 0.69). When broken down by ethnicity and gender, White females held the highest weight-stigmatizing attitudes on average (M = 3.38, SD = 0.64), followed by Latina females (M = 3.33, SD = 0.63), White males (M = 3.21, SD = 0.76), and Latino males (M = 3.03, SD = 0.78).

RQ1: Weight-Based Victimization, Internalized Weight Stigma, Eating Pathology, and Health Behaviors among Teens Who Perceived Themselves as Overweight

H1: Experiences of weight-based victimization will be significantly, positively associated with negative health behaviors. Pearson correlations were used to examine associations between experiences of weight-based victimization and binge eating, eating psychopathology, poor nutrition, exercise avoidance, and low levels of physical activity among participants who perceived themselves as overweight (see Table 9). Correlations with the full sample were also examined using nonparametric Spearman correlations to account for the high kurtosis of some of the variables. Due to the small sample size of those who

perceived themselves as overweight (n = 123), and the collinearity observed between some of the variables, it was decided to use binge eating and exercise avoidance as the primary outcome variables for further analysis.

Path analysis was used to examine experiences of weight-based victimization as a predictor of binge eating and exercise avoidance, controlling for BMI percentile and demographic covariates. Analyses were conducted separately for females (n = 66) and males (n = 55) who perceived themselves as overweight. See Figure 7. Among females who perceived themselves as overweight, experiences with weight-based victimization significantly predicted exercise avoidance when controlling for BMI percentile (β = .25, p = .04), but not binge eating (β = .14, p = .27). Similarly, among males who perceived themselves as overweight, experiences with weight-based victimization significantly predicted exercise avoidance (β = .39, p < .01) but not binge eating (β = .22, p = .12) when controlling for BMI percentile. Put another way, for adolescents who perceived themselves as overweight, experiences of weight-based victimization were associated with higher levels of exercise avoidance above and beyond the effects of BMI.

H2: Internalized weight stigma will moderate these associations. Internalized weight stigma was added to the path model as a moderator to examine whether internalized weight stigma might moderate the association between experiences of weight-based victimization and exercise avoidance among adolescents who perceived themselves as overweight. BMI percentile was controlled for in these models as well. Results suggested mixed support for the hypothesis that low levels of internalized weight stigma would mitigate the harmful effects of experiences of weight-based victimization (see Figure 8). Contrary to the hypothesis, internalized weight stigma did not significantly moderate the relationship

between experiences of weight-based victimization and exercise avoidance among females (β = .09, p = .47). In the moderation model, experiences of weight-based victimization emerged as a significant predictor of binge eating among males (β = .27, p = .04), but this relationship was not moderated by internalized weight stigma (β = .05, p = .69). In line with the hypothesis, internalized weight stigma was a significant moderator of the association between experiences of weight-based victimization and exercise avoidance among males (β = .28, p = .03), such that for males with more experiences of weight-based victimization, internalized weight stigma had little or no impact on their level of exercise avoidance. For males with fewer or no experiences with weight-based victimization, internalized weight stigma was associated with lower exercise avoidance. See Figure 9.

RQ2: Ideal-Body Internalization and Weight-stigmatizing attitudes as Distinct Constructs versus Indicators of a Single Latent Construct

H3: There will be a significant, moderate correlation between ideal-body internalization and weight-stigma internalization factor and scale scores. Pearson correlations between ideal-body internalization (thin ideal internalization for females and lean and muscular ideal internalization among males) and weight-stigmatizing attitudes were examined for each gender, ethnicity, and weight category (see Table 14). The correlation values were observed to be of small to moderate strength (Cohen, 1988), and generally fell short of the moderate association I had hypothesized.

Global fit statistics for the CFA model with ideal-body internalization and weight-stigmatizing attitudes as factors suggested poor model fit for females, n = 169, $\chi^2(169)$ = 456.16, p < .001, RMSEA = .10, 90% C.I. [.09, .11], CFI = .80, TLI = .77, SRMR = .08, and acceptable model fit for males, n = 191, $\chi^2(169)$ = 331.93, p < .001, RMSEA = .07, 90% C.I.

[.06, .08], CFI = .92, TLI = .91, SRMR = .06. The thin ideal internalization and weight-stigmatizing attitudes factors were not significantly correlated among females (r_s = .12, p = .15), whereas the lean and muscular ideal internalization and weight-stigmatizing attitudes factors were significantly correlated among males (r_s = .27, p < .001). Overall, these results do not indicate a strong association between ideal body internalization and weight-stigmatizing attitudes.

H4: Ideal-body internalization and weight stigma internalization will function similarly within a mediation model. Ideal body internalization and weight-stigmatizing attitudes were included within a mediation model to test whether they had similar predictor variables, and acted as similar predictors of other variables (see Figures 10 and 11). They functioned somewhat similarly in the models; the largest discrepancy was as a predictor of body image concerns among males. Lean and muscular ideal internalization was a significant predictor of body image concerns (β = .48, p < .001), whereas weight-stigmatizing attitudes was not (β = .11, p = .15). The overall model fit statistics suggested poor fit of these mediation models.

RQ3: Acculturation and Body Size Attitudes among Latinx Adolescents

The relation between acculturation and body size attitudes among Latinx participants (n = 163; 66 females, 95 males, 2 gender-nonconforming students) was explored in several ways, beginning with the hypothesized model (see Figure 4). Two additional exploratory models of acculturation were examined post hoc: a path model with each indicator of U.S. and Latinx orientation as a unique predictor (see Figure 5), and a latent class model of acculturation with class membership as a predictor of distal outcomes (see Figure 6).

I conducted a CFA of the hypothesized acculturation factors (U.S. Orientation and Latinx Orientation) prior to testing the full model. Each factor was comprised of indicators of the values, practices, and identifications for each culture. Indicators for U.S. Orientation included the BIQ-S Enjoyment of American Activities subscale score, the AIM-R Exploration subscale score, the AIM-R Commitment subscale score, and the Individualism scale score. Indicators for Latinx Orientation included the BIQ-S Latino subscale score (an average of the Spanish language and Latino cultural activities items), the MEIM-R exploration subscale score, the MEIM-R commitment subscale score, and the Collectivism scale score. Global fit statistics supported the factor structure for U.S. Orientation, $\chi^2(2) = 2.68$, $p = .26$, RMSEA = .05, 90% C.I. [.00, .17], CFI = .99, TLI = .98, SRMR = .03, and Latinx Orientation $\chi^2(2) = 2.84$, $p = .24$, RMSEA = .05, 90% C.I. [.00, .17], CFI = .99, TLI = .98, SRMR = .02. See Table 15 for item loadings.

A latent class analysis was implemented to see what acculturation classes emerged based on the data. Indicators were dichotomized so that a score over 3.0 indicated endorsement of the cultural indicator (a value of 1), whereas scores of 3 or below indicated lack of endorsement of the cultural indicators (a value of 0). Global fit statistics supported a two-class or four-class solution (see Table 16). The BIC, which has been cited as the most trusted global fit statistic (Nylund et al., 2007) provided support for the two-class solution. The two-class solution also fit better than a fully saturated baseline model per the BIC statistic, whereas the four-class solution did not. It is possible that with a larger sample size a four-class solution may have been supported. However, given that this was an exploratory analysis and the current fit statistics supported a two-class solution, the two-class solution was used for further analysis. Entropy was .76 for the two-class solution. The classes were

labeled as "bicultural orientation" (55.6% of the sample) and "mixed or developing orientation" (44.4% of the sample). See Figure 12 for the item probability plot.

H5: Higher U.S. orientations will be associated with higher levels of ideal-body internalization and weight-stigmatizing attitudes, whereas higher Latinx orientations will be associated with lower levels of ideal-body internalization and weight-stigmatizing attitudes. The effects of cultural orientation on body size attitudes (ideal body internalization and weight-stigmatizing attitudes) among Latinx were examined initially with the hypothesized model. The hypotheses were partially supported. Among Latinas, a higher Latinx orientation significantly predicted lower thin ideal internalization ($\beta = -.26$, $SE = .11$, $p = .02$). Among Latino males, a higher U.S. orientation significantly predicted higher lean and muscular ideal internalization ($\beta = .46$, $SE = .14$, $p < .01$). The interaction between U.S. Orientation and Latinx Orientation, which was intended to capture bicultural participants, was not a significant predictor of ideal body internalization or weight stigma internalization for males or females. See Figures 13 and 14. Global fit statistics were not available for the model.

The first exploratory model, the direct path model, indicated similar results for Latina females. Collectivism was the only predictor that was significantly associated with thin-ideal internalization ($\beta = -.31$, $p < .01$). In line with the hypothesis, higher levels of collectivism were associated with lower levels of thin-ideal internalization. None of the predictors were significantly associated with weight-stigmatizing attitudes. The model fit was poor, $\chi^2(37) = 202.75$, $p < .01$, RMSEA = 0.27, 90% C.I. [0.23, 0.30], CFI = 0.06, TLI = -0.97, SRMR = 0.18. See Table 17. For males, three predictors were significantly, positively associated with lean and muscular ideal internalization: Latino identity exploration ($\beta = .33$, $p < .01$),

individualism (β = .32, $p < .01$), and U.S. identity commitment (β = .32, $p < .01$). The finding that Latino identity exploration was significantly, positively associated with lean and muscular ideal internalization was contrary to the hypothesis, whereas the latter two findings (indicating a positive association between higher U.S. values and identity, and lean and muscular ideal internalization) were in line with the hypothesis. Similar to Latina females, there were no predictors that were significantly associated with weight-stigmatizing attitudes among Latino males (see Table 18).

Distal outcomes were examined for the two-class LCA model using the BCH method (Bolck, Croon, & Hagenaars, 2004). There were no significant differences between classes on weight-stigmatizing attitudes, $\chi^2(1) = 0.06$, $p = .80$, or eating psychopathology, $\chi^2(1) = 0.01$, $p = .91$.

H6: Higher levels of ideal-body internalization and weight-stigmatizing attitudes will be associated with significantly higher eating pathology. For females, there was not a significant pathway between thin ideal internalization and eating psychopathology (β = .02, $p = .88$) or between weight-stigmatizing attitudes and eating psychopathology (β = .24, $p = .11$) in the hypothesized model (see Figure 13). For males, there was a significant, positive pathway between lean and muscular ideal internalization and eating psychopathology (β = .23, $p = .01$), and the pathway between weight-stigmatizing attitudes and eating psychopathology approached statistical significance (β = .18, $p = .06$; see Figure 14).

A slightly different pattern of results emerged in the exploratory direct path models for females and males. Eating psychopathology was significantly predicted by weight-stigmatizing attitudes (β = .31, $p = .02$) but not thin ideal internalization (β = .01, $p = .97$) in the model with Latina females. In the model with Latino males, lean and muscular ideal

internalization approached statistical significance as a predictor of eating psychopathology (β = .19, p = .07); weight-stigmatizing attitudes was not a significant predictor of eating psychopathology (β = .11, p = .28).

CHAPTER 4: DISCUSSION

The current study explored the associations between experiences of weight-based victimization (weight-based teasing), weight-stigmatizing attitudes, eating pathology and health behaviors among a diverse sample of adolescents. The relation between internalization of weight-stigmatizing attitudes and internalization of body image ideals was examined to better understand whether they are distinct constructs. In addition, this study explored the role of acculturation in body size attitudes among Latinx adolescents.

This research extended previous literature in several ways. First, most research on weight stigma has been conducted with adults, and the research that has been done with adolescents has mostly examined experiences of weight-based victimization but not weight-stigmatizing attitudes. This study examined experiences of weight-based victimization and weight-stigmatizing attitudes within adolescents to understand if low weight-stigmatizing attitudes might protect against the deleterious effects of weight-based victimization. Second, this research extended our understanding of how constructs that have typically been studied separately, ideal body internalization and weight stigma internalization, are related. Both of these constructs have been shown to contribute to weight concerns, which is a shared risk factor for obesity and eating disorders. In addition, much of the research on weight stigma has been conducted with females. A strength of this study was the inclusion of adolescent males, as well as a large Latinx subsample. This study used the model of acculturation proposed by Schwartz et al. (2010) to examine the relationships between acculturation variables and eating and exercise behaviors.

The Impact of Weight-Based Victimization and Internalized Weight Stigma among Adolescents Who Perceived Themselves to be Overweight

In line with previous research, results indicated that experiences of weight-based victimization significantly predicted exercise avoidance among females and males who perceived themselves to be overweight, even when controlling for BMI percentile. Experiences of weight-based victimization did not significantly predict binge eating, however. The association between weight-based teasing and binge eating was in the expected direction for males and females, and the association may have been significant with a larger sample size; correlations among the full sample showed a significant, positive correlation between weight-based victimization and binge eating. Post hoc Monte Carlo simulation analyses (using 500 replications and the current sample parameters) confirmed that the power to detect a significant effect was low: .23 among females and .39 among males who perceived themselves to be overweight. Earlier research found that experiences of weight teasing were associated with binge eating among male but not female adolescents (Haines et al., 2006; Puhl & Luedicke, 2012).

Taken together, it appears that experiences of weight-based victimization reliably predicts exercise avoidance for males and females, but the relation between weight-based victimization and binge eating may be more complicated. Exercise is often a more public activity, particularly among adolescents who often participate in gym class or athletic teams. Adolescents who have been victimized based on their weight might be more likely to avoid social settings that can bring attention to their weight, including exercising at school or among peers—settings where their social identity may be more threatened (Hunger et al., 2015). In terms of binge eating, it is likely that weight-based victimization leads to binge eating among some adolescents and not others. As Puhl and Luedicke (2012) found, the

location of the teasing and negative affect might moderate the impact of weight-based victimization.

The role of weight-stigmatizing attitudes (also referred to as internalized weight stigma) was examined as a moderator of the relation between weight-based victimization and exercise avoidance to see if holding low weight-stigmatizing attitudes might be protective in the face of experiences of weight-based victimization. In general, the results did not support this hypothesis. Weight-stigmatizing attitudes did not moderate the significant pathway between experiences with weight-based victimization and exercise avoidance among females. It was a significant moderator of the pathway between experiences with weight-based victimization and exercise avoidance among males: for males who had low levels of weight-based victimization, higher weight-stigmatizing attitudes were associated with less exercise avoidance. That is, internalized weight stigma had a positive impact on exercise among males who had not experienced much weight-based teasing. For males with higher levels of weight-based victimization, internalized weight stigma did not have an impact on levels of exercise avoidance; exercise avoidance was similar regardless of weight-stigmatizing attitudes.

These findings partially supported the hypothesis that low internalized weight stigma can be protective; it appeared that low internalized weight stigma is protective only for males who had not experienced any (or very little) weight-based victimization. Correlational data also indicated that weight-based victimization was a stronger predictor of poor health outcomes than weight-stigmatizing attitudes. Weight stigma is a pervasive cultural bias (Puhl & Brownell, 2003) and weight-based teasing may make adolescents concerned with how others are perceiving them, regardless of their own internalized beliefs about weight (Hunger

et al., 2015). Tomiyama (2014) hypothesized that overweight individuals might escape the cycle of weight stigma, stress, increased eating and increased cortisol, weight gain, and subsequent weight gain and further experiences of weight stigma by internalizing more body-positive attitudes. The current results do not support this hypothesis, and instead suggest that additional targeted intervention might be warranted for those who have been victimized for their weight.

Ideal Body Internalization and Weight Stigma Internalization

Ideal body internalization and weight stigma internalization are similar constructs that had largely been studied in separate bodies of literature. Among females in the current study, the correlation between thin ideal internalization and weight-stigmatizing attitudes was small and approached significance; among males, the correlation between lean and muscular ideal internalization and weight-stigmatizing attitudes was small and significantly correlated. Correlations between factor scores produced similar results; thin ideal internalization and weight-stigmatizing attitudes factors were not significantly correlated among females, whereas the lean and muscular ideal internalization and weight-stigmatizing attitudes factors were significantly correlated among males. Interesting differences in correlations were observed between ethnic groups; a strong correlation was observed between thin ideal internalization and weight stigma internalization among Latinas, whereas the correlation was close to zero among White females. Lean and muscular ideal internalization and weight stigma internalization were not significantly correlated for Latino or White males, though the correlation approached significance among White males. It is difficult to interpret these differences without further breaking down groups by perceived weight; for example, males who perceived themselves as “about the right weight” had a moderate correlation between

lean and muscular ideal internalization and weight stigma internalization, whereas males who perceived themselves as overweight had almost no correlation between the two variables. In general, the observed correlations were smaller than hypothesized, suggesting that the constructs are related but distinct.

Analyses which compared ideal body internalization and weight-stigmatizing attitudes as mediators in the same path model were not conclusive; path weights generally followed a similar pattern when using the two different mediators, with mostly nonsignificant pathways. The primary difference was that lean and muscular ideal internalization was a significant predictor of body image concerns among males, whereas weight-stigmatizing attitudes was not. Combined with the correlational data, these results suggest that ideal body internalization and weight stigma internalization are related but distinct constructs and should be targeted separately in prevention or intervention programs. This conclusion is aligned with facial reactivity research showing that people can show positive emotional reactions to images of slim bodies without necessarily showing negative emotional reactions to large bodies (Roddy, Stewart, & Barnes-Holmes, 2011). Weight-stigmatizing attitudes might be targeted directly through a Health At Every Size® approach, an emphasis on body ethics (treating the body well; Rubin et al., 2003), and simultaneous targeting of other forms of bias and discrimination that intersect with weight bias (Larkin & Rice, 2005; Williams & Fredrick, 2015). Larkin and Rice (2005) conducted qualitative research with middle school girls and highlighted that weight-based teasing can often be based on racist stereotypes about appearance, and the teasing can increase pressure to conform to the norms of the majority culture.

As noted earlier, a more effective approach to preventing weight concerns may be to reduce the frequency of weight-stigmatizing experiences, since low weight stigma was not observed to be a protective factor. Brownell et al. (2009) suggested possible strategies toward this end, such as implementing and enforcing school-based policies that prohibit teasing, and partnering with parents to make sure they are communicating acceptance of size diversity to their children. Beyond community-level interventions, the authors called for broader, cultural shifts:

> It is unlikely that obese youth will be spared the negative consequences of prejudice without changes to the larger societal factors that reinforce weight stigma. The media is an especially powerful source of weight bias. Content analyses of children's media show that overweight characters in television and film are depicted as unattractive, unintelligent, unhappy, evil, unfriendly, cruel, eating junk food, having no friends, and engaging in physical aggression in contrast to thinner characters to who are ascribed a range of positive attributes. (p. S14)

The results of research questions 1 and 2 support the need for broader, societal shifts to destigmatize fatness and obesity and promote acceptance of size diversity. It is unlikely that challenging the thin ideal or lean and muscular ideal will simultaneously reduce weight-stigmatizing attitudes.

Acculturation and Body Size Attitudes among Latinx Adolescents

The model of acculturation proposed by Schwartz et al. (2010) was used to examine the relation between acculturation and body size attitudes (ideal body internalization and weight-stigmatizing attitudes) among Latinx youth. The latent factors of Latinx Orientation and U.S. Orientation had good fit in the proposed model. In line with the hypothesis, Latinx

Orientation significantly, negatively predicted thin ideal internalization among Latinas, and U.S. Orientation significantly, positively predicted lean and muscular ideal internalization among Latino males. These results are in accordance with previous findings that examined ethnic identity and acculturation (Olvera et al., 2016; Schooler & Daniels, 2014). Counter to the hypothesis, however, none of the acculturation factors were significant predictors of weight-stigmatizing attitudes, and the interaction between Latinx and U.S. Orientations (which was intended to pick up on a bicultural orientation) was not a significant predictor of body size attitudes. This is counter to the findings of Pepper and Ruiz (2007), who examined these relations among college women. The nonsignificant results may be attributable to an underpowered analysis; alternatively, acculturation may not be a reliable predictor of weight-stigmatizing attitudes among adolescents. As discussed earlier, it is possible to internalize body image ideals without internalizing weight stigma (or at least, the weight-stigmatizing attitudes may not be as severe as the pro-thinness/leanness attitudes; Roddy et al., 2011). Latinx adolescents with a higher U.S. Orientation may internalize the Western ideal body images, without necessarily internalizing weight stigma.

When acculturation variables were examined as independent predictors of body size attitudes, none of the pathways between acculturation variables and weight-stigmatizing attitudes were significant for males or females. Among Latinas, higher levels of Latinx values (operationalized as collectivism) were significantly associated with lower levels of thin ideal internalization. Among Latino males, higher levels of Latino identity exploration, U.S. Values (individualism), and U.S. identity commitment were each associated with higher levels of lean and muscular ideal internalization. The finding that higher Latinx identity exploration and higher U.S. identity commitment are both associated with lean and muscular

ideal internalization was unexpected. The correlations between acculturation variables indicated that U.S. orientation variables and Latinx orientation variables were significantly, positively correlated among males and females; the U.S. and Latinx identity exploration and commitment variables had moderate to strong correlations, except for U.S. identity commitment and Latinx identity exploration. Taken in tandem, these results indicate that most adolescents who were doing any identity exploration were exploring both their Latinx and U.S. cultures. This suggests that the proposed model of acculturation may not have fit this population; prior research using the model was conducted with recent Latinx immigrant adolescents (Schwartz et al., 2014). Although generational status was not examined in the current study, it is likely that most participants were not recent immigrants. A cautious interpretation of the current findings for males and females is that a higher value on collectivism decreases ideal body internalization, whereas a more individualistic stance may increase ideal body internalization.

The third approach to examining acculturation was using a latent class analysis, which is more data-driven and less theoretically oriented. Interestingly, a two-class solution was supported by the fit statistics; one class fit Berry's (1997) model of a bicultural orientation, but the other class showed a mixed pattern that did not fit well with Berry's model of acculturation. The second class were relatively low on all variables related to identity exploration and commitment, but were relatively higher on practices and values. This class may be similar to what Phinney (1999) described as a class of adolescents who had not explored their ethnic identity. Class membership was not a significant predictor of weight-stigmatizing attitudes or eating psychopathology. This model of acculturation may have been a better fit for the current population, but the small sample size prevented further exploration

of distal outcomes. Future research might continue the use of latent class analysis with larger samples of Latinx youth to examine acculturation.

Strengths and Limitations

The most notable limitations of the current study were the sample size and the cross-sectional design. Many of the research questions examined specific subsamples of study participants (for example, males who perceived themselves as overweight), thereby reducing power to look at effects. In addition, the study was cross-sectional, preventing any definitive conclusions about temporal precedence or causality. Other possible limitations were related to generalizability. Participants were recruited from health classes, and some of these classes had already covered eating disorders, nutrition, and exercise in class. It is possible that this influenced the responses of participants and may limit the generalizability of the results. Similarly, a large portion of the males in the study were part of a football team; weight stigma and body image may present differently among male athletes in a sport that values large body sizes. The participants were from one geographic location of the U.S. and further research is needed to examine these constructs across other areas of the U.S. and abroad.

An unanticipated limitation was the use of the YEDE-Q to assess disordered eating among adolescents. The proposed factor structure of the YEDE-Q was not supported by the current data, and the results of an exploratory and confirmatory factor analysis produced a factor structure that was not much stronger. More research is needed to assess the validity of this measure.

Although six measures were included to assess acculturation, the measurement of this complex construct could have been improved. In particular, it would have been useful to assess cultural values aside from individualism and collectivism, such as Latinx family

values (*familismo*), respect for authority (*respecto*), or fatalism (*fatalismo*). Although a validated measure of Latinx values exists, it is long (50 items; Knight et al., 2010); a brief version would be beneficial to decrease participant burden. It would have also been interesting to assess generational status, as previous research has shown differences in disordered eating for women of varying generations (Chamorro & Flores-Ortiz, 2000).

Despite these limitations, there were notable strengths of the study. The sample was socioeconomically and ethnically diverse, and included males, who are often left out of eating disorders research. The inclusion of large Latinx subsample was significant as this is a group that is vulnerable to eating disorders and obesity. The measures were carefully selected to be appropriate for adolescents. This was one of the first studies to examine experiences of weight stigma and weight-stigmatizing attitudes within the same study with adolescents. It was also one of the first studies to examine acculturation and weight-stigmatizing attitudes among Latinx adolescents.

Implications and Future Directions

Overall, the results of this research indicate that weight stigma has deleterious effects on mental and physical health among adolescents. Previous researchers have called for early prevention programs that take a weight-neutral stance and emphasize health behaviors (such as eating healthy foods, mindful eating, and regular exercise) and psychological health rather than BMI (Saul & Rodgers, 2016). It is also important to target multiple forms of bias and discrimination within prevention programs, given that weight-based teasing is often based on race, gender, and sexuality stereotypes, and adolescents experiencing other forms of minority stress may be more vulnerable to the effects of weight teasing (Larkin & Rice, 2005; Williams & Fredrick, 2015). Such programs are likely to be more effective at preventing

eating disorders and building healthy exercise and nutrition habits simultaneously. One important point from the current research is that ideal-body internalization and weight stigma need to be targeted separately; challenging the "thin=good" paradigm is not equivalent to challenging "fat=bad." Prevention programs may need to go beyond a weight-neutral approach to directly challenge current paradigms about weight.

The current sample was socioeconomically diverse. Although socioeconomic status was not a focus of the current study, understanding socioeconomic factors that influence body image, health behaviors, and access to nutritious foods are critical to developing an effective obesity prevention program, particularly with White and Latinx youth (Fradkin et al., 2015; Schreier & Chen, 2013). Schreier and Chen (2013) called for future research to make connections between neighborhood, family, and individual factors related to SES and health. For example, they hypothesized that "perceptions of neighborhood violence may alter parenting styles, which in turn may result in youth staying at home more, adopting a more sedentary lifestyle, and over time becoming more obese" (p. 642). The most effective interventions will be context-specific and address individual, family, and community factors.

Future research should continue to examine affective variables that play a role in the link between weight stigma and negative outcomes among adolescents (Puhl & Luedicke, 2012; Rosenthal et al., 2015). More research is needed to understand how experiences of weight-based victimization interplays with other forms of victimization experienced by children and adolescents. Longitudinal research will be important in understanding whether weight stigma is a causal risk factor for eating disorders and obesity, whether it can be modified, and whether decreased weight stigma is protective against the effects of weight-based victimization. The current study results indicated that more targeted intervention may

be necessary for adolescents who have experienced weight-based victimization. Ultimately, multilevel interventions are needed that go beyond targeting individual behaviors and attitudes, and instead promote broader cultural shifts in body size attitudes, provide culturally congruent health education, and increase access to nutritious foods.

Conclusion

This research contributed to a growing body of research on the impact of weight stigma upon youth. In line with previous research, the results of this study indicated that experiences of weight-based victimization were associated with negative body image and poor health behaviors. Results also suggested that weight stigma is a distinct concept from internalization of body image ideals. Finally, among Latinx youth, a higher orientation to Latinx culture, and a lower orientation to U.S. culture, appeared to be protective against ideal body internalization, whereas acculturation variables were not related to weight-stigmatizing attitudes.

Prevention programs are an important component in the effort to establish healthy habits and mindsets among youth. Community-level interventions are needed to address the needs and contexts of diverse communities. This may include providing health education, physical activities that are appropriate for the context, and access to nutritious, fresh, affordable foods. However, broader shifts in public policy, school policy, media, and healthcare will be crucial to promote health for people of all sizes and body types.

As observed in this study, the effects of weight-based victimization may not be stemmed by low internalized weight bias. Despite a high level of support for anti-weight bias legislation, there are few laws protecting those who experience discrimination based on weight (Puhl, Suh, & Li, 2016). Schools may not enforce anti-teasing or bullying policies, or

may not include weight-based teasing in their bullying policies (Brownell et al., 2009). Even if youth avoid weight-based teasing or bullying from peers, they see weight stigma constantly in the media (Ata & Thompson, 2010). The experience of weight stigma in healthcare is well-documented for fat adults (Phelan et al., 2015), and the responsibility for weight status is often (mis)placed upon parents by healthcare providers for children and adolescents classified as overweight (Gillman & Block, 2016). To decrease experiences of weight-based victimization among youth, we need to decrease weight stigma and intersecting forms of bias and discrimination within our broader culture.

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Table 1

Fit Statistics for the 4 EFA Models of the Youth Eating Disorder Examination Questionnaire (YEDE-Q) among a Randomly Split Sample (n = 192)

Model	χ^2	*df*	CFI	TLI	RMSEA [90% CI]	SRMR
1 Factor	1182.06*	275	0.78	0.76	0.13 [.12, .14]	0.08
2 Factors	797.76*	251	0.87	0.84	0.11 [.10, .12]	0.05
3 Factors[a]	575.57*	228	0.92	0.89	0.09 [.08, .10]	0.03
3 Factors[b]	220.10*	102	0.96	0.94	0.08 [.06, .09]	0.03
4 Factors	481.51*	206	0.93	0.90	0.08 [.07, .09]	0.03

Note. χ^2 = chi-square test of model fit; CI = confidence interval; CFI = comparative fit index; *df* = degrees of freedom; TLI = Tucker-Lewis index; RMSEA = root-mean square error of approximation; SRMR = standardized root mean square residual.
[a]Includes all 25 items. [b]Items 2, 5, 9, 11, 12, 16, and 37 were not included in the final 3-factor solution to improve model fit.
*$p < .001$.

Table 2

Geomin Rotated Factor Loadings for the Final 3-Factor Solution of the Youth Eating Disorders Examination Questionnaire (YEDE-Q; n = 192)

	Eating Restraint	Loss of Control Eating	Weight & Shape Concerns
1. Trying to cut down on what you eat	**0.75**	0.00	0.16
3. Tried not to eat foods that you like	**0.79**	0.05	0.05
4. Strict rules about your eating	**0.83**	-0.05	-0.01
6. Afraid of losing control over eating	0.03	**0.68**	0.22
7. Did lose control over your eating	-0.08	**0.90**	0.04
8. Binged	-0.13	**0.85**	-0.02
10. Wanted a completely flat stomach	0.16	0.05	**0.63**
13. Scared that you might gain weight	0.19	0.19	**0.60**
14. Felt fat	0.03	0.13	**0.76**
15. Very strong wish to lose weight	0.17	0.16	**0.61**
30. Weight made a difference in how you judge yourself	-0.01	-0.04	**0.85**
31. Shape made a difference in how you judge yourself	0.04	0.04	**0.81**
32. Upsetting to weight self once a week	-0.17	-0.03	**0.80**
33. Unhappy with your weight	-0.01	-0.03	**0.91**
34. Unhappy with your shape	-0.03	-0.07	**0.97**
35. How thin wanted to be	0.17	-0.01	**0.65**
36. How worried about others seeing you eat	-0.17	0.04	**0.77**
38. Uncomfortable having others see your body	-0.09	-0.01	**0.90**

Table 3

Assumptions of Structural Equation Modeling, Statistics Used to Examine Assumption, and Possible Solutions for Severe Violations of Assumptions

Assumption	**Statistic or plot**	**Possible solutions**
Univariate normality	Skew, kurtosis, histograms	Check for data entry errors, transform variable, use nonparametric statistics
Multivariate normality	Bivariate scatterplots	Examine univariate normality, pay attention to statistical tests of violation of multivariate normality when running models
Low collinearity between latent factors	Correlation table; factor analysis of indicators to confirm hypothesized factor structure	Eliminate one of the collinear indicators, re-evaluate placement of indicator in the model
Linearity and homoscedasticity	Scatterplot of standardized residuals and predicted scores	Examine univariate normality, transform variable
Relative variances	Ratio of largest to smallest variance (should be <10 to meet the assumption)	Rescale variables with outlying variances
Score reliability	Cronbach's alpha	Factor analysis

Note. Information drawn from Kline (2011).

Table 4

Psychometric Properties of All Measured Variables

Population and Variable	% Missing	*M*	*SD*	Variance	α	Range Potential	Range Actual	Skewness	Kurtosis
All participants (*N* = 365)									
BMI percentile	3.6	64.00	28.16	**793.01**[a]	—	0-100	0.0-99.4	-0.64	-0.64
Experiences of Weight-Based Victimization	2.7	1.42	0.64	0.42	.71	1-5	1.0-4.7	2.08	**5.23**[b]
Fat Phobia Scale (Weight-Stigmatizing Attitudes)	1.6	3.24	0.71	0.51	.89	1-5	1.5-5.0	0.09	-0.24
Avoidance of Exercise	2.7	1.91	1.39	1.94	.85	1-7	1.0-7.0	1.89	**3.25**[b]
PACE+ Adolescent Physical Activity Measure	1.6	4.68	2.02	**4.07**[c]	.94	0-7	0.0-7.0	-0.68	-0.46
Average TV time	0.8	2.61	1.29	1.66	.77	0-7	0.0-7.0	0.75	0.82
PACE+ Fruit and Vegetable Measure	0.0	2.07	0.97	0.95	.72	0-4	0.0-4.0	0.01	-0.55
YEDE-Q									
Global score	1.1	1.35	1.23	1.52	.76	0-6	0.0-5.4	1.04	0.43
Loss of control eating	1.1	0.66	1.15	1.32	.80	0-6	0.0-5.3	1.98	**3.33**[b]
Restraint	0.8	1.59	1.65	2.72	.87	0-6	0.0-6.0	1.02	0.04
Weight and shape concerns	2.5	1.80	1.65	2.71	.96	0-6	0.0-6.0	0.80	-0.52
Females (*n* = 169)									
IBSS-R	1.8	3.04	0.84	0.71	.89	1-5	1.0-5.0	-0.63	0.68
WCS	1.2	43.92	26.97	**727.61**[d]	.85	0-100	0.0-100.0	0.23	-1.04
Males (*n* = 191)									
DFLS	4.2	3.90	1.10	1.21	.89	1-6	1.0-6.0	-0.16	-0.22
MBICS	3.7	41.88	19.58	**383.2**[e]	.81	0-100	0.0-88.9	0.16	-0.40

Table continued on next page

Population and Variable	% Missing	*M*	*SD*	Variance	α	Range Potential	Range Actual	Skewness	Kurtosis
Latinx (*n* = 163)									
MEIM-R									
Exploration	0.0	3.04	1.10	1.20	.87	1-5	1.0-5.0	-0.07	-0.63
Commitment	0.0	3.39	1.12	1.26	.88	1-5	1.0-5.0	-0.34	-0.72
AIM-R									
Exploration	0.0	2.97	0.99	0.98	.83	1-5	1.0-5.0	0.03	-0.41
Commitment	0.0	3.42	1.03	1.06	.85	1-5	1.0-5.0	-0.11	-0.66
Individualism	1.2	3.19	0.72	0.51	.78	1-5	1.1-4.9	-0.20	0.33
Collectivism	1.8	3.62	0.80	0.64	.86	1-5	1.0-5.0	-0.67	0.22
BIQ-S original subscales									
Comfort Using Spanish	1.2	3.42	1.42	2.02	.93	1-5	1.0-5.0	-0.52	-1.10
Comfort Using English	1.2	4.75	0.62	0.39	.89	1-5	1.0-5.0	**-3.84**[f]	**17.00**[f]
Enjoy Mexican or Latino Cultural Activities	1.2	3.24	1.07	1.15	.91	1-5	1.0-5.0	-0.10	-0.79
Enjoy American Cultural Activities	1.2	3.91	0.80	0.65	.85	1-5	1.4-5.0	-0.60	0.06
BIQ-S combined subscales									
Latino Practices	1.2	3.31	1.04	1.09	.92	1-5	1.0-5.0	-0.27	-0.69
American Practices	1.2	4.22	0.63	0.40	.86	1-5	1.7-5.0	-1.15	1.82

Note. AIM-R = American Identity Measure – Revised; BIQ-S = Bicultural Involvement Questionnaire – Short Version; BMI = Body Mass Index; DFLS = Drive For Leanness Scale; IBSS-R = Ideal-Body Stereotype Scale – Revised; MBICS = Male Body Image Concerns Scale; MEIM-R = Multigroup Ethnic Identity Measure – Revised; WCS = Weight and Shape Concerns Scale; YEDE-Q = Youth Eating Disorders Examination Questionnaire. Values in bold indicated possible violations of statistical assumptions.
[a]Re-scaled to range from 0-5. New variance = 1.98. [b]No action taken after inspection of the histogram plots which appeared normal. Experiences of weight-based victimization was dichotomized in analyses with the full sample. [c]No action taken because measure was only used to examine correlations. [d]Re-scaled to range from 0-5. New variance = 1.82. [e]Re-scaled to range from 0-5. New variance = 0.96. [f]Decided to use the Enjoy American Cultural Activities subscale as an indicator of U.S. orientation, and the combined Latino Practices subscale for Latino/a Orientation.

Table 5

Mean Differences in Measured Variables for South County (n = 227) versus North County (n = 138) Participants

Population and Variable	South County *M*	South County *SD*	North County *M*	North County *SD*	*t*	*df*	*p*
All participants (*N* = 365)							
BMI percentile	60.14	29.12	70.13	25.49	-3.29	350	<.01
Experiences of Weight-Based Victimization	1.41	0.59	1.43	0.72	-0.18	353	.85
Fat Phobia Scale (Weight-Stigmatizing Attitudes)	3.25	0.67	3.23	0.78	0.23	357	.82
Avoidance of Exercise	2.06	1.51	1.68	1.15	2.50	353	.01
PACE+ Adolescent Physical Activity Measure	4.47	2.07	5.01	1.89	-2.51	357	.01
Average TV time	2.49	1.21	2.79	1.39	-2.18	360	.03
PACE+ Fruit and Vegetable Measure	4.47	2.07	5.01	1.89	0.98	362	.33
YEDE-Q							
Global score	1.37	1.25	1.31	1.21	0.46	359	.64
Loss of control eating	0.64	1.16	0.69	1.13	-0.36	359	.72
Restraint	1.61	1.65	1.57	1.65	0.25	360	.81
Weight and shape concerns	1.88	1.66	1.67	1.63	1.16	354	.25
Females (*n* = 169)[a]							
IBSS-R	3.06	0.89	3.01	0.71	0.32	164	.75
WCS	44.04	27.25	43.58	26.50	0.10	165	.92
Males (*n* = 191)[b]							
DFLS	3.85	1.10	3.95	1.11	-0.60	181	.55
MBICS	39.35	18.72	44.46	20.19	-1.78	182	.08

Table continued on next page

Population and Variable	South County		North County				
	M	*SD*	*M*	*SD*	*t*	*df*	*p*
Latinx (*n* = 163)[c]							
MEIM-R							
Exploration	3.09	1.03	2.98	1.21	0.65	161	.52
Commitment	3.33	1.11	3.48	1.14	-0.81	161	.42
AIM-R							
Exploration	2.96	0.98	2.98	1.00	-0.16	161	.88
Commitment	3.27	0.99	3.66	1.06	-2.36	161	.02
Individualism	3.10	0.70	3.35	0.73	-2.09	159	.04
Collectivism	3.59	0.80	3.66	0.80	-0.60	158	.55
BIQ-S original subscales							
Comfort Using Spanish	3.48	1.38	3.31	1.50	0.73	159	.47
Comfort Using English	4.72	0.70	4.81	0.47	-0.89	159	.37
Enjoy Mexican or Latino Cultural Activities	3.33	1.09	3.09	1.03	1.41	159	.16
Enjoy American Cultural Activities	3.82	0.80	4.07	0.80	-1.92	159	.06
BIQ-S combined subscales							
Latino Practices	3.38	1.04	3.17	1.05	1.29	159	.20
American Practices	4.15	0.65	4.34	0.59	-1.86	159	.07

Note. AIM-R = American Identity Measure – Revised; BIQ-S = Bicultural Involvement Questionnaire – Short Version; BMI = Body Mass Index; DFLS = Drive For Leanness Scale; IBSS-R = Ideal-Body Stereotype Scale – Revised; MBICS = Male Body Image Concerns Scale; MEIM-R = Multigroup Ethnic Identity Measure – Revised; WCS = Weight and Shape Concerns Scale; YEDE-Q = Youth Eating Disorders Examination Questionnaire.

[a]Out of the 169 female participants, 125 were in South County and 44 were in North County. [b]Out of the 191 male participants, 98 were in South County and 93 were in North County. [c]Out of 163 Latino/a participants, 103 were in South County and 60 were in North County.

Table 6

Mean Differences in Measured Variables for Male (n = 191) versus Female (n = 169) Participants

	Males		Females				
Population and Variable	*M*	*SD*	*M*	*SD*	*t*	*df*	*p*
All participants (*n* = 360)							
BMI percentile	67.07	28.60	61.24	27.20	1.94	345	.05
Experiences of Weight-Based Victimization	1.29	0.53	1.56	0.73	-4.04	348	<.001
Fat Phobia Scale (Weight-Stigmatizing Attitudes)	3.15	0.77	3.34	0.63	-2.48	352	.01
Avoidance of Exercise	1.44	0.82	2.41	1.69	-7.00	348	<.001
PACE+ Adolescent Physical Activity Measure	5.30	1.70	4.01	2.13	6.33	352	<.001
Average TV time	2.74	1.27	2.48	1.32	1.87	355	.06
PACE+ Fruit and Vegetable Measure	2.16	0.89	1.99	1.05	1.68	357	.09
YEDE-Q							
Global score	0.94	0.99	1.80	1.33	-7.00	354	<.001
Loss of control eating	0.43	0.84	0.93	1.39	-4.16	354	<.001
Restraint	1.26	1.53	1.96	1.71	-4.09	355	<.001
Weight and shape concerns	1.11	1.27	2.51	1.68	-9.85	349	<.001
Latinx (*n* = 161)[a]							
MEIM-R							
Exploration	3.14	1.06	2.89	1.14	1.38	159	.17
Commitment	3.63	0.98	3.05	1.24	3.29	159	<.01
AIM-R							
Exploration	3.09	0.98	2.79	0.99	1.91	159	.06
Commitment	3.51	1.04	3.27	1.01	1.45	159	.15

Table continued on next page

Population and Variable	Males		Females				
	M	*SD*	*M*	*SD*	*t*	*df*	*p*
Individualism	3.26	0.75	3.09	0.66	1.50	157	.14
Collectivism	3.61	0.84	3.61	0.76	-0.06	156	.95
BIQ-S original subscales							
Comfort Using Spanish	3.36	1.42	3.49	1.44	-0.55	157	.58
Comfort Using English	4.81	0.44	4.67	0.82	1.32	157	.19
Enjoy Mexican or Latino Cultural Activities	3.09	1.06	3.45	1.08	-2.10	157	.04
Enjoy American Cultural Activities	3.91	0.78	3.92	0.85	-0.01	157	.99
BIQ-S combined subscales							
Latino Practices	3.19	1.03	3.46	1.06	-1.63	157	.11
American Practices	4.24	0.57	4.19	0.73	0.47	157	.64

Note. AIM-R = American Identity Measure – Revised; BIQ-S = Bicultural Involvement Questionnaire – Short Version; BMI = Body Mass Index; MEIM-R = Multigroup Ethnic Identity Measure – Revised; YEDE-Q = Youth Eating Disorders Examination Questionnaire. Five participants identified as gender-nonconforming.

[a]Out of 163 Latinx participants, 95 identified as males, 66 identified as females, and 2 identified as gender non-conforming.

Table 7

Mean Differences in Measured Variables for White (n =142) versus Latinx (n = 163) Participants

	White		Latinx				
Population and Variable	*M*	*SD*	*M*	*SD*	*t*	*df*	*p*
All participants (*n* = 305)							
BMI percentile	54.75	28.35	72.75	25.96	-5.37	239	<.001
Experiences of Weight-Based Victimization	1.35	0.61	1.52	0.71	-2.24	295	.03
Fat Phobia Scale (Weight-Stigmatizing Attitudes)	3.30	0.70	3.15	0.73	1.86	297	.06
Avoidance of Exercise	1.83	1.29	2.01	1.47	-1.10	295	.27
PACE+ Adolescent Physical Activity Measure	4.99	1.92	4.42	2.01	2.50	297	.01
Average TV time	2.58	1.22	2.62	1.32	-0.26	300	.80
PACE+ Fruit and Vegetable Measure	2.15	0.95	2.00	0.98	1.33	302	.18
YEDE-Q							
Global score	1.19	1.19	1.50	1.24	-2.19	299	.03
Loss of control eating	0.47	0.98	0.85	1.27	-2.91	299	<.01
Restraint	1.52	1.59	1.67	1.67	-0.80	300	.43
Weight and shape concerns	1.61	1.58	1.99	1.68	-2.01	294	.05
MEIM-R							
Exploration	2.40	0.94	3.05	1.10	-5.45	301	<.001
Commitment	2.95	1.01	3.39	1.12	-3.52	301	<.001
AIM-R							
Exploration	3.17	1.02	2.97	0.99	1.74	302	.08
Commitment	3.63	0.99	3.41	1.03	1.87	302	.06
Individualism	3.14	0.66	3.19	0.72	-0.69	300	.49

Table continued on next page

Population and Variable	White		Latinx				
	M	*SD*	*M*	*SD*	*t*	*df*	*p*
Collectivism	3.69	0.63	3.62	0.80	0.84	299	.40
BIQ-S original subscales							
Comfort Using Spanish	1.52	0.86	3.42	1.42	-13.75	298	<.001
Comfort Using English	4.93	0.24	4.75	0.62	3.20	299	<.01
Enjoy Mexican or Latino Cultural Activities	1.96	0.73	3.24	1.07	-11.95	299	<.001
Enjoy American Cultural Activities	4.08	0.71	3.92	0.80	1.88	300	.06
BIQ-S combined subscales							
Latino Practices	1.80	0.62	3.31	1.04	-14.92	298	<.001
American Practices	4.39	0.48	4.22	0.63	2.53	299	.01
Females (*n* = 143)[a]							
IBSS-R	3.19	0.63	2.98	0.92	1.58	138	.12
WCS	39.67	28.18	51.03	25.33	-2.49	139	.01
Males (*n* = 159)[b]							
DFLS	3.96	1.05	3.72	1.17	1.35	151	.18
MBICS	39.05	16.64	43.18	20.62	-1.32	152	.19

Note. AIM-R = American Identity Measure – Revised; BIQ-S = Bicultural Involvement Questionnaire – Short Version; BMI = Body Mass Index; DFLS = Drive For Leanness Scale; IBSS-R = Ideal-Body Stereotype Scale – Revised; MBICS = Male Body Image Concerns Scale; MEIM-R = Multigroup Ethnic Identity Measure – Revised; WCS = Weight and Shape Concerns Scale; YEDE-Q = Youth Eating Disorders Examination Questionnaire. Out of the 163 Latino/a participants, 31 identified as multiethnic (Latino/a and at least one other ethnicity) including 9 participants who identified as White and Latino/a. The acculturation measures will not be used in any analyses with non-Latino/a participants, but are included here to examine whether expected differences between the cultural groups were observed.

[a]Out of the 169 female participants, 77 identified as White, 66 identified as Latina, and 26 identified as another ethnicity. [b]Out of the 191 male participants, 64 identified as White, 95 identified as Latino, and 32 identified as another ethnicity.

Table 8

Mean Differences in Measured Variables for Football Team Male Participants (n = 42) versus All Other Male Participants (n = 149)

Population and Variable	Football Players		All Other Males				
	M	*SD*	*M*	*SD*	*t*	*df*	*p*
Males (*n* = 191)							
BMI percentile	85.04	17.19	61.92	29.17	4.84	182	<.001
Experiences of Weight-Based Victimization	1.44	0.79	1.24	0.41	2.24	182	.03
Fat Phobia Scale (Weight-Stigmatizing Attitudes)	3.15	0.84	3.15	0.75	-0.03	187	.98
Avoidance of Exercise	1.33	0.69	1.47	0.85	-0.93	182	.35
PACE+ Adolescent Physical Activity Measure	5.71	1.26	5.18	1.80	1.79	185	.08
Average TV time	2.31	1.01	2.86	1.31	-2.51	187	.01
PACE+ Fruit and Vegetable Measure	2.29	0.86	2.13	0.90	1.01	188	.31
YEDE-Q							
Global score	1.11	1.21	0.89	0.91	1.30	187	.20
Loss of control eating	0.62	1.05	0.38	0.77	1.62	187	.11
Restraint	1.44	1.75	1.21	1.46	0.89	187	.38
Weight and shape concerns	1.27	1.49	1.07	1.20	0.93	182	.36
DFLS	4.15	0.98	3.83	1.13	1.65	181	.10
MBICS	47.86	21.30	40.16	18.78	2.25	182	.03
Latino males (*n* = 95)[a]							
MEIM-R							
Exploration	2.88	1.22	3.22	1.00	-1.40	93	.17
Commitment	3.57	1.02	3.65	0.97	-0.34	93	.74

Table continued on next page

Population and Variable	Football Players		All Other Males				
	M	*SD*	*M*	*SD*	*t*	*df*	*p*
AIM-R							
Exploration	2.92	1.20	3.15	0.90	-1.03	93	.31
Commitment	3.69	1.08	3.45	1.03	0.99	93	.33
Individualism	3.51	0.62	3.18	0.77	1.91	93	.06
Collectivism	3.69	0.76	3.58	0.87	0.54	92	.59
BIQ-S original subscales							
Comfort Using Spanish	3.07	1.59	3.46	1.35	-1.18	91	.24
Comfort Using English	4.76	0.41	4.82	0.45	-0.60	91	.55
Enjoy Mexican or Latino Cultural Activities	2.65	0.78	3.24	1.11	-2.39	91	.02
Enjoy American Cultural Activities	4.04	0.86	3.88	0.75	0.89	91	.38
BIQ-S combined subscales							
Latino Practices	2.81	0.92	3.32	1.05	-2.14	91	.04
American Practices	4.30	0.63	4.22	0.55	0.60	91	.55

Note. AIM-R = American Identity Measure – Revised; BIQ-S = Bicultural Involvement Questionnaire – Short Version; BMI = Body Mass Index; DFLS = Drive For Leanness Scale; MBICS = Male Body Image Concerns Scale; MEIM-R = Multigroup Ethnic Identity Measure – Revised; YEDE-Q = Youth Eating Disorders Examination Questionnaire.

[a]Out of the 95 male participants who identified as Latino, 24 were identified football players; the other 71 males may have been athletes as well, but it was not assessed.

Table 9

Correlations, Means, and Standard Deviations for Measured Variables Used for Research Question 1 (Weight-Based Victimization, Internalized Weight Stigma, and Health Behaviors)

	1	2	3	4	5	6	7	8	9	10	11	12
1. BMI percentile	–	.18**	.01	.24***	.07	-.04	.02	.01	.33***	.25***	.30***	.33***
2. Weight victimization	.14	–	.09	.22***	.41***	-.15**	.01	-.12*	.35***	.19***	.44***	.37***
3. Weight stigma	-.07	.03	–	.00	.08	-.06	.01	.06	.14*	.12*	.17**	.10
4. Loss of control eating	-.10	.18	.01	–	.39***	.18**	.03	-.14**	.65***	.40***	.55***	.40***
5. Exercise avoidance	-.13	.30***	.01	.28**	–	-.37***	.08	-.15**	.48***	.29***	.58***	.37***
6. Physical activity	.03	.05	-.07	-.22*	-.40***	–	-.15**	.33***	-.26***	-.14**	-.31***	-.05
7. Average TV time	.01	.02	-.05	.01	.20*	-.16	–	-.14**	-.01	-.06	.02	.01
8. Fruit and veg. intake	.07	-.08	.04	-.13	-.13	.21*	-.12	–	-.16**	-.06	-.19***	-.08
9. YEDE-Q global score	-.25**	.18*	.11	.72***	.40***	-.26**	.03	-.10	–	.86***	.90***	.67***
10. YEDE-Q restraint	-.29***	-.10	.13	.24**	.15	-.10	-.06	.04	.76***	–	.63***	.55***
11. YEDE-Q weight/shape	-.18*	.36***	.09	.51***	.52***	-.29**	.12	-.16	.85***	.45***	–	.66***
12. Body image concerns	-.14	.35***	.06	.41***	.43***	-.18	.06	-.10	.74***	.53***	.76***	–
Mean for per. overweight	84.97	1.70	3.30	1.17	2.31	4.41	2.65	1.92	2.15	2.40	2.89	56.92
SD for per. overweight	14.94	0.81	0.63	1.47	1.71	2.04	1.38	1.01	1.30	1.81	1.74	22.87
Mean for full sample	63.99	1.42	3.24	0.66	1.92	4.68	2.61	2.07	1.35	1.59	1.80	42.85
SD for full sample	28.16	0.64	0.71	1.15	1.39	2.02	1.29	0.97	1.23	1.65	1.65	23.32

Note. BMI = Body Mass Index; Per. = perceived; SD = standard deviation; YEDE-Q = Youth Eating Disorders Examination Questionnaire. Values below the diagonal are Pearson correlations for participants who perceived themselves as overweight (n = 123), and values above the diagonal are nonparametric Spearman rank-order correlations for the full sample (N = 365). Nonparametric correlations were used for the full sample to account for relatively high kurtosis of some of the variables with the full sample. Variables 1 through 5 were used in the research question 1 path analysis with participants who perceived themselves as overweight only. The body image concerns scales were re-scaled to range from 0 to 5 for analysis.
*p < .05. **p < .01. ***p < .001.

Table 10

*Pearson Correlations, Means, and Standard Deviations for Measured Variables Used for Research Question 1 (Weight-Based Victimization, Internalized Weight Stigma, and Health Behaviors) Among Females (*n = *66) and Males (*n = *55) Who Perceived Themselves as Overweight*

	1	2	3	4	5	6	7	8	9	10	11	12
1. BMI percentile	–	.29*	.10	.25	-.04	.11	-.26	.11	.12	-.06	.16	.00
2. Weight victimization	.14	–	.22	.22	.33*	.04	-.05	-.05	.11	-.14	.25	.27
3. Weight stigma	-.13	-.12	–	-.26	-.09	-.01	-.11	.10	-.01	.17	-.03	-.08
4. Loss of control eating	-.18	.10	.17	–	.19	-.03	-.02	-.26	.57***	.05	.48***	.31*
5. Exercise avoidance	-.02	.24	.01	.22	–	-.22	.10	.06	.05	-.17	.19	.16
6. Physical activity	-.21	.15	-.09	-.21	-.34**	–	-.14	.37**	-.13	-.10	-.15	-.20
7. Average TV time	.19	.06	.02	.01	.26*	-.18	–	-.43**	.13	.07	.22	.08
8. Fruit and veg. intake	-.04	-.10	.00	-.06	-.18	.11	.10	–	-.30*	-.15	-.29*	-.29*
9. YEDE-Q global score	-.33**	.15	.17	.78***	.42**	-.17	-.06	.06	–	.79***	.88***	.68***
10. YEDE-Q restraint	-.42**	-.12	.10	.32**	.23	-.04	-.17	.20	.75***	–	.52***	.52***
11. YEDE-Q weight/shape	-.16	.38**	.13	.50***	.53***	-.15	.04	-.01	.80***	.39**	–	.68***
12. Body image concerns	-.15	.24**	.15	.40**	.47***	-.06	.03	.02	.74***	.51***	.81***	–
Mean for females	81.09	1.84	3.33	1.46	2.90	3.77	2.70	1.88	2.56	2.63	3.59	62.23
SD for females	15.02	0.87	0.63	1.66	2.00	2.22	1.41	1.04	1.30	1.79	1.61	23.65
Mean for males	90.38	1.55	3.23	0.85	1.59	5.20	2.62	2.01	1.67	2.14	2.02	50.72
SD for males	12.99	0.73	0.62	1.15	0.91	1.48	1.37	0.97	1.14	1.85	1.50	20.58

Note. BMI = Body Mass Index; SD = standard deviation; YEDE-Q = Youth Eating Disorders Examination Questionnaire. Variables 1 through 5 were used in the path analysis. Values below the diagonal are for females, and values above the diagonal are for males. The body image concerns scales were re-scaled to range from 0 to 5 for analysis.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 11

Pearson Correlations, Means, and Standard Deviations for Measured Variables Used for Research Question 2 (Ideal-Body Internalization and Weight Stigmatizing Attitudes as Distinct Constructs versus Indicators of a Single Latent Construct) Among Females (n = 169) and Males (n = 191)

	1	2	3	4	5	6
1. Weight-based victimization	–	.07	.06	.27***	.32***	.34***
2. Body image ideal internalization[a]	.07	–	.25**	.46***	-.02	.05
3. Weight-stigmatizing attitudes	.05	.14	–	.12	-.04	.03
4. Body image concerns[b]	.45***	.25**	.14	–	.29***	.26***
5. Loss of control eating	.21**	-.01	.05	.52***	–	.26***
6. Exercise avoidance	.35***	.15	.05	.50***	.29***	–
Mean for females	1.56	3.04	3.34	43.92	0.93	2.42
SD for females	0.73	0.84	0.63	26.97	1.39	1.67
Mean for males	1.29	3.90	3.15	41.88	0.43	1.44
SD for males	0.53	1.10	0.77	19.58	0.84	0.82

Note. Values below the diagonal are for females, and values above the diagonal are for males. The body image concerns scales were re-scaled to range from 0 to 5 for analysis.

[a]Thin-ideal internalization (Ideal Body Stereotype Scale-Revised) among females; lean and muscular ideal internalization (Drive for Leanness Scale) among males. [b]Weight and Shape Concerns Scale among females, Male Body Image Concerns Scale among males.

*$p < .05$. **$p < .01$. ***$p < .001$.

Table 12

Pearson Correlations, Means, and Standard Deviations for Measured Variables Used for Research Question 3 (Acculturation and Body Size Attitudes) Among Latinx Participants (n = 163)

	1	2	3	4	5	6	7	8	9	10
1. U.S. practices	–									
2. U.S. values	.25**	–								
3. U.S. identity explor.	.21**	.16*	–							
4. U.S. identity commit.	.36***	.34**	.49***	–						
5. Latino practices	.10	.04	.12	-.03	–					
6. Latino values	.32***	.23**	.41***	.42***	.24**	–				
7. Latino identity explor.	.03	.16*	.52***	.12	.39***	.26***	–			
8. Latino identity commit.	.18*	.29***	.36***	.36***	.34***	.31***	.64***	–		
9. Weight stigma	.03	-.09	-.10	-.11	.13	-.05	-.06	-.09	–	
10. YEDE-Q global score	-.03	-.03	-.03	-.07	.12	-.01	.03	-.08	.26***	–
Mean	3.92	3.19	2.97	3.42	3.31	3.62	3.05	3.39	3.15	1.50
SD	0.80	0.72	0.99	1.03	1.04	0.80	1.10	1.12	0.73	1.24

Note. Commit. = commitment; Explor. = exploration; *SD* = standard deviation; YEDE-Q = Youth Eating Disorders Examination. Thin ideal internalization among females and lean and muscular ideal internalization among males are not included here because they were not administered to the full sample.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 13

Pearson Correlations, Means, and Standard Deviations for Measured Variables Used for Research Question 3 (Acculturation and Body Size Attitudes) Among Latinx Females (n = 66) and Males (n = 95)

	1	2	3	4	5	6	7	8	9	10	11
1. U.S. practices	–	.21*	.23*	.33**	.00	.33**	-.08	.13	.21	.02	.01
2. U.S. values	.33**	–	.23*	.42***	-.03	.31**	.24*	.38***	.48***	-.15	.09
3. U.S. identity explor.	.20	.00	–	.46***	.25*	.47***	.49***	.29**	.17	-.03	.15
4. U.S. identity commit.	.42***	.19	.52***	–	.00	.48***	.08	.34**	.37***	-.10	.10
5. Latino practices	.23	.19	.00	-.02	–	.21*	.41***	.30**	-.02	.17	.17
6. Latino values	.30*	.10	.32**	.34**	.29*	–	.26*	.32**	.12	-.02	.12
7. Latino identity explor.	.17	.00	.55***	.16	.40**	.25*	–	.57***	.25*	-.01	.20
8. Latino identity commit.	.24	.14	.38**	.36**	.48***	.33**	.73***	–	.27*	.02	.24*
9. Ideal body internalization	.14	.06	-.05	-.03	-.07	-.29*	-.14	-.22	–	.16	.23*
10. Weight stigma	.04	.10	-.17	-.06	-.02	-.11	-.11	-.15	.50***	–	.21*
11. YEDE-Q global score	-.11	-.08	-.12	-.23	-.04	-.21	-.06	-.19	.15	.22	–
Mean for females	3.92	3.09	2.79	3.27	3.46	3.61	2.89	3.05	2.98	3.33	2.10
SD for females	0.85	0.67	0.99	1.01	1.06	0.76	1.14	1.24	0.92	0.63	1.23
Mean for males	3.92	3.26	3.09	3.51	3.19	3.61	3.14	3.63	3.72	3.03	1.09
SD for males	0.78	0.75	0.98	1.04	1.03	0.84	1.06	0.98	1.17	0.78	1.07

Note. Commit. = commitment; Explor. = exploration; *SD* = standard deviation; YEDE-Q = Youth Eating Disorders Examination. Values below the diagonal are for females, and values above the diagonal are for males.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 14

Pearson Correlations between Ideal-Body Internalization and Weight-Stigmatizing Attitudes

Subpopulation	*n*	*r*	*p*
Gender			
Males	191	.25	<.01
Females	169	.14	.07
Ethnicity			
White			
Males	64	.22	.08
Females	77	-.04	.75
Latinx			
Males	95	.16	.44
Females	66	.50	<.01
Perceived weight			
Underweight			
Males	39	.27	.12
Females	20	-.05	.85
About the right weight			
Males	97	.34	<.01
Females	83	.15	.19
Overweight			
Males	55	.02	.90
Females	66	.16	.19

Note. Ideal-body internalization was measured by the Ideal Body Stereotype Scale – Revised (IBSS-R) among females and the Drive for Leanness Scale (DFLS) among males.

Table 15

Geomin Rotated Standardized Loadings for U.S. and Latinx Orientation Factors

Indicator	U.S. Orientation	Latinx Orientation
Values	.38	.36
Practices	.41	.46
Identity Exploration	.54	.81
Identity Commitment	.90	.79

Note. All loadings were significant at $p < .001$.

Table 16

Fit Indices for Acculturation Latent Class Analysis Models with 1-5 Classes (n = 163)

No. of classes	No. of free parameters	Log likelihood	BIC	*p*-value of BLRT	*p*-value of LMRT	BF	cmP
1[a]	36	-706.94	1597.25	-	-	-	-
1	8	-809.48	1659.71	-	-	<.001	0
2	17	-743.46	**1573.51**	<.001	**<.001**	**1051.53**	0
3	26	-727.50	1587.43	<.001	.19	**18224.10**	0
4	35	-714.38	1607.05	**<.001**	.08	**140927.00**	0
5	44	-703.32	1630.76	.16	.05	0.00	0

Note. BF = Bayes Factor; BIC = Bayesian Information Criterion; BLRT = Bootstrap Likelihood Ratio Test; cmP = Correct Model Probability; LMRT = Lo-Mendell-Rubin Adjusted Likelihood Ratio Test. The model with the best fit per each index is in boldface where applicable.

[a]Fully-saturated baseline model

Table 17

Fully Standardized Estimates from a Direct Path Model Examining Acculturation Variables as Predictors of Body Size Attitudes among Latina Females (n = 64)

Variable	Thin Ideal Internalization estimate (SE)	Weight-Stigmatizing Attitudes estimate (SE)
Latino Practices	.05 (.14)	-.02 (.15)
Latino Values (collectivism)	-.31 (.12)**	-.13 (.15)
Latino Identity Exploration	-.02 (.20)	.07 (.21)
Latino Identity Commitment	-.17 (.20)	-.12 (.21)
American Practices	.25 (.13)	.09 (.14)
American Values (individualism)	-.01 (.12)	.03 (.14)
American Identity Exploration	.09 (.16)	-.10 (.17)
American Identity Commitment	-.03 (.16)	.00 (.17)

Note. All variables were regressed onto covariates (BMI percentile and county).
**$p < .01$.

Table 18

Unstandardized Estimates from a Direct Path Model Examining Acculturation Variables as Predictors of Body Size Attitudes among Latino males (n = 93)

Predictor	Lean and Muscular Ideal Internalization estimate (SE)	Weight-Stigmatizing Attitudes estimate (SE)
Latino Practices	-.06 (.10)	.16 (.12)
Latino Values (collectivism)	-.15 (.10)	-.03 (.12)
Latino Identity Exploration	.33 (.11)**	-.06 (.15)
Latino Identity Commitment	-.12 (.12)	.05 (.14)
American Practices	.13 (.10)	.08 (.12)
American Values (individualism)	.32 (.11)**	-.11 (.12)
American Identity Exploration	-.11 (.12)	-.00 (.14)
American Identity Commitment	.32 (.12)**	-.11 (.14)

Note. All variables were regressed onto covariates (BMI percentile, county, and football player status).
**$p < .01$.

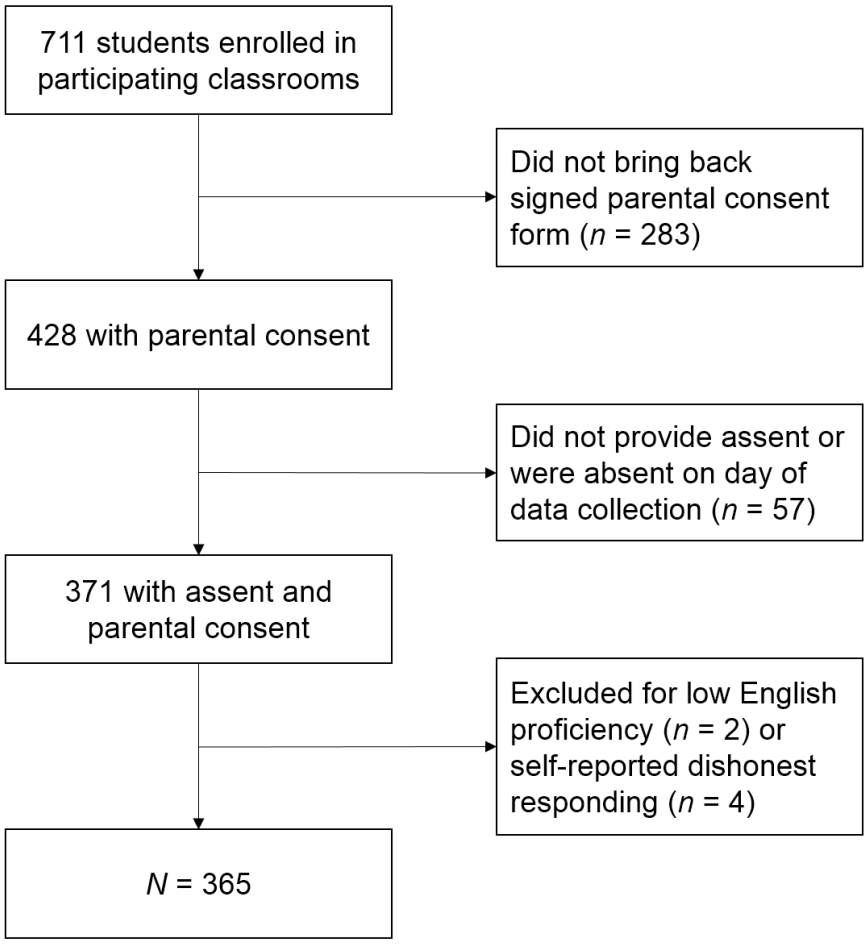

Figure 1. Recruitment flowchart.

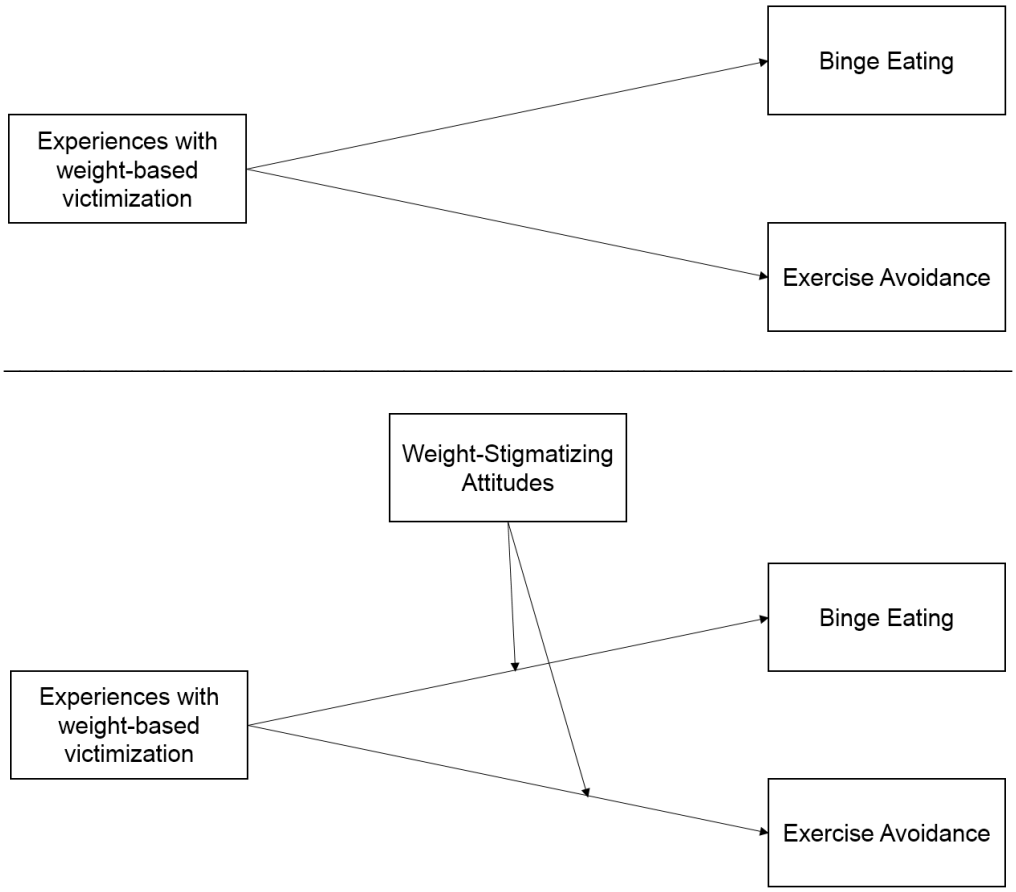

Figure 2. Conceptual path models for research question 1, hypotheses 1 (top) and 2 (bottom), examining the relationship between experiences with weight-based victimization, weight stigmatizing attitudes, binge eating, and exercise avoidance. The models controlled for BMI percentile, ethnicity, county, and football player status (among males) by regressing each variable onto the covariates.

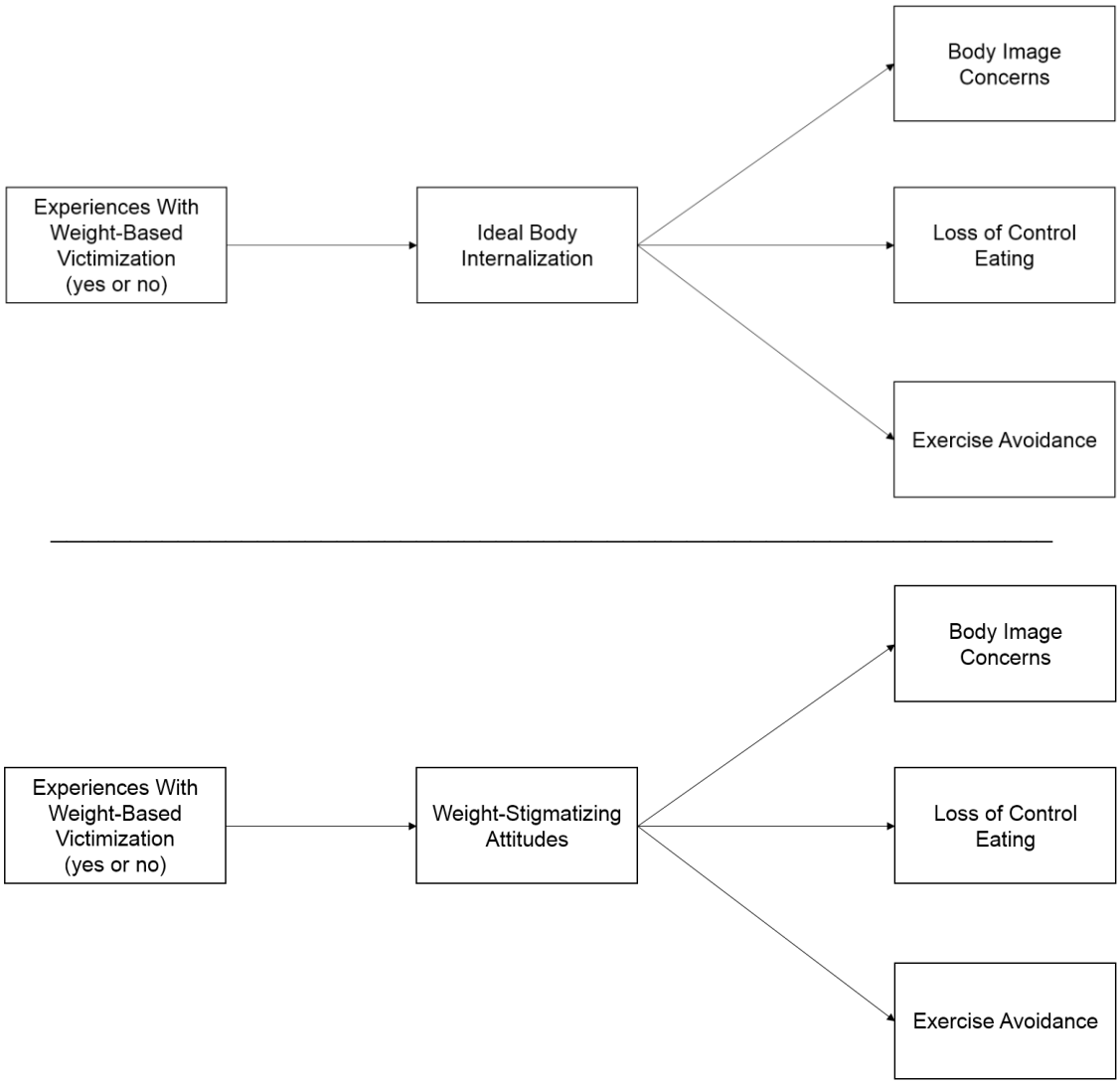

Figure 3. Conceptual path model for research question 1, hypothesis 4, comparing ideal body internalization (top) and weight stigmatizing attitudes (bottom) within a mediation model. The model was run separately for females and males to account for different measures of ideal body internalization (thin ideal internalization and lean and muscular ideal internalization, respectively). The model controlled for BMI percentile, ethnicity, county, and football player status (among males) by regressing each variable onto the covariates.

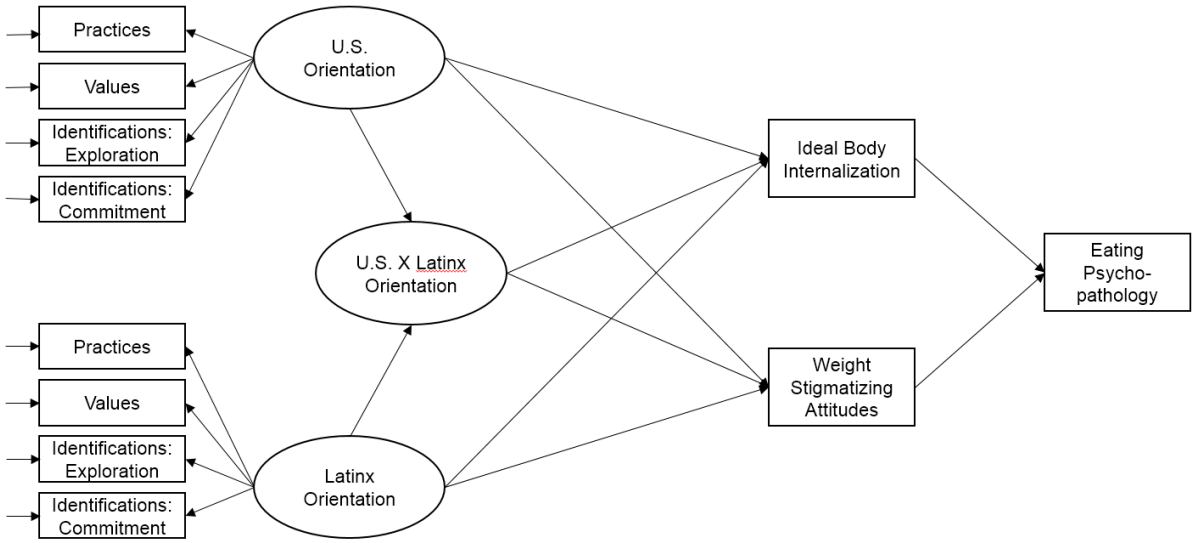

Figure 4. Conceptual structural regression model for research question 3, examining latent acculturation variables as predictors of body size attitudes and eating psychopathology. The model was run separately for females and males to account for different measures of ideal body internalization (thin ideal internalization and lean and muscular ideal internalization, respectively). U.S. Orientation and Latinx Orientation were regressed onto control variables (BMI percentile, county, football player status among males).

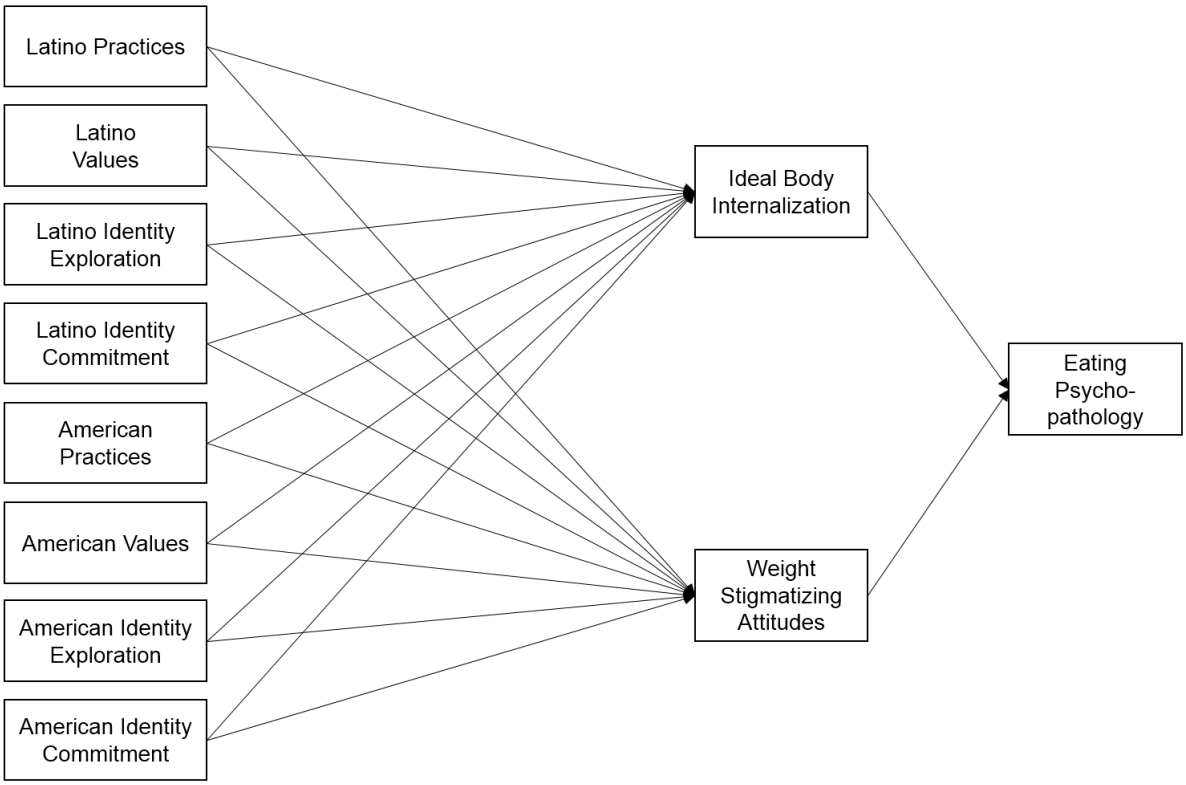

Figure 5. The first of two exploratory models for research question 3, examining acculturation indicators as predictors of body size attitudes and eating psychopathology. The model was run separately for females and males to account for different measures of ideal body internalization (thin ideal internalization and lean and muscular ideal internalization, respectively). The model controlled for BMI percentile, ethnicity, county, and football player status (among males) by regressing each variable onto the covariates.

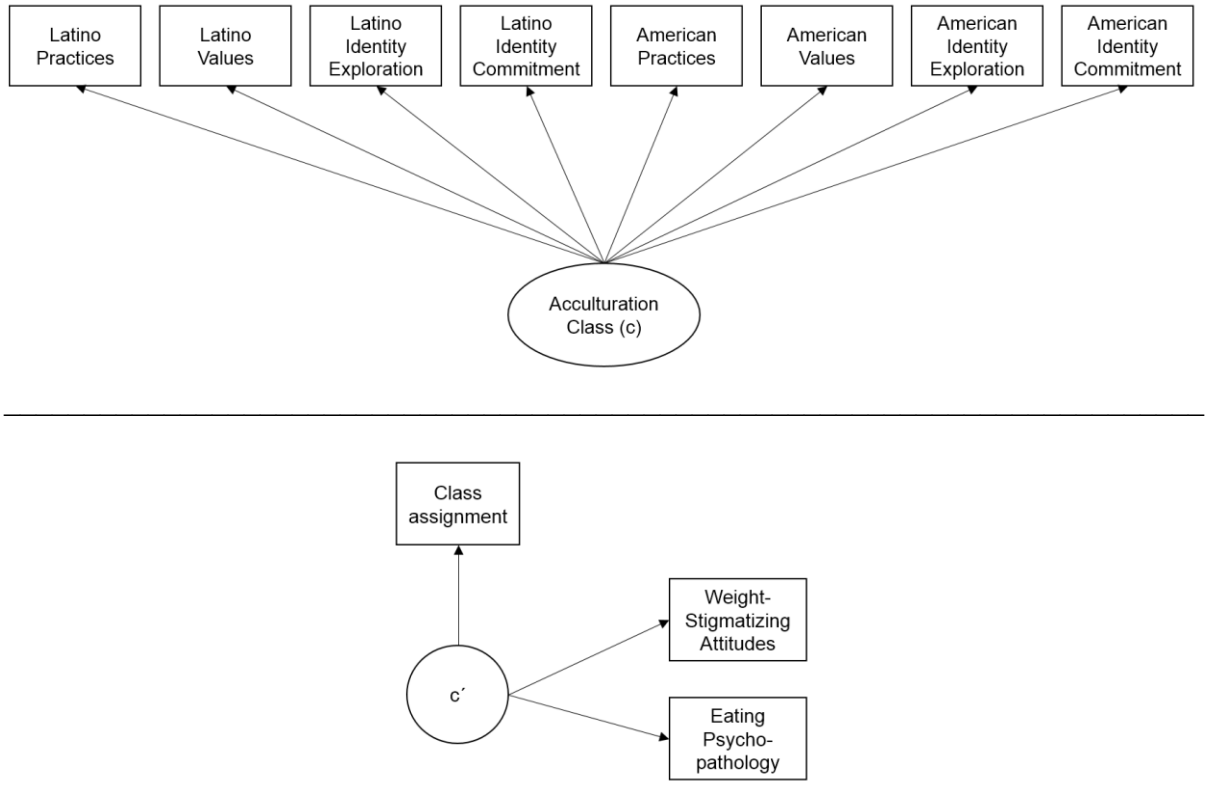

Figure 6. The second of two exploratory models for research question 3, using latent class analysis to determine classes of acculturation (top) and class membership to predict weight-stigmatizing attitudes and eating psychopathology (bottom). Distal outcomes were examined using the BCH method.

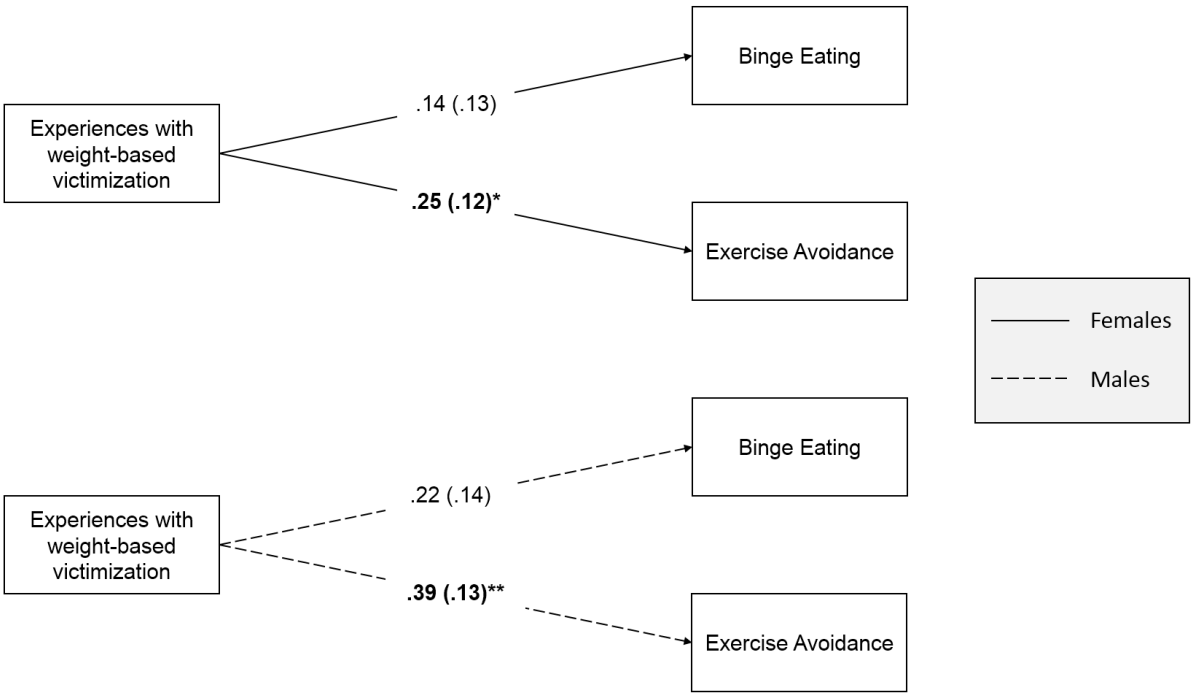

Figure 7. Fully standardized path estimates for hypothesis 1 examining experiences of weight-based victimization as a predictor of binge eating and exercise avoidance. All variables were regressed onto covariates (BMI percentile, ethnicity, county, and football player status among males). The model was run separately for females (n = 66) and males (n = 55) who perceived themselves as overweight. *p < .05, **p < .01.

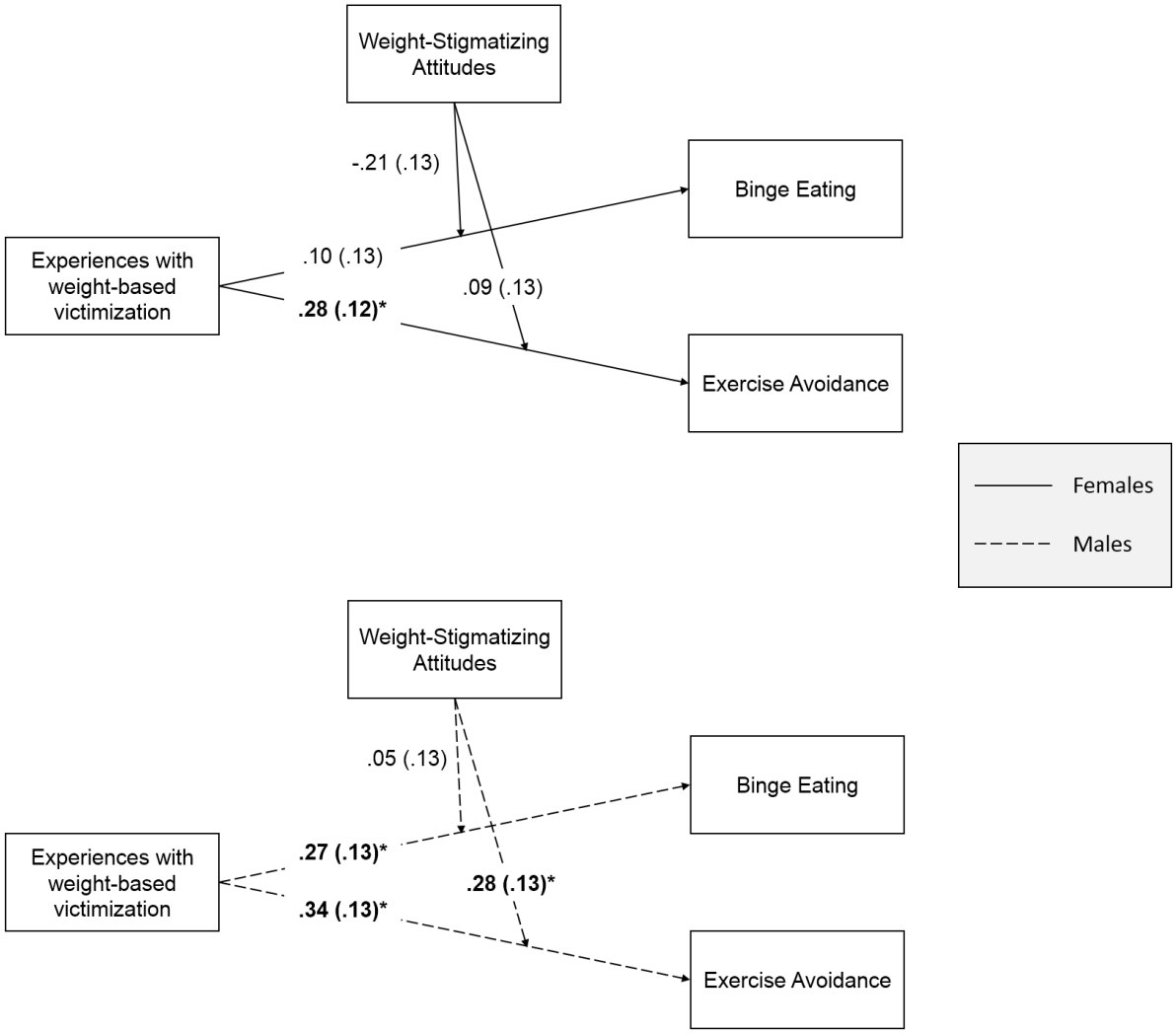

Figure 8. Fully standardized path estimates for hypothesis 2 examining weight-stigmatizing attitudes as a moderator of the pathways between experiences with weight-based victimization, binge eating, and exercise avoidance. All variables were regressed onto covariates (BMI percentile, ethnicity, county, and football player status among males). The model was run separately for females (n = 66) and males (n = 55) who perceived themselves as overweight. *p < .05.

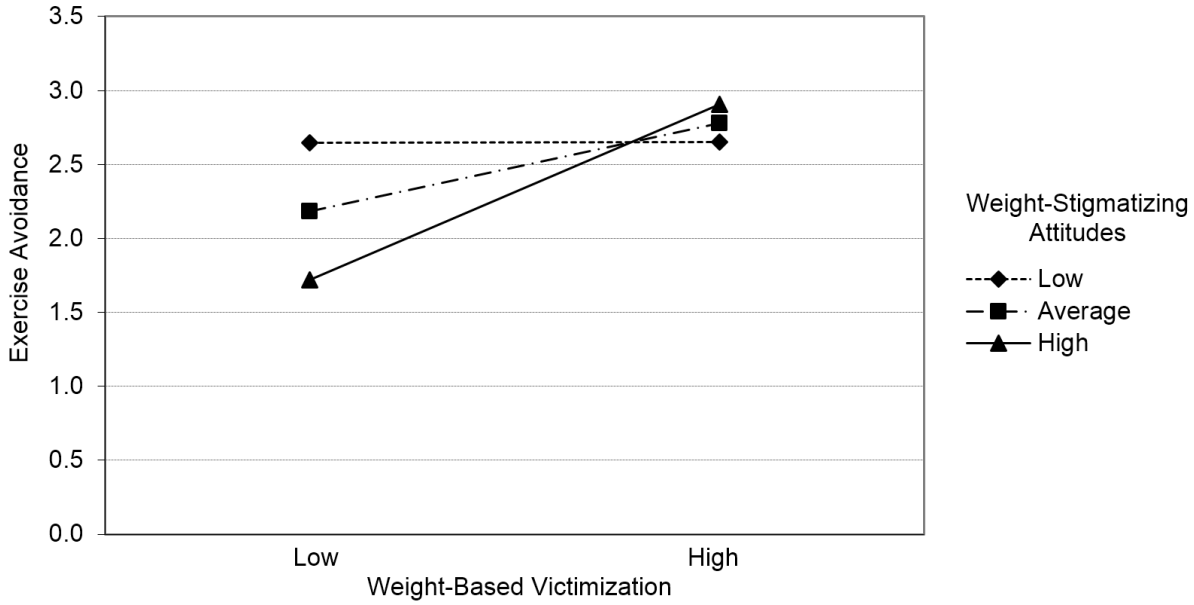

Figure 9. Modeled exercise avoidance as a function of weight-based victimization and weight-stigmatizing attitudes among males who perceived themselves as overweight (n = 54).

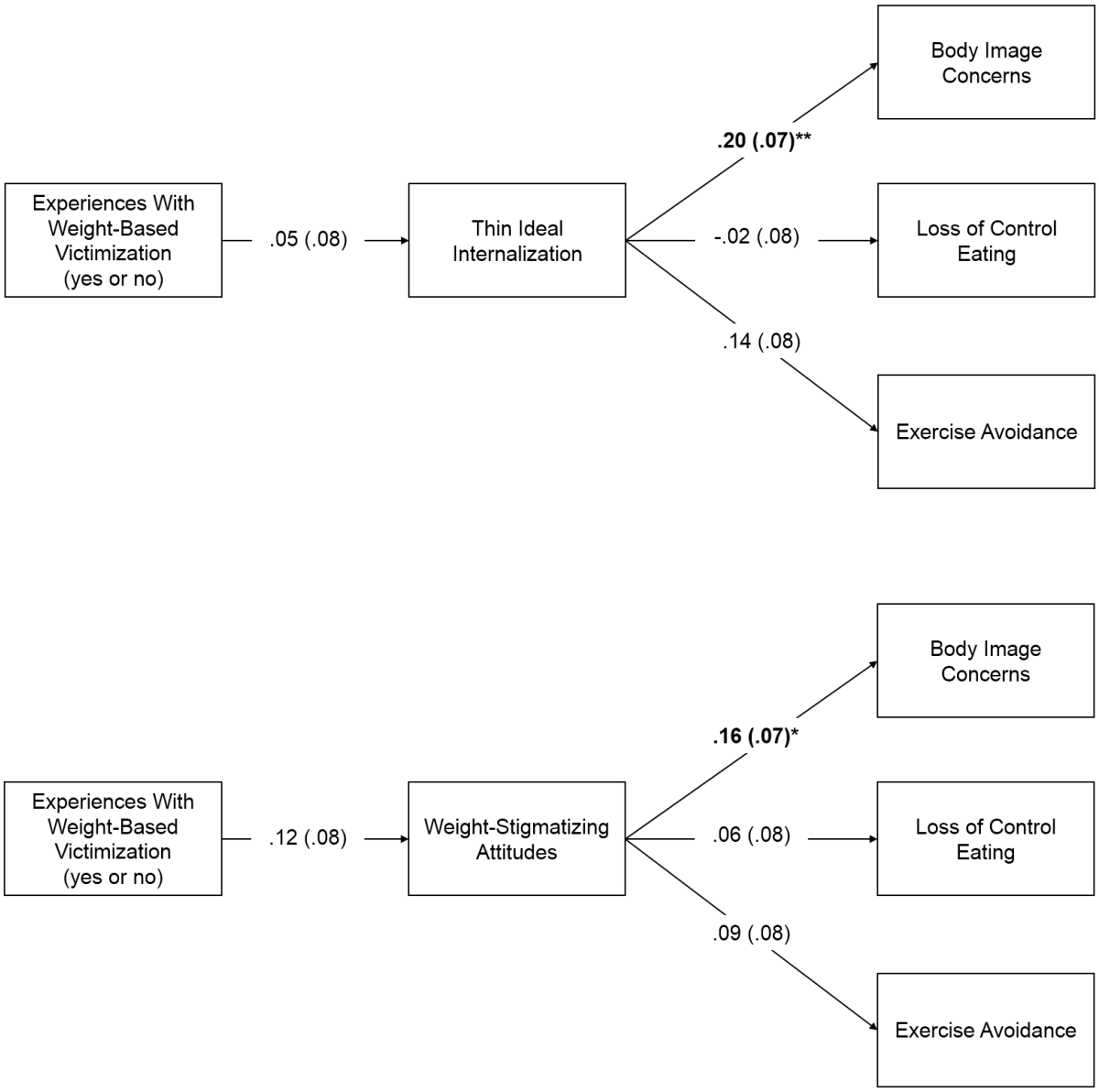

Figure 10. Fully standardized path estimates for hypothesis 4 comparing thin ideal internalization and weight-stigmatizing attitudes as mediators between experiences with weight-based victimization and health outcomes among females (n = 166). All variables were regressed onto covariates (BMI percentile, ethnicity, and county).

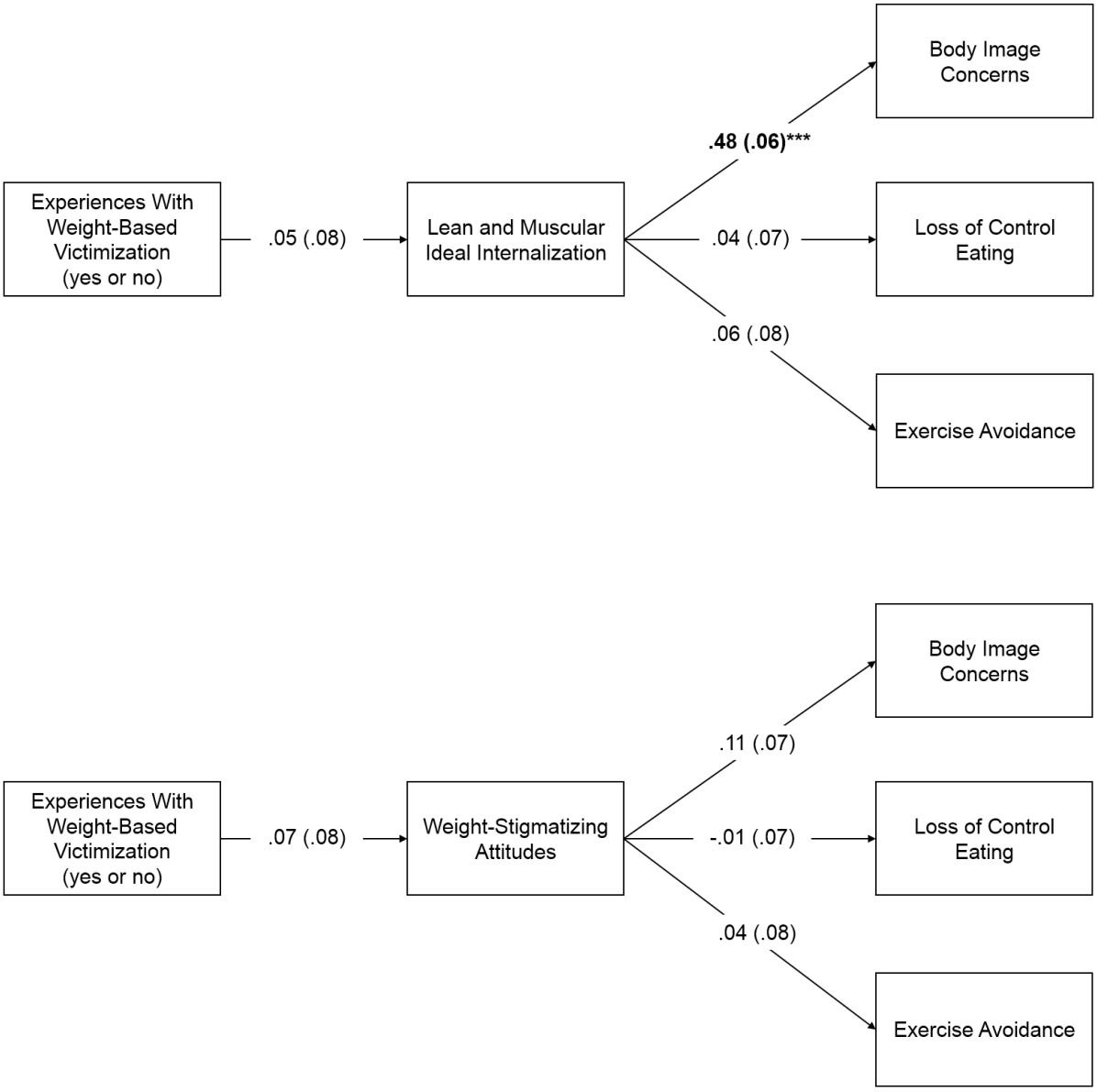

Figure 11. Fully standardized path estimates for hypothesis 4 comparing lean and muscular ideal internalization and weight-stigmatizing attitudes as mediators between experiences with weight-based victimization and health outcomes among males (n = 184). All variables were regressed onto covariates (BMI percentile, ethnicity, county, and football player status).

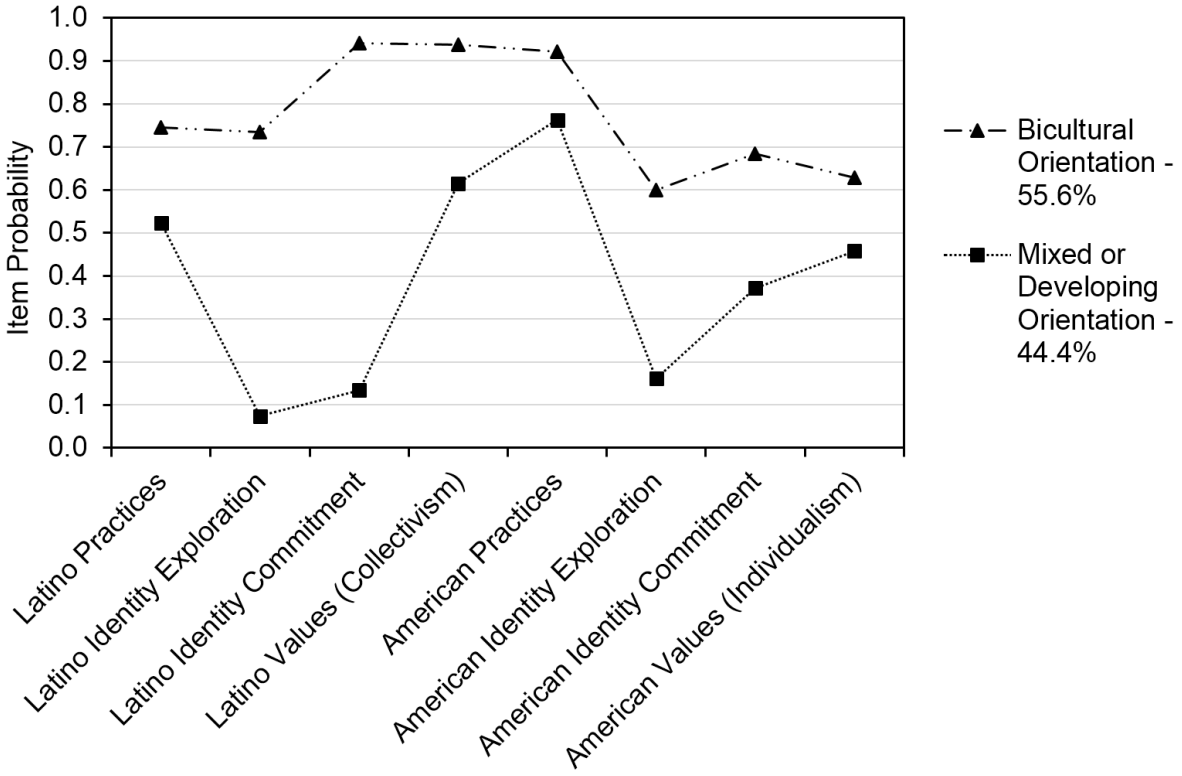

Figure 12. Conditional item probability profile plot for the two-class model of acculturation among Latinx participants (n = 163). Class size information is included in the legend.

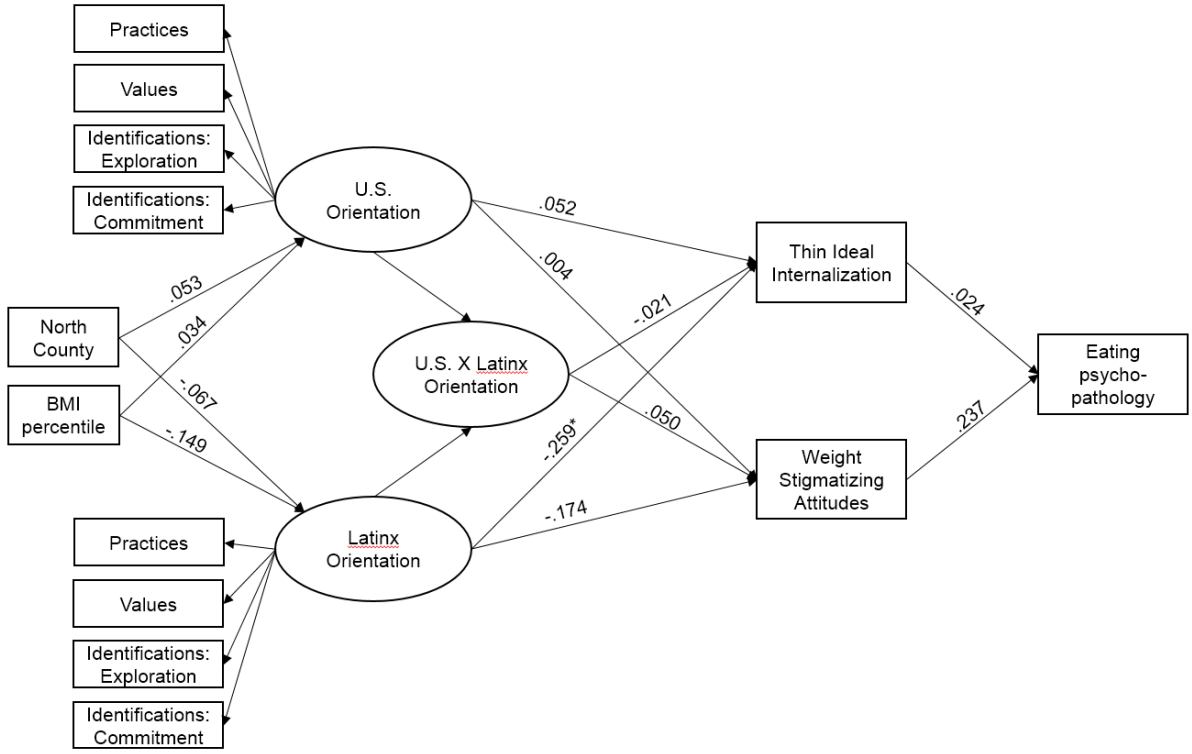

Figure 13. Fully standardized path estimates for the structural regression model for research question 3 among Latina females (n = 66), examining latent acculturation variables as predictors of body size attitudes and eating psychopathology. U.S. Orientation and Latinx Orientation were regressed onto covariates (BMI percentile and county); the model did not converge when covariates were added to other pathways. *p = .02.

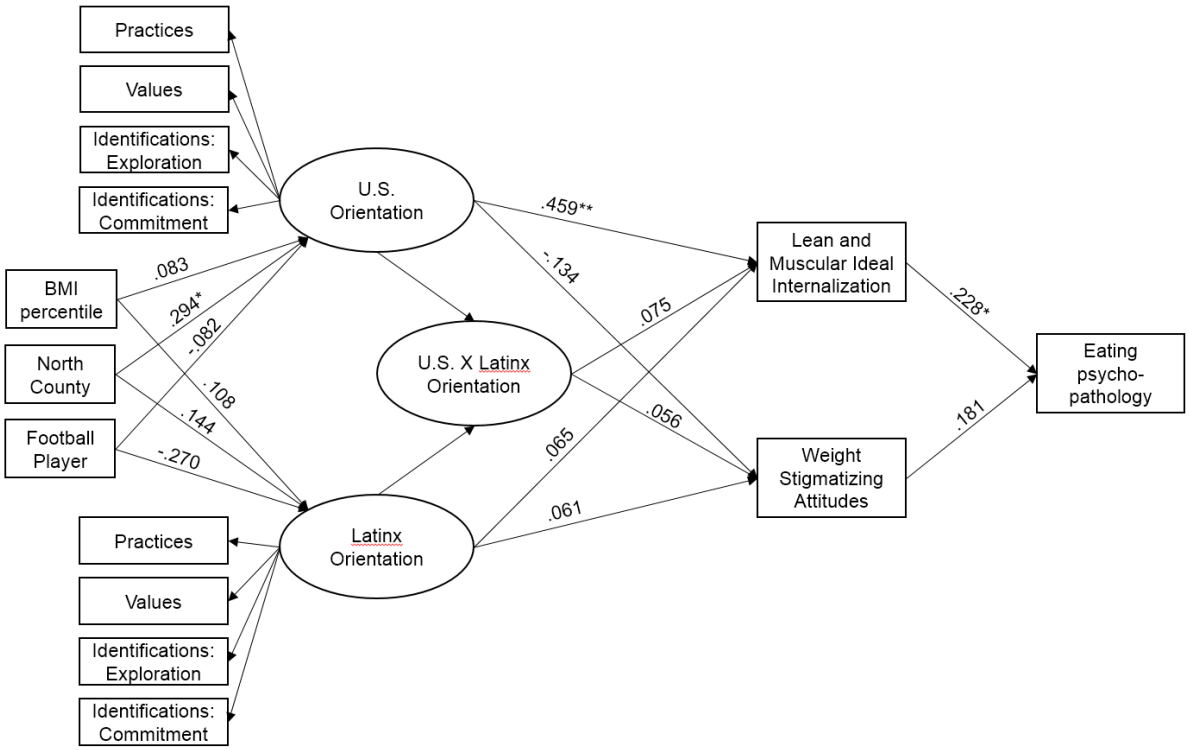

Figure 14. Fully standardized path estimates for the structural regression model for research question 3 among Latino males ($n = 95$), examining latent acculturation variables as predictors of body size attitudes and eating psychopathology. U.S. Orientation and Latinx Orientation were regressed onto covariates (BMI percentile, county, and football player status). *$p < .05$, **$p < .01$.