

DISORDERED EATING AND BODY IMAGE DISSATISFACTION AMONG
MULTIRACIAL AND ASIAN FEMALES IN THE UNITED STATES

by

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(Under the Direction of Mark Wilson)

ABSTRACT

Race, ethnicity and culture are determinants of health behaviors that have not been fully explored in the context of eating disorders and body image research. This following research sought to fill the gap in this body of literature through the examination of impact that race/ethnicity identification and cultural practices have on disordered eating pathology and body dissatisfaction. The first study used a national data set to determine if adolescents of mixed racial ethnicity were more likely to engage in disordered eating behaviors than single race counterparts. Results showed that eating disorder pathology was higher among multiracial adolescents than all single racial and ethnic groups in the United States. Furthermore, compared to African American, Caucasian and Latino adolescents, multiracial adolescents have a higher risk of engaging in disordered eating behaviors ($p < 0.05$). The second study examined eating disorder pathology, acculturation and body image dissatisfaction among East Asian females at The University of Georgia. Results indicate that all East Asian females have elevated disordered eating pathology. Comparing East Asian females born in the United States to non-U.S. born East Asian females, results show that being born in the United States as an East Asian female increased the prevalence of

disordered eating pathology. To examine the previous findings more closely, identification with the Asian culture (Suinn-Lew Identification scale) was measured to determine the impact of acculturation on disordered eating and body image dissatisfaction; where higher identification with Asian cultural values and practices served as a protective factor compared to participants with lower Asian identification. These studies are unique both in approach and content. Eating disorder and body image research primarily focuses on majority populations that primarily consist of Caucasian females. Furthermore, no other study has examined the impact of identifying with more than one race (multiracial) and the impact on disordered eating pathology behavior. Scientists and clinicians alike will be able to use these results to further investigate the impact of cultural values on eating disorder behaviors as well as to identify potential cultural risk factors for disordered eating pathology and body image dissatisfaction.

INDEX WORDS: culture, race/ethnicity, disordered eating, body image

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B.S., The University of Texas at Austin, 2006

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A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial

Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2012

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December 2012

ACKNOWLEDGEMENTS

I would like to thank Dr. Mark Wilson for his guidance and mentorship throughout this dissertation. Thank you to Dr. Kevin Dobbin, Dr. Monica Gaughan and Dr. Su-I Hou as well for their encouragement, advice, helpful comments, and time spent on this project. I appreciate their willingness to serve on my committee.

I would like to extend a special thank you to my parents, Richard and Ida Jackson. The strength and perseverance they have shown me in their own lives inspired me to continue towards meeting my own academic and personal goals.

H.L.J.

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CHAPTER 1

INTRODUCTION

Among all mental health illnesses, eating disorders have the highest mortality rate (National Institutes of Health, 2007) and are among the top ten leading causes of disability in women in the United States (Mathers, Vos, Stevenson, & Begg, 2000). Approximately, 8 million individuals in the United States suffer from an eating disorder, a statistic that can be considered under-reported due to stigma attached to having a mental health condition. The standardized mortality ratio (SMR: the ratio of observed to expected deaths) for eating disorders has been reported to be between 0.71 and 17.8 (Birmingham, 2005). Compared to almost all other natural and unnatural causes of death, this SMR is considered to be significantly elevated (Papadopoulos, 2009). Prevalence of eating disorders has increased dramatically, throughout the Twentieth Century. While historically, the first behavioral evidence of eating disorders originated in the medieval era, contemporary trends in eating disorders indicate that the incidence of eating disorders have increased over the past 20 years (Keel, 2007). Specifically, for females between 10-39 years of age, new diagnoses of eating disorders have increased since 1988 at 18.5 per 100,000 to 20.1 per 100,000 in the year 2000 and remains stable (Currin, 2009).

The current DSM-IV classification of eating disorders applies a rigorous set of criteria for the diagnosis of anorexia nervosa or bulimia nervosa which has lead to an

underestimate of the prevalence of disturbed eating behaviors (Hoek, 2006). For example, studies have found that patients with “partial-syndrome eating disorder,” or EDNOS, known as “eating disorders not otherwise specified” outnumber patients with full syndrome bulimia nervosa by a 2:1 ratio (King, 1989). Garner, Rosen, and Barry (1998) emphasize the seriousness of pathogenic weight control behaviors regardless of formal diagnosis. Thus, although the rate of “full syndrome” eating disorders remains relatively small in populations, the higher incidence of reported “subclinical” eating disorders suggests a need to focus on prevention efforts in individuals and populations engaging in any unhealthy weight control behaviors regardless of diagnostic status.

Eating disorders are a global public health epidemic. The International Body Project, surveyed over 7,000 males and females in 10 major world regions including: North America, Scandinavia, Southeast Asia, East Asia, South and West Asia, Africa, South America and Eastern and Western Europe regarding body weight ideals and body dissatisfaction. Results from this cross-cultural study indicate that the desire for thinness is a universal theme and an international phenomenon (Swami, 2010). Cross-cultural evidence indicates that across international regions, university females are more likely to engage in unhealthy weight loss behaviors compared to males despite “healthy” body mass index (BMI) levels (Wardle, 2006). Although international studies on eating disorders are limited, a unique indicator of eating disorder behaviors across the world is that the outcomes of eating pathology behaviors are relatively similar across cultures with regard to the main features of the illness (Stienhausen, 2000).

Related Conditions of Eating Disorders

Comorbidities of disordered eating behaviors are strongly associated with other detrimental and harmful comorbid behaviors and conditions. Among eating disorder patients, the lifetime prevalence of depression and anxiety disorders are common, especially among female, eating disorder patients (Braun et al, 1994; Godart et al 2002; Godart et al 2007). Adolescent females diagnosed with an eating disorder, also have a high comorbidity with mood and anxiety disorders (Touchette, 2011). Risky health behaviors are commonly exhibited among eating disorder patients, along with other detrimental comorbid conditions. Other comorbid conditions of eating disorder patients include: tobacco, alcohol consumption and illicit drug use (Johnson, 2002). Prevalence rates for illicit drug use in treatment seeking eating disorder patients are between 7.9% and 32.6% (Corcos, 2001). The estimated prevalence for alcohol consumption among eating disorder patients has been reported as high as 30-50% (Dansky, 2001). Meta analyses of alcohol use and eating disorders indicate that alcohol consumption was statistically significant for all categories of eating disorders and has a particularly strong relationship with individuals with bulimia nervosa (Gadalla & Piran, 2007). Given the well-documented effects of cigarette use as an appetite suppressant, it is typical to find this method used among eating disorder patients to control weight and appetite cravings (Austin and Gortmaker, 2001; Croll et al., 2002; Delnevo et al., 2003; George and Waller, 2005). Overall, when compared to healthy controls, eating disorder patients had a higher prevalence of engaging in tobacco and drug use (Krug, 2008). Prevalence estimates of illicit drug use for individuals with eating disorders have been found to vary

between 58.1% and 68.1% (Anzengruber, 2001). An 11-year longitudinal study investigating mortality rates of eating disordered women found that women with anorexia nervosa are over 9 times more likely to die, with a 58 times greater suicide rate than healthy females (Herzog et al., 2000).

Other medical complications and health issues that are strongly associated with eating disorders include amenorrhea, anemia, bradycardia, high cholesterol, fluid and electrolyte imbalance, hypokalemia, cardiac murmur, dull or thinning hair, lanugo, and exhaustion (American Academy of Pediatrics, 2003). Although many of these physical complications are reversible, some are not. For example, bone density loss is associated with eating disorders and can lead to increased rates of osteopenia, osteoporosis, and fractures (Crow, 2005). Additionally, anorexia nervosa is commonly cited as having the highest mortality rate of any mental illness, with mortality rates ranging from 3.3% to 18% (Hoek, 2006). The most common causes of mortality in anorexia nervosa are suicide and complications from the eating disorder such as cardiac failure (Hoek, 2006).

Epidemiological studies on gender indicate that eating disorders are more common in females than males, where female prevalence is approximately 10 times higher than males (Woodside, 2001). Among females, a lifetime prevalence of 0.9 % for anorexia nervosa and 1.5% for bulimia nervosa exists compared to 0.5% and 0.3% among males in the United States (Hudson, 2007). Consistent research has found gender differences between males and females, where body size and shape dissatisfaction is more prevalent among females compared to male counterparts (Phares, Steinburg & Thompson, 2004; Thompson and Stice, 2001).

The disparity between genders has significantly increased over time, where the prevalence of body dissatisfaction among women in the United States has reached a peak where almost half of all women report global negative evaluations of their bodies (Cash & Henry, 1995). Body image dissatisfaction creates mental health risks that are directly related to eating disorder symptoms (Polivy, 2002) which disproportionately affect women; where women have a 9:1 sex ratio of developing eating disorders from body dissatisfaction compared to men (Thompson, 1999). While gender differences exist between males and females with regards to body image-related behaviors, the largest differences between the sexes are related to weight and shape, which affect women significantly more than men (Tiggeman, 2001).

Research has demonstrated that as early as adolescence through young adulthood, some females respond to weight and body shape concerns through extreme caloric restriction and other severe weight control behaviors such as purging (Stice, 1999). The term “disordered eating” refers to behaviors and thought patterns that are symptoms/signs of eating disorders. For example, chronic dieting, yo-yo dieting, binge-restrict cycles, eliminating essential nutrients such as fat or carbs, obsession with organic or “healthy” eating, preoccupation with food and weight are all examples of ‘disordered eating’ behaviors; whereas ‘eating disorders’ are categorical in nature, restricted to specific diagnosis criteria and symptomatology. However, it has been documented in eating disorder literature that disordered eating is a precursor to diagnosable eating disorder development.

As females progress through adolescence and young adulthood, disordered eating prevalence and dieting behaviors increases during this time period and then becomes stable through early and older adulthood (Polivy & Herman 2002); However, overall body dissatisfaction, women's desire to be thin, evaluation of appearance, satisfaction with appearance, and satisfaction with specific body parts remains relatively elevated and stable across the female lifespan (Tiggeman, 2001).

Eating Disorders, Race, and Ethnicity

Females in Westernized societies are more dissatisfied with their body size and shape, and more likely to engage in disordered eating pathology compared to non-Westernized populations (Miller 2001; Lake, 2000). In eating disorder research, Caucasian females have been the primary focus of eating disorder pathology and body image dissatisfaction research. Strong evidence derived from eating disorder research among females, supports the claim that Caucasian women are more likely to be affected by lower body image, and have higher prevalence of eating disorders diagnoses when compared with females of other ethnicities (Crago & Shisslak, 2003). However, because of the growing racial demographic population trends in the United States, recent research is beginning to examine other racial and ethnic minority populations.

Over the past three decades, the United States has experienced a significant increase in the number of interracial marriages, the number of children born to interracial couples, and the number of people who identify as multiracial (U.S. Census 2000; Tafoya, 2000). Multiracial births are increasing at a faster rate than monoracial births (Root, 1996; Campbell, 2004). Individuals who identify as multiracial – or more than

one race, exhibit detrimental differential health outcomes when compared to individuals who identify as single race; for example multiracial youths are at a greater risk for problem behaviors such as substance use, lower self esteem, and at greater risk of depressive symptoms when compared to monoracial individuals (Bracey, 2004; Udry 2003, Cooney, 2000).

Additionally, the ethnic minority population is steadily increasing in the United States with 37% of the new immigrant population originating from Asia (Congressional Budget Office, 2010). Furthermore, results from the 2000 Census indicate that although individuals that identify as part Asian in the United States make up 4.3% of the total United States population, which is a 63% increase from the 1990 Census (United States Census Bureau, 2000); Preliminary results of the 2010 U.S. Census indicate that Asian-Americans currently represent 5% of the total population in the United States (United States Census Bureau, 2009), which makes them one of the fastest growing of all the major ethnic groups in the country (Le, 2011). Far East Asia, which is represented by populations having their origin in China, North and South Korea, Japan and Taiwan (United Nations, 2011) are the largest ethnic subgroups of Asians in the United States (U.S. Census Bureau, 2009).

Eating disorder diagnosis in the Asian American population in the United States is similar to research on body image research, where Asian American females do not significantly differ from their White counterparts in prevalence of eating disorder diagnosis (Cachelin, 2000). Several studies indicate that diagnoses of eating pathology behaviors among Asians residing in Western countries are more frequent than White

women (Wildes, 2001). Similarly, in Great Britain disordered eating behaviors were found to be significantly higher for Asians compared to White participants (Thomas, 2002). A recent study of anorexia nervosa in Asian-American adolescents indicates that the Asian American group resembles non-Asian groups in clinical eating disorder presentation (Lee & Lock, 2007). Two key precursors to eating disorder behaviors: the drive for thinness and fear of fat, are similar between Asians and Caucasian counterparts (Tsai, 2003). This evidence is a strong indication that eating disorders are becoming a growing mental health issue in the Asian population.

Purpose

The overall purpose of this dissertation is two-fold: first, to examine the prevalence of disordered eating behaviors in self identified multiracial adolescents in the United States, to estimate the risk of engaging in disordered eating behaviors in multiracial adolescents compared to single race counterparts, and to conduct a racial subgroup analysis of the multiracial adolescent population to determine disordered eating patterns among various mixed race subgroups. The second purpose of this study is to build upon the concept of race and cultural self- identification in disordered eating behaviors and body image in the Asian population in the United States, examining body image dissatisfaction and its relation to disordered eating.

These studies build upon previous research in racial identity and health outcomes by focusing specifically on body image and eating disorder behavior which has not been previously examined in the multiracial and the Asian population in the United States. This two-part study, will address the following research questions: (1) What is the

prevalence of multiracial adolescents with disordered eating behaviors and what are the risks of the multiracial population compared to single race counterparts? (2) What is the prevalence of the native born Asian population with high body dissatisfaction and disordered eating behaviors compared to American born Asians? (3) What is the difference between East Asian populations on years in the United States and levels of body dissatisfaction and disordered eating behaviors?

Given previous research on racial and ethnic identity, it is predicted that multiracial adolescents will have a higher prevalence of disordered eating behaviors compared to adolescents that identify as single race and that U.S. born Asians will exhibit elevated body dissatisfaction and disordered eating behaviors than foreign born Asians in the United States.

CHAPTER 2

LITERATURE REVIEW

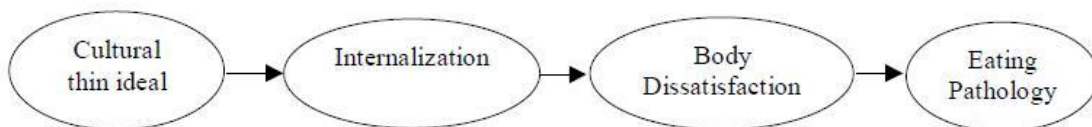
One of the most well-established and empirically supported models of eating disorder pathology development posits the influence of sociocultural factors and the profound effects on disordered eating behaviors and eating disorders (Stice, 1994; Figure 1.0). Sociocultural factors refer to Western social norms that emphasize a physical thin ideal, the internalization of the thin standards that in turn leads to elevated levels of body dissatisfaction, disordered eating behaviors and eating disorder diagnosis (Thompson & Stice, 2001). Other models on theories of eating disorder development include both cultural and societal variables. This literature review will discuss the theories, framework and key variables of eating disorder development, with a focus on the dichotomy between Western culture and East-Asian societal perspectives.

Sociocultural Model of Eating Disorders

The Sociocultural Model of eating disorders suggest that women's body dissatisfaction is influenced by sociocultural norms for an ideal appearance that are pervasive in Western society that are particularly directed at females (Strahan, 2008). The sociocultural norms of eating disorders are external factors that exist within society and culture and have a significant impact on the development of eating disorders. Such

factors include Western media exposure, and the internalization and acceptance of Western thin ideal body type. While the sociocultural model of eating disorder has been widely used and accepted in the field of eating disorders research, the element of race/ethnicity is lacking in this model. The sociocultural model of eating pathology (Figure 1) posits that pressure to be thin promotes internalization of the thin ideal and body dissatisfaction, which then places individuals at risk for dieting, negative affect, and eating pathology behaviors (Stice, 1994; Striegel-Moore et al., 1986). The model of sociocultural theory and eating disorders holds that the socioculturally transmitted thin ideal is accepted and internalized by many females, resulting in the pursuit of thinness by extreme and unhealthy means (van Den Berg, Thompson, Obrowski-Brandon & Covert, 2002). Although the sociocultural model of eating disorders explains the relationships between psychological traits and eating disorder behaviors, the model fails to account for predisposing factors such as culture and environment.

Figure 1: Sociocultural Model of Eating Disorders (Stice, 1994)



Cultural Tripartite Model of Eating Disorders

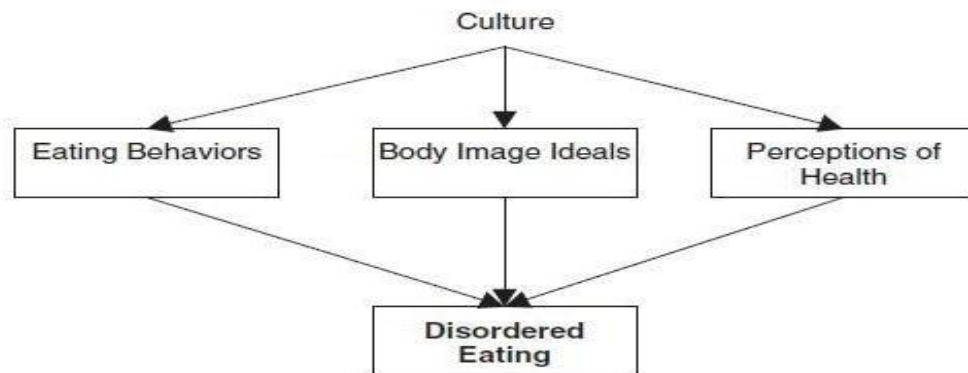
The tripartite influence model of body image and eating disturbances is a contemporary theoretical approach to direct and mediational links to body dissatisfaction and eating disturbance (Figure 2). The tripartite model of culture and eating disorders aims to understand how the cultural processes influence body dissatisfaction and eating disorders development within a cultural framework. The cultural tripartite model delineates three specific paths from culture to eating disorders. The first path is intergenerational transmission of dietary patterns, food preferences and restrictive practices which may lead to the adoption of disordered eating behaviors. The second link regards physical appearances and their meaning in a specific culture as well as the culture's perception of health (Markey, 2004).

Culture has the ability to define food and dietary schemas and guidelines that dictate attitudes and perceptions of food products and the behavior of eating. Culturally prescribed dietary norms are learned through familial interaction which is defined by the past experiences of parents, traditions and habits (Haworth-Hoepfner, 2000). Consistent with the traditional tripartite model (Thompson, 1999) an emphasis is placed on family, peers and media as the three pathways to body dissatisfaction and eating disorders. Cultural emphasis on thinness is very important to physical attractiveness in Western countries and influences the ability of individuals to regulate their food intake and reinforce food preferences and avoidance. In Western cultures food refusal is often reinforced and praised (Brumberg, 2000). While body image ideals may be learned within a family environment, perceptions of bodily attractiveness are predominately

learned within a cultural context (Markey, Tinsely, Ericksen, Ozer, & Markey, 2002). During early childhood, children learn what is considered to be an attractive body size within a sociocultural context (Davison et al, 2000; 2003), where children as young as five years old in the United States consistently indicate their preference for thinness (Davison et al, 2000). The media of a culture also is able to serve as a facilitator of cultural values and beliefs. In Western media, a multitude of underweight female models are depicted and found to have a profound impact on adolescent feelings of body dissatisfaction (Field, 1999). In Western society in particular; the family, cultural media, and the fashion industry have all been responsible for teaching young females to value unhealthy body ideals (Bosch, 2000).

The final variable on disordered eating behaviors in the cultural tripartite model of eating disorders is the cultural conceptualization of health and illness. For example, some cultures only recognize diseases that present as overt symptoms and not just covert signs. In these cases, mental health and eating disorders which have symptoms that are not always physically visible may not be recognized as a disease or disorder by some cultural populations. Overall, the cultural tripartite model attempts to understand the cultural influences on eating disorder and body dissatisfaction development as a part of a larger system of theories and variables.

Figure 2.0: Tripartite Cultural Model of Eating Disorders (Markey, 2004)



Objectification Theory

A central theory that drives models of eating disorder theory and development in Western cultures is the Objectification Theory. The Objectification Theory hypothesizes that females are acculturated to internalize an observer's perspective as the primary view of their physical selves, which leads to habitual body monitoring and cause shame and anxiety and may explain why females are more likely to develop eating disorders at a disproportional rate when compared to males (Fredrickson & Roberts, 1997).

A central aspect of this theory is the idea that females in society are sexualized and that society believes that "it is the socially sanctioned right of all males to sexualize all females regardless of age or status" (Westkott, 1986). The sexualization of females occurs through the sexual evaluation objectification of women (Fischer, Vidmall & Ellis, 1993). Sexual objectification occurs through de-humanizing women, whenever a woman's body or body parts are separated from her actual self and reduced to parts which exist for the use and pleasure of others (Bartky, 1990).

Racial stereotypes of women are also part of objectifying images; where women of color are the target of overt social objectification compared to Caucasian/White counterparts and associated with inhuman characteristics (Iljima-Hall, 1995). A dearth of research exists in examining the role of self objectification and its effects on minority and non-White females. A study on a large sample of undergraduate females found that the relationship between self-surveillance and body dissatisfaction among a combination of minorities (Asian and Hispanic) was stronger than in White women (Fredrick, et al 2007). However, another study found no significant difference between White females and African American females in self objectification (Harrison & Fredrickson, 2003). Present research on objectification theory and other ethnic and cultural groups have not been fully explored and restricted to samples among North American and Australian females.

The effect of self objectification on females at the psychological level, is the socialization of females to view themselves as objects that are to be evaluated by others including oneself, which is consistent with several feminist theories that women will adopt a third person, observer's perspective of their physical being (Bartky, 1990; Young 1990; Berger, 1972). Ultimately, the theory of self objectification implies that beauty and physical attractiveness translates to economic power for women, although variable across different racial and ethnic subgroups, a woman's beauty must appeal to the dominant White (male) culture (Unger, 1979).

Within the self objectification framework, several theories of eating disorder behaviors exist. Rodin, Silberstien, and Striegel-Moore (1984) postulate that the troubled

attitudes towards food and eating and food restriction in females is considered to be a universal behavior to the extent that is a “normative” occurrence that reflects the discontent that females have towards their bodies through bodily manipulation of bingeing, purging and self starvation. Chronic dieting, self monitoring and comparison with others are behaviors that are considered normal and even encouraged and supported by peers and parents (Crandall, 1988). Another perspective on eating disorder pathology in the context of self objectification theory, views eating disorders as a political statement against the White (male) patriarchy (Orbach, 1978). For example, women have less power compared to men in society to influence action, and therefore use their bodies, something that they are able to manipulate for power and as a means of influence (Fredrickson, 1997).

Support for aspects of self objectification theory and its relation to disordered eating have been demonstrated between self objectification, self surveillance, body shame and eating disorder behaviors. Studies to test the indirect relationship between self objectification and eating disorders confirmed that self objectification was related to greater body shame, and elevated eating disorder behaviors (Noll & Fredrickson, 1998). Further examination of the role of self objectification and disordered eating behaviors reveal links between self-objectification and appearance anxiety in addition to established links between self –objectification body shame and disordered eating (Tiggemann & Slater 2001). Additionally, interoceptive awareness which refers to awareness of internal states of hunger, satiety and other stimuli originating from within the body relates to self surveillance and eating disorder attitudes (Myers & Crowther, 2008).

A majority of the research on predicting the relationship between self objectification and disordered eating has been conducted on college or university women; however evidence has been found to exist in female samples from the general population. Research on adolescent females indicates that external appearance, and intrinsic self-objectification is prominent among this population on levels that are comparable to adult women (Slater & Tiggemann, 2002). Even in pre-adolescent (ages 10-12) samples, self surveillance is highly correlated with body shame and dissatisfaction (Grabe, Hyde & Lindberg, 2007; Grabe & Hyde 2007). Although adolescence and young adulthood is a critical age range for eating disorder pathology and the peak time for self objectification to occur, older female populations have been found to be affected by self objectification. Clarke et al, (2002) analyzed the perceptions of body weight in older adult females (ages 61-92) and found that weight and appearance were still central to a woman's identity and perceived social value. Furthermore, in a cross-sectional, large community sample, three age groups: 20-39 years, 40-69 years and 70-85 years were evaluated on self objectification and levels of self evaluation. Results from this study indicated that although the younger age group had higher levels of self objectification and self-evaluation, these issues were still prevalent in the oldest age group, suggesting that the objectification theory is applicable to women across a wide range of age groups (Tiggemann & Lynch, 2001).

In a culture that objectifies the female body, eating disorders are perhaps the most evident risk posed to the health and well-being of females. Within the self objectification framework, theories on eating disorder development explain the disproportional effect on

the female population when compared with males. These theories bring into perspective how comparison of one's own body to others fits within a cultural context of ideals, knowledge that the body will be subject to comparison and evaluation and makes it a unique experience to females and fundamental to the explanation of the high prevalence of eating disorders in women.

Western Cultural Ideals

Although theory and models are able to predict factors in the development of eating disorders and disordered eating behaviors, the context and environment in which the behavior is most prevalent is also important to consider. Western society and cultures have the highest prevalence of eating disorder diagnoses and subclinical behaviors than Non Western societies (Makino, 2004). Several related factors within the overall cultural norms of Western societies contribute and encourage females to engage in unhealthy dieting practices in order to achieve an unattainable ideal.

Culture is a broad term describing the belief systems and value orientations that influence customs, norms, practices, and social institutions, including psychological processes (language, caretaking practices, media, educational systems) and organizations (media, educational systems) (American Psychological Association [APA], 2003, p. 380). Dimensions of culture include the shared system of learned norms, beliefs, values, family structure, social structures, communication styles, traditions and behaviors that differ across populations defined by region, nationality, ethnicity or religion (Comstock 2004; Heggenhoughen, 1986). Culture indirectly influences health when learned beliefs, values

and norms affect behavior in terms of accumulated learning and shared habits, rather than innate biological differences (Hruschka, 2008).

Ethnicity, is generally defined as the acceptance of the norms, mores, and practices of one's culture of origin and the concomitant sense of belonging to that cultural group (American Psychological Association, 2003). Individuals are typically categorized into ethnic groups based on race, the socially constructed characterization of individuals by visible traits (e.g., skin color, hair color and texture, facial features, and stature), and culture of origin (Katz, 1985; Phinney, 1996).

Western culture, is referred to as *Euro-American* or *White culture*, which broadly refers to first-world, economically stable cultures, such as the majority culture in the United States, that value individualism, competition, rational thinking and decision making, economic displays of status and power, and a patriarchal family structure (Katz, 1985). Western culture values and idealizes a thin female physique. Furthermore, Western culture stipulates that, for females, a thin body is ideal, appearance is central to one's value and role in society and that thinness assures security, intimacy, success, and life satisfaction (Warren, 2005).

Exposure to a Western culture and lifestyle, which promotes a thin ideal of beauty, increases the chance of developing eating disorder symptomatology (Polivy & Herman, 2002). Cross cultural research suggests that highly Westernized societies similar to the United States have shown increases in prevalence of eating disorder diagnosis and behaviors. Perhaps the most well known research in Western influence is the "Fiji Study", where exposure to broadcast television with Western programming shifted the

aesthetic ideals from a traditional robust shape to a smaller frame (Becker, 1995) and disordered eating in the Fijian schoolgirls in this study have become the primary means of reshaping body and identity to enhance social and economic opportunities (Becker, 2004).

Although eating disorders were once characterized as being a condition that only afflicted White, upper, middle class women; recent evidence of disordered eating behaviors and body dissatisfaction has been documented in several various cultures and societies around the world. In particular, Non -Westernized countries in East Asia have also experienced an increase of eating disorder prevalence diagnoses and body dissatisfaction among the female population with the introduction of Western culture.

East Asia is defined as the countries and territories of China, China-Hong Kong, Chinese Taipei (also known as Taiwan or China- Special Administrative Region), Democratic People's Republic of Korea (North Korea), Republic of Korea (South Korea), Japan and Mongolia (United Nations, 2010). In the second half of the twentieth century, only Japan has been documented as a country of interest in East Asia where eating disorders have been present, due to being one the most economically developed societies in Eastern Asia (Gordon, 2001). However, this has not precluded other East Asian nations from experiencing the phenomenon of body dissatisfaction, disordered eating behaviors and eating disorder diagnosis. Eating disorder reports from several diverse socioeconomically urban and rural regions in China indicate that young females are aware of matters relating to fat concern and dieting despite being far from overweight,

with an overall desire for slimness (Lee & Lee, 2000). Longitudinal analysis of Chinese adolescents and the development of eating disorders indicate that Chinese females experience high appearance based social pressures and social comparisons that are linked to internalization of the thin female ideal and increased eating disturbances (Jackson, 2008). In Taiwan, new research reveals that restrictive eating behaviors among young females are increasing in prevalence among the young adult population (Yeh, 2009). These findings are consistent with results of Western studies indicating that girls who are highly concerned with being fat (Cooley, 2001; Johnson 2005) and who experience pressure from others to alter their physical appearance (Stice, 2002) are prone to later increases in eating disturbances.

Acculturation is defined as the phenomenon which results when groups of individuals of different cultures come into continuous first hand contact, with subsequent changes in the original cultural patterns of either or both groups (Redfield, 1936). For populations who have immigrated into Western societies, eating pathology has been a significant medical marker of adaptation and acculturation in shifting cultural images from East Asia (Katzman & Lee, 1995). The immigration of Asian groups into the United States is unique in that the majority of Asian immigration is relatively recent (Kitano, 1991). For Chinese females, increased acculturation was associated with greater reports of bulimia, drive for thinness, interceptive awareness, maturity fears, drive for perfectionism; which are all variables that are part of the psychological trait model for eating disorder development (Katzman & Lee, 1995). Female immigrants from Korea to the United States experience similar acculturative trends in the development of high risk

eating attitudes where higher levels of body dissatisfaction are observed after time spent living in a Western society (Jackson & Keel, 2006).

However, the phenomenon of acculturation and disordered eating development is not limited to immigrating Asian populations, other minority and ethnically diverse populations immigrating into the United States such as Hispanic and Black populations also experience an increase in incidence of disordered eating behaviors as they became more acculturated to the Western lifestyle (Cachelin, 2000).

Asian cultural ideals are considered unique in that high physical standards and expectations for females exist, and in this respect, it is similar to Western cultural ideals. One common physical expectation of young women in Asian cultures is that they must have a small body frame, white/fair skin, clear complexion, and wide eyes; and that these features of beauty can be compared with their peers (McConnell, 2003). Pursuits to attain these beauty ideals through methods of unhealthy methods of weight loss practices and body alteration result in the destruction of overall physiological and psychological health and ultimately lead to development of body image dissatisfaction and increased risk of engaging in disordered eating behaviors.

Media Influence

Media is an important factor that has a significant impact on eating disorder behavior and development (Field, 2001). The western media also reinforces the objectification of women during interpersonal and social encounters. Analysis of American advertisements indicate that males are depicted looking at their female

counterpart more often than the reverse (Gow, 1996). Analysis on mainstream films (van Zoonan, 1994), visual arts (Joslin, 2010), advertisements (Soley & Kurzbad, 1986), television programming (Quigg, 2011), music videos (Emerson, 2002), women's magazines (Calegero, 2009), and sports culture and photography (Duncan, 1990; Bissell, 2008) are all indications of objectification of female more so than males. Objectification of body parts are also emphasized through the media, where males are portrayed with a greater emphasis on details of the head and face, where the body is more often emphasized in females (Archer, 1983).

Mass media refers collectively to all media technologies, including the Internet, television, newspapers, film and radio, which are used for mass communications (Potter, 2008). Exposure to thin, idealized body images in mass media is associated with eating disorder symptomatology (Stice, 1994). Derived from social comparison theory, the effects of exposure to media portrayed idealized body images reflects negative self-evaluation of the individual's appearance after viewing highly attractive individuals in the media (Thorton & Moore, 1993). Empirical evidence and general public opinion hold the implicit assumption that the media plays an important role in the development of body dissatisfaction and disordered eating.

One of the effects of media saturation in Western societies is the transmission of societal norms and beauty ideals. Content analysis among images and advertisements in women's magazines and television reveal a dispersion of young, tall and extremely thin women (Fouts & Burgraff, 2000) that promote a culture of beauty and the desirability of thinness that is unrealistic for most women to achieve in a healthy manner (Sypeck, Gray

& Ahrens, 2004). A meta-analysis of 25 experimental studies that examined the effect of viewing thinness-idealizing media on women's body image found participants were significantly more dissatisfied with their bodies after viewing thin models than after viewing average-sized models, plus-sized models, or inanimate objects (Groesz, Levine, & Murnen, 2002).

Independent measures of naturally occurring media exposure are also associated with body image dissatisfaction. Fashion magazines or television viewing has been found to be correlated with body dissatisfaction (Jones, Vigfusdottir, & Lee, 2004), and eating disorder behaviors and symptoms (Harrison, 2000). Specific genres of media such as soap operas and music television where thin ideals are typically present have a relationship with body image dissatisfaction (Hofschire & Greenburg, 2002; Tiggemann, 2005).

Longitudinal investigations demonstrate that females who report attempts to change their image to reflect females that are portrayed in the media were more likely to develop weight concern and engage in disordered eating behaviors (Field, 2001). Stice et al, conducted a natural longitudinal experiment that randomly assigned girls to receive a 15-month subscription to a teenage magazine. Results from this study indicated that subscription to the magazine led to increased body dissatisfaction and pressure to be thin (2001). Changes in eating disorder symptomatology in early adolescent girls are associated with changes in the use of fashion magazines (Vaughan & Fouts, 2003). A temporal measure of media exposure predicts thin ideal internalization, appearance schemas and a drive for thinness (Tiggemann, 2006). Strong correlational evidence exists

that viewing fashion magazines predicts body dissatisfaction (Botta, 2003), drive for thinness (Harrison, 2000) and disordered eating behaviors (Stice & Shaw, 1994).

Furthermore, media consumption in general indicates thinness-depicting and thinness promoting media is linked to indicators of disordered eating (Carney, 2006). In samples among ethnic minority groups, Western media has a profound influence on developing body dissatisfaction, internalization of the thin ideal and the emergence of eating pathology among different cultural groups.

It is important to recognize that the media is not the single factor in the development of body dissatisfaction, disordered eating symptoms and eating disorders; but does not independently lead to unhealthy eating behaviors. In fact, women are active agents in the consumption of media images and are aware of the pressures created by thin-ideal images on their self-presentation (Thomsen, 2001). They embrace the images that are presented to them, but they also resist, and critically reflect on the images and messages; and all their potential influence.

Thin Ideal Internalization

Thin ideal internalization is a recognized risk factor for the development of disordered eating behaviors and eating disorder development (Thompson 1999; Smolak & Striegel-Moore, 2001; Stice & Whitenton, 2002). The concept of “thin ideal internalization” refers to the extent to which an individual cognitively accepts the thin societal standard of attractiveness as their own personal standard and engages in behaviors that are designed to meet that standard (Thompson, 1999). The thin ideal represents the particular body shape and weight that girls and women would like

ultimately attain. Pressures to be thin encompass a variety of forms, ranging from glorification of ultra-slender fashion models to direct messages that one should lose weight (i.e., weight-related teasing), to more indirect pressures to conform to the current thin-ideal promoted towards women (Stice, 2002).

Current research provides support for the relationship between thin ideal internalization and the development of eating disorders. Internalization leads to an increase in body dissatisfaction, which promotes dieting and negative affect, disordered eating behaviors and eating disorder development (Stice, 2000). Community studies of elementary school girls show that the thin ideal is associated with body dissatisfaction (Dunkley, Werthiem & Paxton, 2001). Longitudinal research of the thin ideal internalization has been associated with the onset of dieting (Stice, 1998). Preferences for the thin ideal begin as early as pre-school where in a sample of preschool females ages 3 to 5 are already emotionally invested in the thin ideal, attributing positive adjectives to thin targets compared to average and larger sized targets (Harringer, 2010). Research is showing that girls as young as the age of six report a desire for a thinner body (Lowes & Tiggemann, 2003). In pre-adolescent years, awareness of the thin standard for appearance and social implications begin to become salient among this age group (Sands, 2001). Adolescents and young adults, having completed puberty, morphological body changes with bodies that resemble adult body types, are at highest risk of internalizing the thin ideal (Hermes & Keel, 2002). Middle aged and older adult women are also affected by the drive for an ideal thin body type and appearance oriented standards were still relevant to the older age group (Saucier, 2004). Cultural and ethnic backgrounds have a profound

effect on the internalization of thin body standards, given that standards of physical attractiveness vary throughout different cultures (Wildes, Emery & Simons, 2001). Additionally, ethnicity is postulated to be a protective moderator between thin ideal internalization and disordered eating and eating disorders given that not all cultures/ethnicities place emphasis on the physical form or have a more realistic body ideal (Warren, 2005).

Research indicates that racial and ethnic identity matters in susceptibility of the thin ideal standard. Boyd et al, suggests there is evidence that different ethnic groups respond differently to the thin ideal. African American females are less likely to accept a thin ideal compared to Caucasian, Hispanic and Asian females (2011). Across ethnic groups, Black and Hispanic participants evidenced significantly less internalization of the thin ideal than Asian or White participants (Shaw, 2004). Furthermore, evidence among non-White samples suggests that Non-Caucasian females report higher scores on thin ideal internalization when compared to Caucasians (Hermes & Keel, 2003). No ethnic differences in internalization exist between Hispanic and African American females (Abrams & Stormer, 2002). Overall, understanding thin ideal internalization among Non-White, ethnic minority samples is an understudied-population that warrants attention given preliminary results that suggest that culture/ethnicity is an important factor in the risk factors for eating disorders.

Body Image Dissatisfaction

A result of Western cultural influence and an important risk factor in the development of eating disorder behaviors is body image dissatisfaction. *Body image dissatisfaction*, is defined as a negative subjective evaluation of one's physical appearance (Stice, 2002), has been found to predict dieting, binge eating, purging, excessive laxative use, and cessation of eating (Cash, 1996; French et al., 1997; Joiner & Kashubeck, 1996; Stice, 2001; Stice, Mazotti, Krebs & Martin, 1998). Body dissatisfaction is prevalent in both eating disordered and non-clinical females to the degree that a moderate amount of body dissatisfaction is considered normative among women (Rodin, Silberstein, & Striegel-Moore, 1984; Thompson, Heinberg, Altabe, Tantleff-Dunn, 1999). Dissatisfaction with body image has several severe consequences such as the development of body image dysmorphia, a severe form of body image dissatisfaction and ultimately disordered eating pathology and eating disorders.

Body image dissatisfaction is strongly associated with eating disorders and related symptomatology and behaviors (Stice, 1994). Females with eating pathology behaviors are more likely to experience body image dissatisfaction when compared to those without eating pathology, primarily because selective attention to the thin ideal reinforces and maintains body image dissatisfaction among women with eating disorders (Leahey, 2011). Body image dissatisfaction has the potential to result in eating disorders via two pathways (Stice, 2002). In the first pathway, body dissatisfaction, as a result of attending to the thin ideal, motivates females with eating disorders to restrict their food intake in order to attain the ideal body. The second pathway to eating disorders via body image

dissatisfaction increases the likelihood and frequency of binge eating, which triggers purging behaviors such as vomiting, laxative, diuretic, or excessive exercise to offset any possible weight gain associated with the binge eating behavior (Stice; 2001, 2002).

Across the lifespan, body image remains an important issue, although high body image dissatisfaction is experienced for females during the peak of adolescence and young adulthood (ages 18 to 25) where individuals are most susceptible to excessive dieting and eating disorders (Grogan 2008; van Hoeken et al. 2005). Additionally, there is evidence that suggests through middle age (Tiggemann & Stevens, 1999) and the older adult populations (Webster and Tiggemann, 2003) body image remains a primary concern among females.

Body image disturbance has grown in prevalence and as such is now a major threat to women's health in Westernized countries worldwide (Paxton, 2000). While commonly exhibited in Western societies and cultures, body image disturbances have shown an increase in non- Western countries such as Japan (Pike & Borovy, 2004), China (Li, Hu, Ma & Wu,2005) and occur at rates that are comparable to those reported in Western societies. Attention to cultural standards is an important means by which individuals evaluate their bodies (Franzoi & Klaiber, 2007).

Traditional Eastern Asian cultures emphasize a slender figure as a slender ideal, an ideal that has formed through the society from the non- medical literature such as folk tales and prints, and paintings (Kok & Tian, 1994; Nagomi, 1997; Chang, 1991, pp. 30–31). Body image dissatisfaction is not a Western phenomenon anymore. In a sample of Taiwanese college students, Shih et al found that females had a greater body

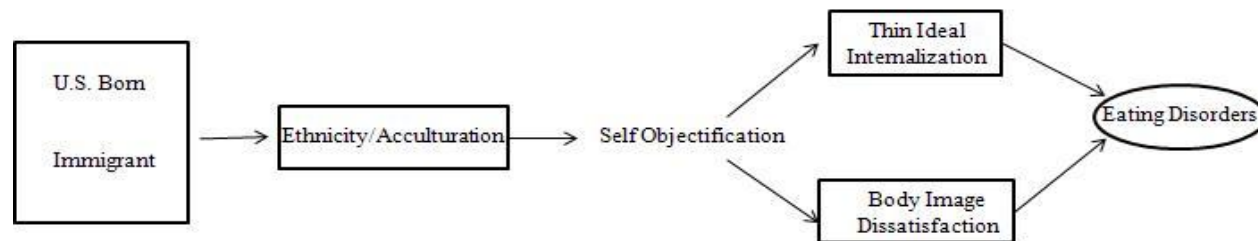
dissatisfaction score than males and engaged in unhealthy body weight change behaviors in order to alter the shape of their bodies (2002). Among Japanese adolescent females, 41% aged 6–13 years and 68% 16–18 years had negative body image perception and high desire for thinness, regardless of their actual weight (Chisuwa, 2010; Ohtahara, Ohzeki, Hanaki, Motozumi, & Shiraki, 1993). Since these initial studies, it has been reported in Japan, one of the most Westernized East Asian countries, that Japanese females' body image perceptions have become distorted and report overall weight and shape concerns (Hayashi, 2006). Trends in Korean studies indicate a significant increase in body dissatisfaction among Korean females over time (Kim, 2009). For Chinese females, body shape concern was the strongest predictor of disordered eating attitudes (Liao, 2010). Compared with European and American populations, cross cultural studies reveal that Northern European (Soh, 2008), and East Asian females do not differ significantly in body image dissatisfaction, and that North American females and East Asian females have similar levels of risk in body image distortion (Tsai, 2000). Increased global recognition and research on body image dissatisfaction is not a culture bound phenomenon but in fact a cultural occurrence that is quickly becoming a worldwide epidemic of eating disorders and unhealthy body shaping techniques.

In conclusion, eating disorders are complex psychological phenomenon that are both biological and sociological in nature. Literature on the development of disordered eating behaviors and the development of eating disorders have been predominantly focused on single race populations, with Caucasian/White females being the primary focus of investigation. A majority of studies conducted on eating disorders are cross-

sectional and lack a longitudinal approach; while few studies use national, representative samples. Although the two prominent models of eating disorder development (Markey, 2004; Stice 1998) offer differing hypotheses to the progression of eating disorder behaviors, neither model alone is an inclusive representation of factors influencing eating disorders. Race/ethnicity and culture have not been significant variables examined in previous eating disorder research. However, research indicates that race/ethnicity and culture are important components that contribute to disordered eating behaviors and ultimately eating disorders.

From the current literature in eating disorders and race/ethnicity research, it can be inferred that the key factors in eating disorder development are related to race/ethnicity as well as the extent to which populations are exposed to Western culture and ideals (acculturation). An extension of exposure to Western culture is the nativity of individuals and their country of origin. Being born and raised in the United States or born in an East Asian country and immigrating to the United States will have an impact on acculturation to Western culture and lifestyle which encourages the thin ideal and promotes body image dissatisfaction and ultimately disordered eating pathology. Figure 3.0 depicts the effect of cultural and racial identification and how acculturation and time impacts self-objectification, thin-ideal internalization and the outcome of developing an eating disorder.

Figure 3: Proposed model on Asian ethnicity and eating disorder development (Jackson, 2011)



CHAPTER 3

STUDY 1: DISORDERED EATING AMONG MULTIRACIAL ADOLESCENTS: RESULTS FROM ADD HEALTH WAVE I

Summary

Disordered eating behaviors are common among adolescents. Since the 2000 U.S. Census allowed for individuals to identify themselves as more than one race; there has been an increasing growth in the multiracial population in the United States. Previous research has shown this population to be at increased risk of engaging in problem behaviors; however, there has been no research addressing multiracial adolescents and disordered eating behavior. This study used a nationally representative, longitudinal sample from the National Longitudinal Study of Adolescent Health (Add Health) to investigate the differences between adolescents of mixed racial heritage to single race adolescents. Mixed race adolescents were at a higher risk of engaging in disordered eating behaviors in order to lose weight when compared to single race groups. With an emerging demographic in the United States, research is needed to investigate multiracial mental health behaviors in order to prevent disordered eating behaviors in this growing population.

Introduction

Epidemiological research on race/ethnicity concerning eating disorders has lagged behind other areas of psychological and mental health issues, leaving unanswered questions about health behaviors in major demographic populations in the United States (Striegel-More, 2011). Although progress has been made in detecting eating disorder pathology in majority (Caucasian) and several racial and ethnic minority populations, a major gap exists in the research pertaining to the mixed race/multiracial population.

Over the past three decades, the United States has experienced a significant increase in the number of interracial marriages, the number of children born to interracial couples, and the number of people who identify as more than one race. (American Community Survey, 2006; United States Census 2010). Furthermore, the rate of multiracial births are increasing at a faster rate than single race births in the United States (Root, 1996). For decades, social and behavioral studies have found that the multiracial individual has suffered poor mental health compared to single race populations (Cooney and Radnina, 2000). Moreover, multiracial individuals exhibit detrimental differential behavioral health outcomes when compared to individuals who identify as only one race (Wu, 2003; Bachman, 2003; Ramchand, 2009). Researchers contend that multiracial individuals are at a greater risk for problem behaviors such as smoking, substance abuse (Milan and Keiley, 2000), lower self-esteem (Lusk, 2010), and are at a greater risk of depressive symptomatology when compared to single race groups (Rockquemore, 2009). One study found that multiracial adolescents are maladjusted, with a lower sense of self-worth and an elevated propensity toward deviant behavior (Milan and Keiley, 2000).

Further confirmation of these behavioral findings on multiracial behavior come from Udry, Li, and Hendrickson-Smith (2003), who found differences in psychosomatic symptoms in addition to affective disorders; which indicate that in general multiracials have higher odds of experiencing sleep problems, in addition to aches/pains and headaches, which may suggest the presence of a mental health disorder (Udry, Li, Hendrickson-Smith, 2003).

Previous research on race/ethnicity and disordered eating draws attention to the impact of single race identification and eating disorder symptoms and diagnosis. Currently, it is well known in the eating disorder literature that the Caucasian/White population exhibits the highest prevalence of eating disorder diagnoses (Gilbert, 2000). At present, little is known about disordered eating behaviors among those that identify with more than one race (multiracial). If a higher prevalence of eating pathology is demonstrated in the multiracial population, it will have implications for addressing eating disorder prevention and intervention approaches to eating disorder in this population.

The primary purpose of this study is to: (1) Examine prevalence of disordered eating behaviors among multiracial adolescents , (2) Estimate the risk of engaging in disordered eating behaviors in self -identified multiracial adolescents compared to single race counterparts, and (3) Conduct a subgroup analysis of multiracial population to determine behavioral patterns among specific multiracial and single race groups.

Previous literature on the behavior of multiracial populations contribute to our hypotheses that self-identified multiracial adolescents will have a higher prevalence of

disordered eating than single race adolescents, have a higher risk of using unhealthy weight loss method; will behave in a unique manner compared to single race categories.

Methods

Participants

Data for this study were drawn from Wave I of the National Longitudinal Study of Adolescent Health (Add Health). Wave I encompasses all data collection between 1994 and 1995 and included 20,745 respondents in grades 7-12 who consented and agreed to be interviewed. During the period of Wave I data collection, respondents were between 14-16 years of age.

Add Health is a nationally representative, probability based survey that examines a broad range of health related attitudes and behaviors of adolescents in the United States. A systematic random sample from high schools and middle schools in the U.S. was surveyed during the September 1994 and April 1995 time period. Incorporating systematic sampling methods and implicit stratification into the Add Health study design ensured this sample was representative of U.S. schools with respect to region of country, urbanicity, school size, school type, and ethnicity. Overall, there were 132 schools from 80 communities. This study takes advantage of the large overall sample size and rigorous, randomized design of Add Health, which enabled the estimation of stable statistical results for multiracial subgroups that are a relatively small fraction of the total U.S. population (Bearman, 1997; Harris, 2009).

Procedure

Data collection in Add Health Wave I involved in-home interviews, where an interviewer recorded respondents' answers using a laptop computer-assisted interview system. Portions of the interview containing sensitive information were administered with an audio computer-assisted self-interview, that allowed the participants to enter their responses directly into the computer (Harris, 2009).

Measures

Only Add Health survey items that were relevant to this study are described below. Race/ethnicity, and disordered eating behavioral responses were based on self-report of the respondents. Age, race and ethnicity were based on self-reported data consistent with 2000 U.S. Census options.

Race/Ethnicity. Add Health respondents were asked to identify their race by answering the following question: “*What is your race? You may give more than 1 answer: White, Black or African American, American Indian or Native American, Asian or Pacific Islander, Other.*” Racial reporting of respondents was based on self-identification in the self-administered school questionnaires and interviewer-administered home interviews. Add Health used the “*check all-that-apply*” method, which allowed respondents to choose as many races as they felt matched their status. For the purposes of this investigation, the term “multiracial” was defined on the basis of the subject’s self identification of more than one race.

Disordered Eating Behaviors. Add Health only includes one measure of disordered eating behaviors, asking the respondents the question: “*During the past seven*

days, which of the following things did you do in order to lose weight or to keep from gaining weight? (check all that apply)”. Response items to this question included: dieting, exercising, making yourself vomit, taking diet pills, taking laxatives, other or none. Because the extent to which dieting and exercising were not specified with detailed follow up questions, these options were eliminated as methods of disordered eating behaviors and only included the latter four inappropriate weight loss behaviors in our analysis including “other” .

Statistical Analysis

All statistical analyses were conducted using STATA SE 9.0. Descriptive statistics were calculated to characterize the sample relevant to the aims of this study. Logistic regression models were created to assess the difference in odds of having a disordered eating behavior when comparing mixed race adolescents with their single race counterparts. Other covariates—gender, socioeconomic status, age, and an interaction term combining gender and race categorization were added to the model.

Five models were made to detect differences between multiracial adolescents with each type of single race category: Caucasian, African-American, Asian, Latino, and Native American. The five models took the general form of:

$$\ln(\pi(x)/[1-\pi(x)]) = \alpha + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \beta_4x_4 + \beta_5x_1x_2$$

where

$\pi(x)$ = probability of having a disordered eating behavior

α = intercept

x_1 = race category

$x_2 = \text{gender}$

$x_3 = \text{socioeconomic status}$

$x_4 = \text{age}$

$x_1x_2 = \text{interaction between race and gender}$

Each model was run from Wave I of Add Health. After models were run, the Wald test statistics for race and race/gender interaction were tested with $\alpha = 0.05$ level of statistical significance. These variables were tested specifically to determine whether multiracial identification status impacts the odds of engaging in disordered eating behavior.

Racial sub-group analyses were conducted on the data in order to determine whether multiracial adolescents were behaving marginally to their “composite” single race counterparts. Proportions of disordered eating behaviors were calculated for each single race as well as all of the possible two-way multi-races. These proportions were then compared to see if the proportions of disordered eating behaviors for multiracial adolescents of a certain combination were “in between” the proportions of the composite single races.

Results

Sample Description

Table 3.1 describes the study sample, which was restricted to those participants who self-identified as more than one race (multiracial) or any single race category. It consisted of 20,743 participants (mean age = 15.23, SD = 1.74), including 1,680 multiracial/mixed race (8.1%); 10,455 Caucasian (50.4%); 4,372 African American

(21.1%); 2,787 Latino (13.4%); 1,334 Asian/Pacific Islanders (6.4%); and 115 American Indian/ Native American (0.5%). It is noted that in this study sample, there are a sufficient number of individuals identifying as more than one race (multiracial).

Risk Ratios among racial groups in Disordered Eating Pathology

Table 3.2 summarizes the odds ratios for disordered eating behaviors found between multiracial adolescents and single race counterparts. Multiracial adolescents were more likely to have a disordered eating behavior than Caucasian adolescents (RR =1.48; 95% CI = 1.11, 1.95). Compared to African-Americans, multiracial adolescents were 68% more likely to engage in disordered eating (RR= 1.68; 95% CI = 1.21, 2.35). Additionally, when compared to Latina adolescents, mixed race adolescents were 45% more likely to have engaged in a disordered eating behavior (RR= 1.45; 95% CI = 1.01, 2.10). An insufficient sample size for Native-Americans to characterize the odds of disordered eating behaviors was not available from this sample. The comparisons between Asians and Native Americans were statistically insignificant. The other covariates which were controlled for: age, socioeconomic status, gender, and race by itself showed to be statistically non-significant.

Racial Differences in Disordered Eating Pathology

Table 3.3 shows the prevalence estimates of disordered eating behaviors among all participants stratified by racial/ethnic categories and multiracial sub-categories. Comparisons between single race groups and multiracial adolescents demonstrate that

multiracial adolescents have the highest prevalence (6.6 %) of engaging in disordered eating behaviors compared to all single racial categories. Latino, Asian and African American adolescents, followed in prevalence rates, while only 4.8% of Caucasians reported disordered eating behaviors. A multiracial subgroup analysis was conducted to further examine the behavior of the mixed race population in this sample. Of note, are the higher prevalence of disordered eating practices among multiracial subgroups that is composed of Caucasian ethnicity. For example, adolescents who identified as Caucasian-African American have a 6.2% point prevalence of engaging in disordered eating behaviors. Multiracial adolescents that identified as part Native American also exhibited higher prevalence of disordered eating patterns; for example Asian-Native American adolescents had a 11.0 % prevalence of disordered eating pathology.

Table 3.4 describes the pairwise comparisons and chi-squared (X^2) analysis between multiracial and single race adolescents, with Bonferonni corrections applied. A chi-squared test was conducted to assess overall group difference between races and disordered eating behaviors. Pearson chi-squared results showed a statistically significant difference between at least two groups, where $X^2 = 11.9072$, $df=5$, $p \text{ value}=0.036$. Results indicate that differences between multiracial adolescents are statistically significant at the $\alpha = 0.05$ level for single race Caucasians ($p=0.0001$), African Americans ($p=0.0001$), Asians ($p=0.0035$), and Native Americans ($p=0.0095$).

Discussion

Overall, results from this study suggest that multiracial adolescents are more likely to engage in disordered eating behaviors than single race adolescents, as well as a

higher risk of engaging in disordered eating behaviors. A major finding from this study is the discovery of the overall prevalence of disordered eating among adolescents that identify themselves as multiracial compared to single race adolescents in a national sample. Contrary to previous literature in eating disorders, analysis from Add Health Wave I shows that White/Caucasian adolescents do not exhibit the highest overall prevalence of disordered eating behaviors as reported in previous eating disorder literature, and that multiracial adolescents engage in eating disorder behaviors at a higher rate than all single race groups. These findings are significant because previous eating disorder literature documents the high prevalence of clinically diagnosed to be among Caucasian/White adolescents (Abrams et al., 1993) , and are therefore assumed to also engage in a higher prevalence of eating disorder symptomatology.

Another finding of note in this study is the high prevalence among Native American adolescents of engaging in disordered eating behaviors. Due to small sample size in the sample population, results for Native Americans are statistically non-significant but warrant further investigation into this special population. When examined from a multiracial subgroup analysis, the highest prevalence rates of disordered eating behaviors occur in those racially mixed with Native American ethnicity. The racial subgroup analysis from this study also indicates that adolescent populations with a Caucasian mixed heritage exhibit high rates of eating disorder behaviors. Additionally, other racial/ethnic minority groups, such as Asian, African-American and Latino population prevalence rates of disordered eating behaviors are also worthy of note in that they are consistently higher than the Caucasian demographic group in this study

population. Results from this study indicate that minority race/ethnicity status among adolescents in the United States yields a higher likelihood of engaging in disordered eating behaviors in order to lose weight when compared to Caucasian adolescents. This may indicate that the stressors of being a minority adolescent in the United States result in unhealthy coping styles, such as disordered eating behaviors. Perhaps racial stereotypes are at play in the clinical environment when diagnosing eating disorders, where Caucasians are exclusively assumed to be driven toward the American ideals of thinness, and other cultural minority groups are inoculated from these disorders due to their culture's different views of attractiveness. However, these preconceptions could impede proper awareness, diagnosis, and treatment of eating disorders in racial/ethnic minority groups.

Furthermore, this study draws attention to the impact of mixed race/ethnicity on disordered eating behaviors. In this study, multiracial adolescents are at higher risk of engaging in disordered eating pathologies, which confirms previous behavioral research that multiracials are racial outcasts and the commensurate stress brought about by their rejection from social circles explains their psychological disequilibrium (Cooney and Radina 2000; Johnson and Nagoshi 1986; Vivero and Jenkins 1999). Studies suggest that the stress induced by forming a mixed-race identity explains their poor mental health status in addition to their negative coping behavior. In general, adolescents who reported more than one race are more likely to engage in risky health behaviors such as smoking and substance abuse compared to single-race groups (Milan and Keiley 2000). Scholars postulate that rebellious behavior serves as a means for which multiracials gain attention

and acceptance from racially homogeneous peer groups (Cooney and Radina 2000), since prior research finds that multiracials tend to experience feelings of exclusion from extracurricular activities and social circles of single race groups (Gibbs 1987). One theory that may possibly explain the detrimental health behaviors of multiracial adolescents is The Marginal Man Theory, which posits that a multiracial individual lacks a “racial/ethnic home”, participating in the life of two cultural identities without identification to either group (Parks, 1928).

Broadly, the findings from this analysis suggest that mixed racial/ethnic minority identification suggests more frequent harmful weight control behaviors than Caucasian adolescents. Multiracial adolescents, an emerging minority demographic group in the United States, also demonstrated disordered eating behaviors at a higher prevalence when compared to their single race counterparts. This study shows that racial/ethnic minority adolescents do engage in disordered eating behaviors, though detection may be suboptimal and not always to DSM-IV criteria standards.

The purpose of this study was to examine the prevalence of eating disorder behaviors among the multiracial population in the United States in comparison to other major racial and ethnic groups. The findings from this investigation identify the importance of racial identity in disordered eating behavior, particularly among a population that identifies with more than one race (multiracial). Given that by the year 2050, demographers anticipate that one in four Americans could self-identify with more than one race (Farley 2001) future investigations into health behavior of this unique demographic group will become essential to understanding the etiology of eating

disorders in diverse racial and ethnic groups. This study also draws attention to the importance of identifying risky behaviors that lead to eating disorders in minority racial/ethnic groups and in the prevention in eating disorder development which goes commonly undetected until a clinical diagnosis. In sum, this study suggest that multiracial adolescents are currently a severely under-researched, at-risk population in the field of eating disorders, that warrants further research into this growing demographic.

Limitations

The Add Health data was not intended to study disordered eating pathology or eating disorders. Therefore, the operationalization of disordered eating was limited to a single item indicator and four evidence based criteria that defined ‘disordered eating’ behavior in accordance with the DSM-IV criteria. This study assessed the point prevalence (within the past 7 days) of disordered eating behaviors and underestimates the overall lifetime prevalence of adolescents and disordered eating behaviors. This study was cross-sectional in nature, and was limited to the self-report of study participants. However, these limitations are off-set by several strengths including the rigorous sampling frame of the Add Health data set in order to ensure a representative sample of adolescents in the United States. The data collection method increases the accuracy of sensitive questions through direct computer data entry by the study participants.

Findings from this study have potential impact on future research across the fields of eating disorder, sociology and public health research. In health prevention research and practice, it is imperative to be cognizant of predisposing risk factors, such as racial and

ethnic self-identification, which can have profound impacts on health outcomes and behavior. Studies are needed in examining disordered eating behaviors and trends among multiracial adolescents through longitudinal analyses. Further investigations into the importance of race/ethnicity and disordered eating should be probed in mixed race populations through qualitative data collection methods to further comprehend the impact of minority racial/ethnic status on disordered eating behaviors.

Table 3.1: Descriptive Statistics of Respondents by Race, National Study of Adolescent Health, Wave I

Gender	Caucasian	African American	Hispanic/Latino	Asian/Pacific Islander	Native American	Multiracial	Total (N)
Male	5,176	2,092	1,409	705	59	808	10,249
Female	5,279	2,280	1,378	629	56	872	10,494
N	10,455	4,372	2,787	1,334	115	1,680	20,743

Table 3.2: Estimated Risk Ratios of disordered eating behaviors between multiracial and single race/ethnicity groups

	Odds Ratio	95% Confidence Interval
Single Race Identification	1.00	
Multiracial vs. Caucasian	1.48*	[1.11,1.95]
Multiracial vs. African-American	1.68*	[1.21,2.35]
Multiracial vs. Asian	1.25	[0.78, 1.99]
Multiracial vs. Native American	0.81	[0.35, 1.90]
Multiracial vs. Latino	1.45*	[1.01,2.10]
*: p-value is < 0.05		

Table 3.3: Prevalence Analysis of Multiracial Adolescents in Comparison to Single Race and Multiracial sub-categories

Ethnicity	Prevalence						
	n	Multiracial	Caucasian	African American	Asian	Native American	Latino
Overall Racial Prevalence		6.6	4.8	5.2	5.5	3.3	6.2
Caucasian – African American	207	6.2	4.8	5.2	--	--	--
Caucasian -Asian	165	5.4	4.8	--	5.5	--	--
Caucasian -Native American	355	7.1	4.8	--	--	3.3	--
Caucasian -Latino	452	4.9	4.8	--	--	--	6.2
African American-Asian	40	0	--	5.2	5.5	--	--
African American-Native American	159	8.7	--	5.2	--	3.3	--
African American-Latino	138	5.0	--	5.2	--	--	6.2
Asian-Native American	20	11.0	--	--	5.5	3.3	--
Asian-Latino	54	6.7	--	--	5.5	--	6.2
Native American-Latino	90	9.2	--	--	--	3.3	6.2

Table 3.4: Pairwise comparisons of Disordered Eating Behaviors Between Races¹

Comparison	\hat{p} difference	z-score	p-value
Multiracial vs. Caucasian	1.80%	5.05	< 0.0001*
Multiracial vs. African-American	1.40%	4.03	<0.0001*
Multiracial vs. Latino	0.40%	1.78	0.0751
Multiracial vs. Asian	1.10%	2.7	0.0035*
Multiracial vs. Native American	3.30%	2.35	0.0095*

1 : Bonferroni Corrections applied, $\alpha = (.05/5) = 0.01$

* : Statistically significant at $\alpha = 0.01$

References

1. Abrams, K. K., Allen, L. R., & Gray, J. J. (1993). Disordered eating attitudes and behaviors, psychological adjustment, and ethnic identity: a comparison of black and white female college students. *The International journal of eating disorders*, 14(1), 49–57. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/8339099>
2. Bachman JG, Safron DJ, Sy SR, Schulenberg JE. Wishing to work: New perspectives on how adolescents' part-time work intensity is linked to educational disengagement, substance use, and other problem behaviours. *International Journal of Behavioral Development*. 2003 July: 27(4): 301-315
3. Bearman, PS., J. Jones, and J. R. Udry. 1997 “Connections Count: Adolescent Health and the Design of the National Longitudinal Study of Adolescent Health.”
4. Cooney TM, Radina ME. Adjustment problems in adolescence: are multiracial children at risk? *Am J Orthopsychiatry*. 2000 Oct;70(4):433-44.
5. Farley, R. (2001) *Identifying with multiple races. Report*. (2001). (pp. 01–491). Ann Arbor, MI.
6. Gibbs, J. T. (1987). Identity and marginality: issues in the treatment of biracial adolescents. *The American journal of orthopsychiatry*. Retrieved from <http://doi.wiley.com/10.1111/j.1939-0025.1987.tb03537.x>
7. Gilbert, S. C. (2003). Eating Disorders in Women of Color. *Clinical Psychology Science and Practice*, 10(4), 444–455. doi:10.1093/clipsy/bpg045
8. Harris, K.M., C.T. Halpern, E. Whitsel, J. Hussey, J. Tabor, P. Entzel, and J.R. Udry. 2009. The National Longitudinal Study of Adolescent Health: Research Design [WWW document]. URL: <http://www.cpc.unc.edu/projects/addhealth/design>.
9. Johnson, R. C., & Nagoshi, C. T. (1986). The Adjustment of Offspring of Within-Group and Interracial/Intercultural Marriages: A Comparison of Personality Factor Scores. *Family Relations*, 48(2), 279–284. Retrieved from <http://libproxy.temple.edu:2122/stable/352395>

10. Lusk, E. M., Taylor, M. J., Nanney, J. T., & Austin, C. C. (2010). Biracial Identity and its relation to Self-Esteem and Depression in Mixed Black/White Biracial Individuals. *Journal of Ethnic & Cultural Diversity in Social Work*. 19:109-126
11. Milan, S. and M. Keiley. 2000. "Biracial youth and families in therapy: Issues and interventions." *Journal of Marital and Family Therapy* 26 (3):305–366.
12. Park, R. E. (1928). Human migration and the marginal man. *American Journal of Sociology*, 33(6), 881–893. Retrieved from <http://www.jstor.org/stable/2765982>
13. Ramchand R, Elliott MN, Mrug S, Grunbaum JA, Windle M, Chandra A, Peskin MF, Cooper SP, Schuster MA. Substance use and delinquency among fifth graders who have jobs. *Am J Prev Med*. 2009 Apr;36(4):297-303.
14. Rockquemore, KA. Brunsma DL. Delgado DJ. Racing to Theory or Rethorizing Race? Understanding the Struggle to Build a Multiracial Identity Theory. *Journal of Social Issues*, 2009. 65(1): 13-34
15. Root MPP. (1996). The multiracial experience: Racial border as a significant frontier in race relations. In MPP Root (Ed.), *The multiracial experience: Racial borders as a new frontier* (ppxiii-xxviii). Thousand Oaks, CA: Sage Publications.
16. Striegel-Moore RH, Rosselli F, Holtzman N, Dierker L, Becker AE, Swaney G. Behavioral symptoms of eating disorders in Native Americans: results from the ADD Health Survey Wave III. *Int J Eat Disord*. 2011 Sep;44(6):561-6.
17. Udry JR, Li RM, Hendrickson-Smith J. Health and behavior risks of adolescents with mixed-race identity. *Am J Public Health*. 2003 Nov;93(11):1865-70.
18. United States Census Bureau. *2006 American Community Survey*. Retrieved 2008-01-30.
19. Vivero, V. N., & Jenkins, S. R. (1999). Existential hazards of the multicultural individual: defining and understanding “cultural homelessness”. *Cultural diversity ethnic minority psychology*, 5(1), 6–26. Retrieved from <http://psycnet.apa.org/journals/cdp/5/1/6/>
20. Wu LT, Schlenger WE, Galvin DM The relationship between employment and substance use among students aged 12 to 17. *J Adolesc Health*. 2003 Jan;32(1):5-15.

CHAPTER 4

STUDY 2: DISORDERED EATING AND BODY IMAGE AMONG NATIVE BORN AND AMERICAN BORN ASIAN FEMALES

Summary

The Asian population in the United States is a growing demographic and although generally classified together, is a group that is uniquely diverse, and requires further investigation into disordered eating behaviors. This study examined and compared the prevalence of body image dissatisfaction and disordered eating behaviors of East Asian females born in the United States (U.S. Asians) to foreign born East Asian females (foreign Asians) as well as the impact of acculturation and Asian identity on the development of disordered eating behaviors. Results from this study indicate an interesting difference between Asian females born in the United States compared to recent immigrants in body dissatisfaction and disordered eating behaviors. Additionally, subgroup differences between East Asian females are also apparent. This is one of the first studies to exclusively examine body image, body dissatisfaction and disordered eating behaviors in an East Asian female population.

Introduction

According to United States Census data, Asian Americans are the fastest growing minority group in the United States. The 2010 U.S. Census declares that a total of 17,320,856 Asian Americans are currently residing in the United States. Asian Americans make up 5.6% of the total American population according to the current Census (United States Census Bureau, 2011). Among the largest subgroups of Asians in the United States are Asian of Eastern ethnicity; including: Chinese (2.7 million), Korean (1.7 million), Japanese (1.3 million) and Taiwanese (230,000). The U.S. Census has indicated that the Asian population has experienced the largest growth of all minority groups in the United States between 2000 and 2010 (United States Census Bureau, 2011)

According to public health research, as immigrant populations migrate to the United States, Western health behaviors and lifestyles are adopted (Satia-Abouta 2002). Across cultures, immigrants practice healthier lifestyle choices than American born counterparts (Gomez 2004). However, research indicates that after a certain amount of time residing in the United States, these immigrants begin to imitate their American born counterparts in dietary lifestyle and habits (Yu, 2003; Yeh, 2003; Akresh, 2007). What is yet to be determined, is if attitudinal of the Western thin-ideal, and eating pathology behaviors has an impact on immigrants compared to counterparts born in the United States. Despite the growing population of Asians in the United States, eating disorder and body image literature lags behind in research targeted at examining body image dissatisfaction and disordered eating behaviors among this particular demographic group.

The purpose of this study is threefold, (1) to determine if U.S. born East Asian females have higher body dissatisfaction than foreign born East Asian females (2) to determine the prevalence of disordered eating in a sample of foreign and US born East Asian females. (3) and to assess the difference between levels of Asian identification, body dissatisfaction and disordered eating behaviors.

Methods

Participants

Data from this study were drawn from the East Asian female student population at a large southeastern University in the United States. Data collection occurred over a 6 week period via an internet survey and snowball sampling method on campus through advertisements and word of mouth. Desired sample size was calculated using Fisher's Exact test in order to detect a 60% prevalence in U.S. - Asians and 40% in foreign-Asians. It was determined that a sample size of at least $N=34$ ($n_{\text{asian born}}=17$ and $n_{\text{U.S. born}}=17$) would detect 80% power with an alpha 0.05 (Dupont and Plummer, 1997). The actual sample size obtained for this study was $N=63$ ($n_{\text{foreignborn}}=33$ and $n_{\text{U.S. born}}=30$).

Procedure

A 55-item internet questionnaire (Appendix B) was advertised and distributed to student cultural organizations aimed at the target demographic (Chinese, Korean, Taiwanese, and Japanese) groups through an introductory presentation at organization meetings, followed by distribution of an informational flyer (Appendix C). Organizations consisted of undergraduate and graduate student organizations. Six different student

organizations were specifically targeted for the purposes of this study. The survey software program (Survey Monkey) that was used was able to prevent multiple submissions from duplicates from the same internet provider (IP) addresses.

Measures

Acculturation & Asian Identity

Acculturation to Western culture and Asian identity were measured using the Suinn-Lew Asian Self-Identity Acculturation Scale (SL-ASIA) (see Appendix A). Suinn, et al. developed the original SL-ASIA in 1987 as a self-report measure. The original SL-ASIA has 26 multiple-choice items that address the following domains: language, behaviors, generation/geographic history and attitudes. A final acculturation score is then calculated by dividing the total value by 26. Acculturation levels on the SL-ASIA range between 1 and 5 with low having a range of 1 to 2.33 (Asian-identified), medium ranging from 2.34 to 3.66, and high from 3.67 to 5 (western-identified) (Suinn,1987). A study conducted by Ponterotto, Baluach and Carielli (1998) reviewed 16 studies that have used SL-ASIA for measuring acculturation. In terms of internal consistency, 12 of the studies report a Cronbach's Alpha ranging from 0.68 to 0.91 (six of the 12 studies found Cronbach's Alphas of .85 and above). For the original norming sample (N = 82 Asian students) Suinn (1992) reports a Cronbach's Alpha ranging from 0.83 to 0.91 indicating a high reliability of scores. For obtaining construct validity estimates Suinn, Ahuna, and Khoo (1992) used a factor analysis on the SL-ASIA using 324 Asian-American students from Colorado (137 first-generation, 76 second-, 31 third-, 26 fourth- and 14 fifth-generation participants) Their results indicated five interpretable factors accounting for

69.7 percent of the variance among the variables: Reading, Writing and Cultural Preference, Ethnic Interaction, Affinity for Ethnic Identity and Pride, Generational Identity and Food Preference.

Disordered Eating Behaviors

The Eating Attitudes Test (EAT-26) was used to determine the presence or risk of developing eating disorders (Appendix A). The Eating Attitudes Test (EAT) is a widely used self-report measure of eating disorders. It was developed by Garner and Garfinkel (1979) to examine symptoms of anorexia nervosa. The EAT-26, used in the present study, is based on the original Eating Attitudes Test (EAT-40). The reliability of the EAT-26 was examined in a pilot study in which fifty university students participated; the internal consistency (Cronbach's alpha) was 0.70 and the interclass correlation coefficient was 0.98. Participants with a score of 20 or above were placed in the "abnormal eating behavior" category and those scoring below 20 were categorized as "normal eating behavior" category (Garner, Olmstead, Bohr, & Garfinkel, 1982).

Body Image/ Body Satisfaction

The 7-item body factor from the Body Parts Satisfaction Scale- Revised (BPSS-R; Petrie, Tripp, & Harvey, 2001) measured the individuals' level of satisfaction by focusing on specific body areas (e.g., arms, stomach, upper thighs, buttocks, etc.) that women report as problematic (Appendix A). Items were rated on a 6-point scale, ranging from 1, *extremely dissatisfied*, to 6, *extremely satisfied*. Total scores were obtained by summing the subscale items and dividing by the number of subscale items and ranged from 1 to 6; where higher scores reflected greater satisfaction.

To further assess adoption of Western societal culture and ideals, The Sociocultural Attitudes Towards Appearance Questionnaire – Revised (SATAQ- R: Cusumano & Thompson, 1997: Appendix A) was used to measure the internalization and awareness of societal expectations regarding physical attractiveness. The SATAQ-R is a revised version of the original SATAQ (Heinberg, Thompson, & Stormer, 1995). It is a 21 item self-report measure used to assess women’s awareness (AWARE) and internalization (INTERNAL) of societal ideals regarding physical appearance. The Awareness subscale consists of 11 items and had a coefficient alpha of 0.83. The Internalization subscale consists of 10 items and has a coefficient alpha of 0.89. In the current study the coefficient alphas were 0.87 for Internalization and 0.84 for Awareness. Higher scores on this scale reflect elevated body image dissatisfaction.

Objectification

The Self-Objectification Questionnaire assesses the extent to which individuals view their bodies in observable, appearance-based (objectified) terms versus non-observable, competence-based (non-objectified) terms. The Self-objectification Questionnaire asks respondents to rank a list of body attributes in ascending order of how important each body part is to their physical self-concept, from that which has the most impact (rank = 1) to least impact (rank = 12). Twelve body attributes are listed: six that are appearance based (physical attractiveness, coloring, weight, sex appeal, measurements, and muscle tone) and six that are competence based (muscular strength, physical coordination, stamina, health, physical fitness, and physical energy level). Scores are computed by summing the ranks for the appearance and competence attributes

separately, then computing a difference score. Scores range from -36 to 36, with higher scores reflecting a greater emphasis on appearance, which are interpreted as greater self objectification.

The Self-objectification Questionnaire demonstrates satisfactory construct validity (Noll, 1996). Scores on the questionnaire correlate positively with scores on (a) the Appearance Anxiety Questionnaire (Dion, Dion, & Keelan, 1990), which assesses preoccupation with observable aspects of the physical self ($r = 0.52, p < 0.01$); and (b) the Body Image Assessment (Williamson, Davis, Bennett, Goreczny, & Gleaves, 1985), a measure of individuals' body-size dissatisfaction ($r = 0.46, p < 0.01$) (Noll, 1996). These correlations suggest that the Self-objectification Questionnaire does indeed tap into preoccupation with appearance, yet is not equivalent to these other related constructs. In particular, the moderate correlation with body dissatisfaction is consistent with the assertion that self-objectification is not limited to women who are dissatisfied with their physical appearance.

Demographic Information

In order to characterize the sample, basic demographic information related to country of origin, nationality, age, height and weight, in addition to student status was asked in order to glean further insight into the sample population. Height and weight were used to calculate body mass index in order to assess the overall physical health of the sample population.

Statistical Analysis

All statistical analyses were conducted using STATA 11.0 IC. Descriptive statistics were calculated to characterize the sample population. Bivariate analyses were conducted to assess the relationship in body image satisfaction, disordered eating, and self-objectification behaviors between Asian-born and U.S-born female Asian university students. Similarly, this technique was performed between East Asian subgroups and Asian identification. Simple means and frequency distributions were used to assess specific body parts dissatisfaction among sample participants.

Results

Sample Description

Table 4.1 describes the study sample, of self identified East Asian females. The sample consisted of 63 participants (\bar{x} age = 22.40 SD = 3.674), including 14 Chinese (22.23%); 11 Korean (17.46%); 22 Taiwanese (34.92%); and 16 Japanese (25.39%) females. The sample was evenly dispersed between undergraduate (50.85 %) and graduate students (49.23%). 47.62% of the sample was born in the United States. The average body mass index (BMI) of this population was within a “normal” weight range (CDC, 2005) at 20.73 (SD= 3.71). Korean participants exhibited the highest EAT-26 score among all East Asian ethnicities in this sample (\bar{x} = 39.42 SD = 6.54).

Asian Identity, Disordered Eating, Objectification and Sociocultural Attitudes Towards Appearance

Table 4.2 shows the differences in disordered eating behaviors (EAT-26), objectification and sociocultural attitudes towards appearance (SATAQ-R) between U.S.

born East- Asians and foreign born East Asians. U.S. - Asian females had a higher BMI ($\bar{x} = 23.27$ SD= 4.75) compared to foreign Asians. American born East Asian females scored higher overall on the EAT-26 assessment ($\bar{x} = 33.44$ SD=3.75) than foreign Asians ($\bar{x} = 20.26$ SD=3.42), as well as on all EAT-26 subscales. Sociocultural Attitudes towards Appearance scores also differ between the two groups on both subscales of thin ideal internalization (INTERNAL) and awareness (AWARE). East Asian females born outside the United States have lower internalization and awareness of the thin ideal when compared to U.S. born East Asian females. Objectification differed between the two groups, where U.S. born East Asians had lower overall average of self objectification when compared to foreign born East Asian females ($\bar{x} = -5.60$ SD=1.82).

Table 4.3 compares levels of acculturation and Asian identity in relation to disordered eating (EAT-26), self-objectification and sociocultural attitudes (SATAQ-R). 42.5 % of the sample identified as “low” Asian identity, meaning a higher association with Western cultures, values and lifestyle. Higher disordered eating behaviors occurred among individuals with having a “low” Asian identification with an average EAT-26 score of $\bar{x} = 31.33$ SD= 4.07. High levels of self-objectification ($\bar{x} = 1.00$ SD= 5.12) was observed among participants with “medium” Asian identity ($\bar{x} = 1.00$ SD= 5.12).

Body Parts Dissatisfaction

Table 4.4 summarizes the prevalence of body parts dissatisfaction among East Asian females in this sample. Overall, East Asian females had elevated body part dissatisfaction concerning overall facial features (34.1 %) and complexion (25.0%).

Weight (34.1%), upper thighs (32.6%), arm and general muscle tone (29.5%) are also noted to be of high dissatisfaction among this population sample. Hair features had the highest level of satisfaction among East Asian females in this sample.

Discussion

Results from this early, pilot study yielded several noteworthy results in the area of body image dissatisfaction and disordered eating in a growing minority population in the United States. Analysis from this study indicates the significant differences between East Asian females born in the United States and East Asian females born outside the United States. Consistent with previous literature on acculturation and Western identity, the East Asian females who were born in the United States, had a higher body image dissatisfaction and disordered eating behaviors than their counterparts born outside the United States.

Among the different East Asian nationalities, Korean, Chinese and Japanese females had higher disordered eating behaviors than Taiwanese females in the sample. It is important to note that, each East Asian nationality in this sample was above the threshold score of disordered eating pathology behavior, with the exception of Taiwanese females in this sample. However, the overall sample had an above threshold EAT-26 score. These findings allow us to discern differences in disordered eating behaviors and patterns among different East Asian nationalities and begin to determine the predisposing factors behind the nationalities and societies with higher disordered eating patterns. It has been suggested in previous literature that Western media influence has a large impact on non-Westernized societies (Holmqvist 2010). This is consistent with our results where

females of highly Westernized countries of Korea , China and Japan have elevated EAT-26 results; compared to Taiwan where geographical location serves as a large role in the limited influence of Western culture (Chan, 1994), and also due to the large foreign born sample of Taiwanese participants.

When the sample was dichotomized to reflect nativity to the United States, the U.S. Born Asians and Foreign Born Asians, were similar in regards to BMI, but differed on disordered eating pathology, body image dissatisfaction measures, and self-objectification. This suggests that although physically these two groups are similar, they did differ on eating behaviors. East Asian females who were born in the United States exhibited a markedly higher overall EAT-26 average score, when compared to the foreign born Asians. Additionally, U.S. born- East Asians have a significantly higher average than foreign Asians on the “dieting” subscale of the EAT-26, meaning that U.S. Asians are engaging in dieting behaviors more than foreign born Asians in order to lose weight. U.S. born- East Asians are on average, higher on the bulimia and oral control subscales of the disordered eating measure; indicating that American born Asians are more preoccupied with food , oral control and, have more bulimic symptoms than foreign born Asians.

In this study, U.S. born Asian females had higher average scores on both internalization and awareness compared to Foreign-Asian females. Thin-ideal internalization refers to the extent to which an individual cognitively accepts socially defined ideals of attractiveness and engages in behaviors designed to produce an approximation of these ideals (Thompson et al., 1999). These internalized attitudes are

closely linked with body dissatisfaction, a significant predisposing factor behind eating disorder behaviors. From these results, we can glean that Western ideals have had a profound impact on Asian females originally from the United States, compared to Asian females born outside the United States and not heavily influenced by Western ideals and values.

Female objectification is based upon the objectification theory (Noll & Fredrickson, 1996) principle that women develop the primary view of their physical selves from observations of others; including media sources and personal experiences. Self objectification results for this study reveal that foreign- Asian females have higher self objectification than U.S. Asians. These results are contrary to the hypothesis, that due to a cumulative lifetime of Western culture exposure, U.S.-Asians would have higher self objectification than those born outside of the U.S. and presumed to have spent less time in a Westernized society. One possible explanation for this outcome may be that the Asian countries that the individuals are coming from are becoming increasingly influenced by Western media and culture. Another explanation for this phenomenon is that perhaps U.S. born – East Asian females have become normalized to the Western cultural norms of female objectification, whereas foreign born East Asian females are more cognizant of the change in cultural values and norms when compared to their native cultures.

Categories of Asian identification were measured to reflect the acculturation of the sample to Western societal norms, and the impact on disordered eating, self objectification, and body dissatisfaction. Participants with low Asian identity

demonstrated elevated EAT-26 score, which indicates a presence of eating disturbance behaviors compared to those who identified as “moderate” or “high”. On self-objectification measures, individuals in the “moderate” category had the highest level of self-objectification traits. This was a common trend across all subscales of the EAT-26 measure of eating pathology behaviors. Females who had an elevated sense of Asian identity and closely identified with their Asian cultural values and lifestyle had the lowest trait self-objectification compared to “moderate” and “low” classifications. Although these results confirm our hypotheses that lower attachment to Asian culture and lifestyle yields higher disordered eating behaviors and trait self-objectification, it is interesting to note that “medium” Asian identity displayed higher self-objectification trait scores. Perhaps, this is a result of identifying with more than one cultural identity and adhering to both Eastern and Western cultural norms and values, which result in an increased awareness of the individual’s self body image and how it is being judged in a Western and Eastern cultural context. This is consistent with emerging literature on multiracial adolescent health behavior that exists between two or more ethnic backgrounds, resulting in detrimental health behaviors (Cooney 2000; Choi 2006; Udry 2003).

The examination of specific body parts revealed that this sample overall all was “dissatisfied” with a majority of their bodily features. However, a majority of the sample seemed to be satisfied with hair and complexion. These results reflect cultural values and differences between Western and Eastern ideals of female beauty. Eastern Asian cultural standards of beauty emphasize a light, clear complexion and defined facial features (Staley, 2011). These results are important to distinguish in body image studies among

different ethnicities and cultures, as cultural body ideal values vary and are not necessarily always similar to the “standard” White ideal of beauty and body image ideals.

Limitations

As a pilot study, this analysis is not without its limitations. This study was conducted through a non-random, “snowball” sampling method, and the small sample size of the study yielded larger standard deviations in the final results. Additionally, logistical issues contributed to a limited sample, as this study focused exclusively on a specifically defined population in a university setting which lacks ethnic diversity. Analytical strategies were limited to bivariate analyses due to the small and select sample size. Additionally, BMI and demographic information was collected through self-report via the internet which restricted accessibility to the study and serves as selection bias.

The limitations of this study are offset by several strengths. This is an early study of its kind to examine body image dissatisfaction, disordered eating behaviors, and self-objectification among an exclusively East Asian female population. This study is also novel in that it examines the impact of Asian cultural identification on predisposing factors that contribute to eating disorders.

Future research in eating disorder and body image research should continue to expand on research conducted among Asian populations in order to further understand the role of minority ethnicity and culture in a dominant culture related to disordered eating and body image dissatisfaction, and self-objectification. Because the term, “Asian” is quite general and spans across several ethnic categories, geographic locations and nationalities, research should continue expand and evaluate the diversity among the

ethnic group. Another interesting future endeavor is an exploration of disordered eating behaviors and body dissatisfaction among Asians currently living in Asia matched to their counterparts currently residing in the United States. Among this growing global population, there are many possibilities to explore in the behaviors of disordered eating. In depth qualitative research is also needed to supplement and support quantitative data collection.

Other implications for clinical and diagnostic research, from this study would be to create and pilot test an eating pathology instrument tailored to the Asian population, given differences in cultural practices, beliefs and appearance ideals.

Table 4.1: Sample Description and Demographics of East Asian Females

Nationality	Overall %	Age M (SD)	BMI M (SD)	EAT-26 Score M (SD)	Student Status (%)	
					Undergraduate	Graduate
Chinese(n=14)	22.23	23.28 (3.14)	21.71 (3.86)	38.58 (6.56)	7.93	14.28
Korean(n=11)	17.46	22.09 (3.22)	22.92 (3.93)	39.42 (6.54)	9.52	7.93
Taiwanese(n=22)	34.92	22.68 (3.07)	19.35 (3.51)	17.77 (5.91)	17.5	17.5
Japanese(n=16)	25.39	21.56 (3.31)	20.89 (2.87)	38.00 (9.96)	15.9	9.52
Total (N=63)	100%	22.40 (3.67)	21.21 (3.54)	26.94 (7.24)	50.85	49.23

Table 4.2 Descriptive on Disordered Eating (EAT-26) , Body Dissatisfaction (SATAQ-R) and Self Objectification for Two Samples

	U.S. Born Asian Females	Foreign Born Asian Females
	(n=30)	(n=33)
BMI	23.27 (4.75)	22.19 (3.66)
EAT-26	33.44 (3.75)	20.26 (3.42)
<i>Dieting</i>	15.03 (1.57)	9.70 (1.55)
<i>Bulimia & Food</i>	7.24 (0.97)	4.33 (0.83)
<i>Preoccupation</i>		
<i>Oral Control</i>	7.66 (1.07)	4.43 (1.00)
SATAQ-R		
<i>AWARE</i>	44.14 (5.85)	40.43 (6.23)
<i>INTERNAL</i>	37.33 (4.23)	32.14 (5.22)
Objectification	-5.60 (1.82)	-0.968 (3.86)

Table 4.3 Identity, disordered eating (EAT-26) and self-objectification traits

Asian Identity	High (n=24)	Moderate (n=13)	Low (n=26)
%	36.5%	20.0%	42.5%
EAT-26	22.13 (4.28)	26.31 (6.00)	31.33 (4.07)
<i>Dieting</i>	11.21 (1.88)	12.38 (2.65)	14.26 (1.77)
<i>Bulimia & Food</i>	5.375 (1.10)	5.92 (1.47)	6.48 (1.02)
<i>Preoccupation</i>	5.42 (1.21)	5.61 (1.76)	7.33 (1.18)
<i>Oral Control</i>			
Objectification	-3.50 (4.50)	1.00 (5.12)	-3.18 (2.49)

Table 4.4: Body Parts Satisfaction (BPSS-R) among East Asian Females

Feature	Extremely Dissatisfied	Somewhat Dissatisfied	Dissatisfied	Satisfied	Somewhat Satisfied	Extremely Satisfied
Weight	20.5 %	13.6%	34.1%	11.4%	18.2%	2.3%
Hair	4.5%	0	18.2%	31.8%	31.8%	13.6%
Complexion	6.8%	20.5%	25.0%	18.2%	20.5%	9.1%
Overall face	6.8%	6.8%	34.1%	25.0%	15.9%	11.4%
Arms	6.8%	18.2%	29.5%	27.3%	13.6%	4.5%
Stomach	20.5%	18.2%	25.0%	11.4%	18.2%	6.8%
Buttocks	13.6%	29.5%	22.7%	15.9%	11.4%	6.8%
Hips	15.9%	22.7%	27.3%	13.6%	15.9%	4.5%
Upper Thighs	18.6%	32.6%	23.3%	11.6%	9.3%	4.7%
General Muscle Tone	4.5%	29.5%	29.5%	20.5%	6.8%	9.1%

References

- Akresh, I. R. (2007). Dietary assimilation and health among hispanic immigrants to the United States. *Journal of Health and Social Behavior*, 48(4), 404–417. Retrieved from <http://hsb.sagepub.com/cgi/doi/10.1177/002214650704800405>
- Asian/Pacific American Heritage Month: May 2011:Facts for Features*. (2011). Washington, DC. Retrieved from http://www.census.gov/newsroom/releases/archives/facts_for_features_special_editions/cb11-ff06.html
- Chan, J. M. (1994). Media internationalization in China: Processes and tensions. *Journal of Communication*, 44(3), 70–88. doi:10.1111/j.1460-2466.1994.tb00689.x
- Cusumano, D. L., & Thompson, J. K. (1997). Body image and body shape ideals in magazines: exposure, awareness, and internalization. *Sex Roles*, 37(9-10), 701–721. doi:10.1007/BF02936336
- Garner, D. M., Olmsted, M. P., Bohr, Y., & Garfinkel, P. E. (1982). The eating attitudes test: psychometric features and clinical correlates. *Psychological Medicine*, 12(4), 871–878. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/6961471>
- Gomez, S. L., Kelsey, J. L., Glaser, S. L., Lee, M. M., & Sidney, S. (2004). Immigration and Acculturation in Relation to Health and Health-Related Risk Factors Among Specific Asian Subgroups in a Health Maintenance Organization. *American Journal of Public Health*, 94(11), 1977–1984. Retrieved from <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1448572&tool=pmcentrez&rendertype=abstract>
- Heinberg, L. J., Thompson, J. K., & Stormer, S. (1995). Development and validation of the Sociocultural Attitudes Towards Appearance Questionnaire. *The International journal of eating disorders*, 17(1), 81–9. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/7894457>
- Holmqvist, K., & Frisén, A. (2010). Body dissatisfaction across cultures: findings and research problems. *European eating disorders review the journal of the Eating Disorders Association*, 18(2), 133–146. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/19806598>
- Satia-Abouta, J., Patterson, R. E., Neuhouser, M. L., & Elder, J. (2002). Dietary acculturation: applications to nutrition research and dietetics. *Journal of the*

American Dietetic Association, 102(8), 1105–1118. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/12171455>

- Thompson, J. K., & Stice, E. (2001). Thin-Ideal Internalization: Mounting Evidence for a New Risk Factor for Body-Image Disturbance and Eating Pathology. *Current Directions in Psychological Science*, 10(5), 181–183. doi:10.1111/1467-8721.00144
- Tiggemann, M. (2004). Body image across the adult life span: stability and change. *Body Image*, 1(1), 29–41. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/18089139>
- Udry, J. R., Li, R. M., & Hendrickson-Smith, J. (2003, November). Health and behavior risks of adolescents with mixed-race identity. *American journal of public health*. Retrieved from <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1448064&tool=pmcentrez&rendertype=abstract>
- Yeh, C. J. (2003). Age, acculturation, cultural adjustment, and mental health symptoms of Chinese, Korean, and Japanese immigrant youths. *Cultural diversity ethnic minority psychology*, 9(1), 34–48. Retrieved from <http://doi.apa.org/getdoi.cfm?doi=10.1037/1099-9809.9.1.34>
- Yu, S. M., Huang, Z. J., Schwalberg, R. H., Overpeck, M., & Kogan, M. D. (2003). Acculturation and the health and well-being of U.S. immigrant adolescents. *Journal of Adolescent Health*, 33(6), 479–488. Retrieved from <http://linkinghub.elsevier.com/retrieve/pii/S1054139X03002106>

CHAPTER 5

CONCLUSIONS

Summary

In the interdisciplinary field of body image, eating disorders and public health, studies on a diverse population of race and ethnicities has not yet been fully explored. Primarily, the research has focused on a White/Caucasian, female population. Thus, the overarching goal of this dissertation was to address under-represented and growing racial minority groups in the United States on behaviors and attitudes related to disordered eating behaviors and body image issues.

In the first study, a national sample of adolescents was analyzed in order to estimate the prevalence and odds of disordered eating behaviors among multiracial adolescents and compare them to single-race adolescents in the United States. Results from this study were pioneering on several levels. First and foremost, it is one of the earliest studies in the fields of sociological, and public health literature to assess disordered eating behaviors in multiracial adolescents. These results revealed that individuals who identified with more than one race (multiracial) had higher prevalence compared to all single race groups on disordered eating behaviors. Furthermore, multiracial adolescents also had a higher risk of engaging in these detrimental weight loss behaviors compared to major racial/ethnic groups. Most notable, was the higher

prevalence of disordered eating behaviors of multiracial adolescents compared to Caucasian/White adolescents.

The second study explored the emerging demographic of East Asian female populations at a major university in the United States with issues on disordered eating behaviors, body image dissatisfaction, and self-objectification. A particularly interesting finding from this study was the observation that East Asian females who identified with a “moderate” level of Asian identification had, higher self-objectification and disordered eating behaviors than both highly Asian identified and low Asian identified participants. This finding can confirm the previous study’s results in this dissertation where a group of participants that identify with more than one culture experience disordered eating patterns at a higher prevalence than participants who identify more closely with one culture.

Overall Conclusions

Race and ethnicity serve as powerful measures in the field of public health and social science research. The scientific purpose of measuring race is to give meaning to human variation (Barnicot, 1964). Specifically, in public health the measurement of race/ethnicity allows for the identification of behavioral health patterns among population subgroups. Furthermore, when public health is put into practice through preventative programs, it gives meaning to tailoring intervention programs to specific demographic groups, in the hopes of increasing the success of the intervention and reduction of undesirable health behaviors and outcomes.

Findings from the aforementioned studies are particularly interesting, in that much of the eating disorder literature asserts that Caucasians have higher eating disorder

diagnoses than any other racial category and are presumed to engage in disordered eating behaviors more than other racial groups. This dissertation challenges the eating disorder literature in that minority and mixed race populations experience disordered eating and body image dissatisfaction at elevated rates as well and deserve attention in future research.

However, these findings in particular can confirm previous public health studies on multiracial individuals that exhibit elevated problem behaviors and psychological difficulties than single race individuals (Cheng, 2009). The Marginal Man Theory (Park, 1928) is also confirmed in these studies, as a theory that explains the behavioral outcomes related to disordered eating and body image dissatisfaction in these populations. The theory sets forth that an individual who participates only slightly in the life of two cultural groups without feeling identified with either group (Park, 1928) will view himself from multiple, conflicting, perspectives. According to Stonequist (1935), the marginal man's preference for the "recognition by the dominant race," together with his resentment of it, causes him to experience mixed emotions, which eventually lead to an ambivalence about himself, as well as about others and eventually detrimental health outcomes such as what is demonstrated in these studies: disordered eating and high body dissatisfaction.

Both of these aforementioned studies speak to the impact of racial and ethnic identification on disordered eating behaviors and body image dissatisfaction. In each study it was evident that racial or ethnic identity was a key factor in engaging in disordered eating behaviors or having elevated body image dissatisfaction. Particularly,

the participants that identified with more than one race (multiracial) or who were categorized as “medium” in the Suinn-Lew Asian Identification scale; demonstrated that a mixed racial/ethnic affiliation or identity had a profound detrimental impact on eating pathology behaviors and body image perception.

This study also explored self-objectification among “high”, “moderate” and “low” levels of Western acculturation. Findings were particularly interesting where the group of Asian females that identified with a “moderate” level of Asian identification had higher self-objectification average scores than those Asians that identified in the “low” or “high” categories of Asian identification. This finding however, does confirm the previous study completed in this dissertation where self-identified multiracial adolescents had higher prevalence of disordered eating than single race groups. The continuity in results from these two studies in this regard, add integrity and evidence to the new field of behavioral health literature of the multiracial population and mixed race identity.

Recommendations

Given the results from the studies conducted in this dissertation, both race/ethnic background and identification have a profound impact on eating disorder risk factors and behaviors. It is important for both the research community and clinical practitioners to be aware of these issues when implementing preventive health campaigns as well as treatment and diagnoses of eating disorders. Additionally, epidemiological research would benefit from large population datasets on both multiracial and Asian females in regards to abnormal eating pathology behaviors and body dissatisfaction. The fact that these populations have been largely neglected in eating disorder and body image

literature has stunted the area of research focused on these large and growing populations, and in turn impacted the priorities of health prevention in these demographic groups. In the first study conducted, a snapshot of disordered behavioral eating patterns has been depicted, but what is needed is further investigation of predisposing factors that lead to disordered eating behaviors such as body image dissatisfaction, thin-ideal internalization, and self-objectification in multiracial populations. The next step would be to collect longitudinal data from the Add Health data set and follow these multiracial individuals forward in time to observe whether disordered eating behaviors continues and whether clinical diagnoses of eating disorders develop. These factors should also be explored in a qualitative manner to understand the complete phenomenon in this population. Public health implications for this population include awareness among scholars, and practicing clinicians that this growing demographic group is at increased risk of exhibiting these detrimental health behaviors. From a community perspective, organizations who advocate on behalf of the multiracial population should become more familiar with health issues related to this group as well as taking preventative steps by providing cultural community health centers and events with information on eating disorders and appropriate local resources. In practice, clinicians should take into account the race and cultural background of their patients during counseling and diagnosis. The clinician should also be aware of cultural psychological conflict (Marginal Man Theory) that may contribute to these behaviors and utilize an appropriate and sensitive treatment plan.

Upon observation of East Asian females in the second part of this dissertation, much information can be applied to public health research and practical clinical settings.

From a population studies perspective, it is important to expand epidemiological research studies to include different parts of Asia's vast geographical definition in order to place into perspective where East Asian females lie on the spectrum of disordered eating, body dissatisfaction and self-objectification in the broad Asian population. Because Asia incorporates such a broad geographical area, it will be both interesting and useful to explore the entire demographic group as a whole to determine varying sociocultural factors and norms that may impact these behaviors. Furthermore, it will be important to also collect qualitative data from these Asian females to determine what specifically drives them to engage in these dangerous thoughts and behaviors, and to compare them to Western cultural ideals.

A larger population sample size from the Asian community would also yield interesting insights to disordered eating pathology and body image dissatisfaction. With larger sample sizes, epidemiological analysis could yield results that indicate a clearer impact of Western cultural influence on this population. Additionally, it would be interesting to assess positive and negative affect in this ethnic group, considering that Asians tend to have higher rates of mental illness than other race/ethnicities (Uba, 2003). Because perceived discrimination is a chronic stressor that impacts mental and physical health behaviors and outcomes that many racial/ethnic minority groups face (Mossakowski, 2003), it would also be interesting to account for the impact of cultural identity on body image perception and eating pathologies in Asian and multiracial populations. This also speaks to research amongst Asian communities and within the multiracial population, in that the strength of identification with an ethnic group is found

to be directly associated with fewer depressive symptoms (Phinney et al, 1992). The Asian American community also would benefit from this study, in advocating mental health treatment and prevention for both immigrants and U.S. born Asians. Currently, health services are the most underutilized among the Asian American group (Le-Meyer, 2009; Sorkin, 2011) and mental health services are severely underemployed by this particular population as well (Holk, 2010). Clinicians should also be aware of the different cultural factors and ideals that Asians present in a clinical setting when treating or diagnosing eating disorders.

Future Directions

In conclusion, these studies highlight the importance of racial identity and affiliation on eating disorder behaviors and body image perception in understudied racial minority populations. From an overall public health perspective, addressing issues in eating disorder and body image in growing racial and ethnic populations is imperative on two levels. First and foremost, from an eating disorders and body image perspective, research has primarily only been conducted on homogenous majority racial/ethnic groups. Caucasians dominate the literature on eating disorder and related research.

Scant amounts of research have been conducted on emerging populations that identifies with more than one race. However, since the U.S. Census now recognizes multiracial identity as its own racial subcategory and very little behavioral research has been done on this population; exploration into the sociological and behavioral aspects of multiracial populations. It is imperative that future research continue in both these demographic populations, as both will continue to increase in the years to come.

Recognition of multiracial as a demographic group has created a new avenue of research for social and behavior scientists who wish to explore the impact of racial identity on health behaviors. In the field of public health research, this adds meaning to population behaviors where an entirely new racial/ethnic category has yet to be explored in research and prevention.

Body image and eating disorder research adds to the body of literature in a field that largely focuses on Caucasian and majority racial and ethnic groups. Asian culture is interesting in that a large part of it today, remains intact and uninfluenced by Western media and culture. However, Western influence is rapidly influencing previous Non Westernized regions of the world through the rise of technology, mass and social media. From a public health perspective, despite being highly susceptible to detrimental mental health and wellness conditions, the Asian demographic group is often understudied when it comes to population research. Overall, a focus in eating disorder and body image research on these emerging demographic groups in the United States will help to understand how competing cultural norms and behaviors have an impact on this population and what can be done to improve the utilization of mental health care and outreach.

REFERENCES

- Allison, P.D. 1995. *Survival Analysis Using SAS: A Practical Guide*. Cary, NC: Wiley-SAS Institute.
- Allison, P.D. 2001. *Logistic Regression Using the SAS System: Theory and Application*: Wiley-SAS Institute.
- Allport, G.W. 1954. *Assimilation in American Life*. Cambridge, MA: Addison-Wesley Pub. Co.
- Amato, P.R. and J.G. Gilbreth. 1999. "Non-resident fathers and children's well-being: A meta-analysis." *Journal of Marriage and the Family* 61(3):557-573.
- Arnold, E.L. 1990. *Childhood Stress*. New York, NY: John Wiley & Sons, Inc.
- Ballew, C., L.L. White, K.F. Strauss, L.J. Benson, J.M. Mendlein, and A.H. Mokdad. 1997. "Intake of nutrients and food sources of nutrients among the Navajo: Findings from the Navajo Health and Nutrition Survey." *Journal of Nutrition* 127:S2085-S2093.
- Bond, L., J. Clements, N. Bertalli, T. Evans-Whipp, B.J. McMorris, G.C. Patton, J.W. Toumbourou, and R.F. Catalano. 2006. "A comparison of self-reported puberty using the Pubertal Development Scale and the Sexual Maturation Scale in a school-based epidemiologic survey." *Journal of Adolescence* 29(709-720).
- Bowman, S.A. 2006. "A comparison of the socioeconomic characteristics, dietary practices, and health status of women food shoppers with different food price attitudes." *Nutrition Research* 26(7):318-324.
- Bratter, J.L. and K. Eschbach. 2006. "'What about the couple?' Interracial marriage and psychological distress." *Social Science Research* 35(4):1025-1047.
- Buchanan, N.T. and C.A. Acevedo. 2004. "When face and soul collide: Therapeutic concerns with racially ambiguous and nonvisible minority women." *Women and Therapy* 27(1):119-131.
- Cauce, A., Y. Hiraga, C. Mason, T. Aguilar, N. Ordonez, and N. Gonzales. 1992. "Between a rock and a hard place: Social adjustment of biracial youth." Pp. 207-222 in *Racially Mixed People in America*. Newbury Park, California: Sage Publications.
- Chantala, K. 2003. "Introduction to Analyzing Add Health Data." in *Add Health Users Workshop National Institutes of Health*. Bethesda, MD.

- Chantala, K. and J. Tabor. 1999. "Strategies to Perform a Design-Based Analysis Using the Add Health Data." in *Add Health User Guides*. Chapel Hill, NC: Carolina Population Center.
- Clarkwest, A. 2006. "Premarital characteristics, selection into marriage, and African American marital disruption." *Journal of Comparative Family Studies* 37(3):361-+.
- Cooney, T.M. and M.E. Radina. 2000. "Adjustment problems in adolescence: are multiracial children at risk?" *American Journal of Orthopsychiatry* 70(4):433-444
- Cotton, S., L. Mills, P.A. Succop, F.M. Biro, and S.L. Rosenthal. 2004. "Adolescent girls' perceptions of the timing of their sexual initiation: "too young" or "just right"?" *Journal of Adolescent Health* 34(5):453-458.
- Cox, D.R. 1972. "Regression models and life-tables." *Journal of the Royal Statistical Society Series B-Statistical Methodology* 34(2):187-&.
- Cummins, S. and S. Macintyre. 2006. "Food environments and obesity--neighbourhood or nation?" *International Journal of Epidemiology* 35(1):100-104.
- Davis, K. 1941. "Intermarriage in caste societies." *American Anthropologist* 43(3):376-395.
- Dietz, W.H. and S.L. Gortmaker. 2001. "Preventing obesity in children and adolescents." *Annual Review of Public Health* 22(1):337-353.
- Dirks, R.T. and N. Duran. 2001. "African American dietary patterns at the beginning of the 20th century." *Journal of Nutrition* 131(7):1881-1889.
- Doyle, J.M. and G. Kao. 2007. "Friendship choices of multiracial adolescents: Racial homophily, blending, or amalgamation." *Social Science Research* 36 633-653.
- Doyle, J.M. and G. Kao. 2007. "Are racial identities of multiracials stable? Changing racial self-identification among single and multiple race individuals over time." *Social Psychology Quarterly*.
- Drewnowski, A. and S.E. Specter. 2004. "Poverty and obesity: the role of energy density and energy costs." *American Journal of Clinical Nutrition* 79(1):6-16.
- Eisenmann, J.C., P.T. Katzmarzyk, D.A. Arnall, V. Kanuho, C. Interpreter, and R.M. Malina. 2000. "Growth and overweight of Navajo youth: secular changes from 1955 to 1997." *International Journal of Obesity* 24(2):211-218.
- Erickson, E. 1968. *Identity Youth and Crisis*. New York, NY: Norton.

- Farley, R. 2002. "Race reporting in the Census of 2000: How do multiracial groups compare to monoracial groups on key characteristics?" in *PSC Research Report*. Ann Arbor, MI: University of Michigan.
- Felmlee, D., S. Sprecher, and E. Bassin. 1990. "The dissolution of intimate relationships: A hazard model." *Social Psychology Quarterly* 53(1):13-30.
- Ford, K. and M. Zelnik. 1981. "Sexual behaviour and contraceptive use among socioeconomic groups of young women in the United States." *Journal of Biosocial Science* 13(1):31-46.
- Fu, X. 2006. "Impact of socioeconomic status on inter-racial mate selection and divorce." *Social Science Journal* 43(2):239-258.
- Gallup-Black, A. and B.C. Weitzman. 2004. "Teen pregnancy and urban youth: competing truths, complacency, and perceptions of the problem. ." *Journal of Adolescent Health* 34(5):366-375.
- Gass, K., J. Jenkins, and J. Dunn. 2007. "Are sibling relationships protective? A longitudinal study." *Journal of Child Psychology and Psychiatry* 48(2):167-175.
- Gibbs, J.T. 1989. "Identity and marginality: Issues and treatment of biracial adolescents." *American Journal of Orthopsychiatry* 57:265-278.
- Gibbs, J.T. and G. Moskowitz-Sweet. 1991. "Clinical and cultural issues in the treatment of biracial and bicultural adolescents." *Families in Society* 72(10):579-592.
- Gillem, A.R. and C.A. Thompson. 2004. "Introduction: Biracial women in therapy: Between the rock of gender and the hard place of race." *Woman in Therapy* 27(1):1-18.
- Glasser-Sandrino, G. 2003. *Los Confundidos: De-conflating Latinos/as' race and ethnicity*. New York City: New York University Press.
- Goodman, E. 1999. "The role of socioeconomic status gradients in explaining differences in US adolescents' health." *American Journal of Public Health* 89(10):1522-1528.
- Goodman, E. and J. Capitman. 2000. "Depressive symptoms and cigarette smoking among teens." *Pediatrics* 106:748-755.
- Gordon-Larsen, P., L.S. Adair, M.C. Nelson, and B.M. Popkin. 2004. "Five-year obesity incidence in the transition period between adolescence and adulthood: the National Longitudinal Study of Adolescent Health." *The American Journal of Clinical Nutrition* 80(3):569-575.
- Gordon, M. 1964. *Assimilation in American Life*. New York, NY: Oxford University Press.

- Gullickson, A. 2006. "Education and black-white interracial marriage." *Demography* 32(4):673-689.
- Hall, R.E. 2001. "Identity development across the lifespan: A biracial model." *The Social Science Journal* 38(1):119-123.
- Halpern, C.T., D. Hallfors, D.J. Bauer, B. Iritani, M.W. Waller, and H. Cho. 2004. "Implications of racial and gender differences in patterns of adolescent risk behavior for HIV and other sexually transmitted diseases." *Perspectives on Sexual and Reproductive Health* 36(6):239-247.
- Hamermesh, D.S. and J.E. Biddle. 1994. "Beauty and the labor market." *American Economic Review* 84(5):1174-1194.
- Hargreaves, M.K., D.G. Schlundt, and M.S. Buchowski. 2002. "Contextual factors influencing the eating behaviours of African American women: a focus group investigation." *Ethnicity & Health* 7(3):133-147.
- Harris, D.R. 2002. "Does it matter how we measure? Racial classification and the characteristics of multiracial youth." in *The New Race Question: How the Census Counts Multiracial Individuals*, edited by J.P.a.M.C. Waters. Thousand Oaks, CA: Russell Sage.
- Hayes, C.D. 1987. *Risking the Future: Adolescent Sexuality, Pregnancy, and Childbearing*. Washington DC.: National Academy Press.
- He, K., E. Kramer, R.F. Houser, V.R. Chomitz, and K.A. Hacker. 2004. "Defining and understanding healthy lifestyles choices for adolescents." *Journal of Adolescent Health* 35(1):26-33.
- Hernandez, T.K. 2002. "Multiracial matrix: the role of race ideology in the enforcement of antidiscrimination laws, a United States-Latin America comparison." *Cornell Law Review* 87(5).
- Hirschman, C., R. Alba, and R. Farley. 2000. "The meaning and measurement of race in the US Census: Glimpses into the future." *Demography* 37(3):381-393.
- Hwang, S.-S., R. Saenz, and B.E. Aguirre. 1995. "The SES selectivity of interracially married Asians." *International Migration Review* 29(2):469-491.
- Irwin, C.E. 2004. "Adolescent sexuality and reproductive health: where are we in 2004?" *Journal of Adolescent Health* 34(5):353-355.
- Irwin, C.E., S.J. Burg, and C.U. Cart. 2002. "America's adolescents: where have we been, where are we going?" *Journal of Adolescent Health* 31(6, Supplement 1):91-121.

- Jaccard, J. and P.J. Dittus. 2000. "Adolescent perceptions of maternal approval of birth control and sexual risk behavior." *American Journal of Public Health* 90(9):1426-1430.
- James, D.C.S. 2004. "Factors influencing food choices, dietary intake, and nutrition-related attitudes among African Americans: Application of a culturally sensitive model." *Ethnicity and Health* 9(4):349-367.
- Johnson, R. and C.T. Nagoshi. 1986. "The adjustment of offspring of within-group and interracial/intercultural marriages: A comparison of personality factor scores." *Journal of Marriage and the Family* 48(2):279-284.
- Joyner, K. and J.R. Udry. 2000. "You don't bring me anything but down: Adolescent romance and depression." *Journal of Health and Social Behavior* 41(4):369-391.
- Kaestle, C.E., C.T. Halpern, W.C. Miller, and C.A. Ford. 2005. "Young age at first sexual intercourse and sexually transmitted infections in adolescents and young adults." *American Journal of Epidemiology* 161(8):774-780.
- King, R.C. 2001. "Mirror, mirror, on the wall: Mapping discussions of feminism, race, and beauty in Japanese American beauty pageants." Pp. 163-171 in *The Sum of Our Parts: Mixed Heritage Asian Americans*, edited by T. Williams-Leo and C.L. Nakashima. Philadelphia, PA: Temple University Press.
- King, V., K.M. Harris, and H.E. Heard. 2004. "Racial and ethnic diversity in nonresident father involvement." *Journal of Marriage and the Family* 66:1-21.
- Kirby, D. 2002. "Antecedents of adolescent initiation of sex, contraceptive use, and pregnancy." *American Journal of Health Behavior* 26(6):473-485.
- Koplan, J.P., C.T. Liverman, V.I. Kraak, and S.L. Wisham. 2007. "Progress in Preventing Childhood Obesity." edited by Institute of Medicine of the National Academies. Washington, D.C.: The National Academy Press.
- Krieger, N. 2000. "Counting accountability: Implications of the new approaches to classifying race/ethnicity in the 2000 Census." *American Journal of Public Health* 90(11):1687-1689.
- Langlois, J.H., L. Kalakanis, A.J. Rubenstein, A. Larson, M. Hallam, and M. Smoot. 2000. "Maxims or myths of beauty? A meta-analytic and theoretical review." *Psychological Bulletin* 126(3):390-423.
- Lee, R.M., J. Choe, G. Kim, and V. Ngo. 2000. "Construction of the Asian American Family Conflicts scale." *Journal of Counseling Psychology* 47:211-222 47(2):211-222.
- Lee, S.M. and B. Edmonston. 2005. "New marriages, new families: U.S. racial and Hispanic intermarriage." *Population Bulletin* 60(2):1-40.

- Lee, S.M. and M. Fernandez. 1998. "Trends in Asian American racial/ethnic intermarriage: A comparison of 1980 and 1990 Census data." *Sociological Perspectives* 41(2):323-342.
- Lee, S.M. and K. Yamanaka. 1990. "Patterns of Asian American intermarriage and marital assimilation." *Journal of Comparative Family Studies* 21(287-305).
- Liebertson, S., M.C. Waters, and National Committee for Research on the 1980 Census. 1988. *From Many Strands : Ethnic and Racial Groups in Contemporary America*. New York, NY Russell Sage Foundation.
- Lyles, M., A. Yancey, C. Grace, and J. Carter. 1985. "Racial identity and self-esteem: Problems peculiar to biracial children." *Journal of the American Academy of Psychiatry* 24(2):150-153.
- Mare, R.D. 1991. "Five decades of educational assortative mating." *American Sociological Review* 56(1):15-32.
- Marsiglio, W., P. Amato, R.D. Day, and M.E. Lamb. 2000. "Scholarship on fatherhood in the 1990s and beyond." *Journal of Marriage and the Family* 62(1173-1191).
- McCree, D.H., G.M. Wingood, R. DiClemente, S. Davies, and K.F. Harrington. 2003. "Religiosity and risky sexual behavior in African-American adolescent females." *Journal of Adolescent Health* 33(1):2-8.
- McLanahan, S. 2004. "Diverging destinies: How children are faring under the second demographic transition." *Demography* 41(4):75-90.
- McLanahan, S. and G. Sandefur. 1994. *Growing up with a Single Parent: What Hurts, What Helps*. Cambridge, MA: Harvard University Press.
- McTigue, K.M., J.M. Garrett, and B.M. Popkin. 2002. "The natural history of the development of obesity in a cohort of young US adults between 1981 and 1998." *Annals of Internal Medicine* 136(12):857-864.
- Meier, A.M. 2003. "Adolescents' transition to first intercourse, religiosity, and attitudes about sex." *Social Forces* 81(3):1031-1052.
- Merton, R.K. 1941. "Intermarriage and the social structure: Fact and theory." *Psychiatry* 4:361-374.
- Milan, S. and M. Keiley. 2000. "Biracial youth and families in therapy: Issues and interventions." *Journal of Marital and Family Therapy* 26 (3):305-366.

Milevsky, A. 2005. "Compensatory patterns of sibling support in emerging adulthood: Variations in loneliness, self-esteem, depression and life satisfaction." *Journal of Social and Personal Relationships* 22(6):743-755.

Mobius, M.M. and T.S. Rosenblat. 2006. "Why beauty matters." *American Economic Review* 96(1):222-235.

Mulford, M., J. Orbell, C. Shatto, and J. Stockard. 1998. "Physical attractiveness, opportunity, and success in everyday exchange." *American Journal of Sociology* 103(6):1565-1592.

Nakazawa, D.J. 2003. *Does Anybody Else Look Like Me?: A Parent's Guide to Raising Multiracial Children*. Cambridge, MA: Perseus Books.

Neinstein, L. 1982. "Adolescent self-assessment of sexual maturation." *Clinical Pediatrics* 21(482-484).

Obesity Education Initiative. 1998. "Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report." Pp. 1-228, edited by NHLBI in cooperation with The National Institute of Diabetes and Digestive and Kidney Diseases. Bethesda, MD: NIH.

Ogden, C.L., M.D. Carroll, L.R. Curtin, M.A. McDowell, C.J. Tabak, and K.M. Flegal. 2006. "Prevalence of overweight and obesity in the United States, 1999-2004." *Jama-Journal of the American Medical Association* 295(13):1549-1555.

Park, R.E. 1928. "Human Migration and the Marginal Man." *The American Journal of Sociology* 33(6):881-893.

Parker, J.D. and J.H. Madans. 2002. "The correspondence between interracial births and multiple-race reporting." *American Journal of Public Health* 92(12):1976-1981.

Parker, J.D. and D.M. Makuc. 2002. "Methodologic implications of allocating multiple-race data to single-race categories." *Health Services Research* 37(1):201-213.

Paul, C., J. Fitzjohn, P. Herbison, and N. Dickson. 2000. "The determinants of sexual intercourse before age 16." *Journal of Adolescent Health* 27(2):136-147.

Petersen, A.C., B.E. Compas, J. Brooks-Gunn, M. Stemmler, S. Ey, and K.E. Grant. 1993. "Depression in adolescence." *American Psychologist* 48(2):155-168.

Pfann, G.A., J.E. Biddle, D.S. Hamermesh, and C.M. Bosman. 2000. "Business success and businesses' beauty capital." *Economics Letters* 67(2):201-207.

- Phinney, J.S. 1990. "Ethnic identity in adolescents and adults: Review of research." *Psychological Bulletin* 108(3):499-514.
- Popkin, B.M. and J.R. Udry. 1998. "Adolescent obesity increases significantly in second and third generation U.S. immigrants: The National Longitudinal Study of Adolescent Health." *Journal of Nutrition* 128:701-706.
- Qian, Z. 1997. "Breaking the racial barriers: Variations in interracial marriage between 1980 and 1990." *Demography* 34(2):263-276.
- Qian, Z., S.L. Blair, and S.D. Ruf. 2001. "Asian American interracial and interethnic marriages: Differences by education and nativity." *International Migration Review* 35(2):557-586.
- Renn, K.A. 2004. *Mixed Race Students in College*. Albany, NY: State University of New York Press.
- Rhee, S., J. Chang, and J. Rhee. 2003. "Acculturation, communication patterns, and self-esteem among Asian and Caucasian American adolescents." *Adolescence* 38(152):749-768.
- Riniolo, T.C., K.C. Johnson, T.R. Sherman, and J.A. Misso. 2006. "Hot or not: Do professors perceived as physically attractive receive higher student evaluations?" *Journal of General Psychology* 133(1):19-35.
- Riolo, S.A., T.A. Nguyen, J.F. Greden, and C.A. King. 2005. "Prevalence of depression by race/ethnicity: findings from the National Health and Nutrition Examination Survey III." *American Journal of Public Health* 95(6):998-1000.
- Rockquemore, K.A. and T.A. Laszloffy. 2005. "Moving beyond tragedy: A multidimensional model of mixed-race identity." Pp. 1-17 in *Raising Biracial Children*. Lanham, MD: AltaMira Press.
- Root, M.P. 2003. "Multiracial families and children: Implications for educational research and practice." Pp. 110-124 in *Handbook of Research on Multicultural Education*, edited by J.A. Banks and C.A.M. Banks. San Francisco, CA: Jossey-Bass.
- Root, M.P. 2004. "From exotic to dime a dozen." *Women and Therapy* 27(1):19-31.
- Rosenberg, M. 1965. *Society and the Adolescent Self-image*. Princeton, NJ: Princeton University Press.
- Rowe, D.C. 2002. "IQ, birth weight, and number of sexual partners in White, African American, and Mixed Race Adolescents." *Population and Environment* 23(6):513-524.

- Rowland, M.L. 1990. "Self-reported weight and height." *American Journal of Clinical Nutrition* 52(6):1125-1133.
- Ruiz, V.L. 2004. "Morena/o, blanca/o y cafe con leche: Racial Constructions in Chicana/o Historiography." *Mexican Studies/Estudios Mexicanos* 20(2):343-360.
- Russell, K., M. Wilson, and R. Hall. 1992. *The Color Complex: The Politics of Skin Color Among African Americans*. New York City: Anchor Books Double Day.
- Salant, T. and D.S. Lauderdale. 2003. "Measuring culture: a critical review of acculturation and health in Asian immigrant populations." *Social Science & Medicine* 57(1):71-90.
- Saluja, G., R. Iachan, P.C. Scheidt, M.D. Overpeck, W. Sun, and J.N. Giedd. 2004. "Prevalence of and risk factors for depressive symptoms among young adolescents." *Archives Pediatric Adolescent Medicine* 158:760-765.
- Santelli, J.S., J. Kaiser, L. Hirsch, A. Radosh, L. Simkin, and S. Middlestadt. 2004. "Initiation of sexual intercourse among middle school adolescents: The influence of psychosocial factors." *Journal of Adolescent Health* 34(6):200-208.
- Savage, J.S., J.O. Fisher, and L.L. Birch. 2007. "Parental influence on eating behavior: Conception to adolescence." *Journal of Law Medicine & Ethics* 35(1):22-34.
- Schvaneveldt, P.L., B.C. Miller, E.H. Berry, and T.R. Lee. 2001. "Academic goals, achievement, and age at first sexual intercourse: Longitudinal, bidirectional influences." *Adolescence* 36(144):767-787.
- Seltzer, J.A., C.A. Bachrach, S.M. Bianchi, C.H. Bledsoe, L.M. Casper, P.L. Chase-Lansdale, T.A. DiPrete, V.J. Hotz, S.P. Morgan, S.G. Sanders, and D. Thomas. 2005. "Explaining family change and variation: Challenges for family demographers." *Journal of Marriage and Family* 67:908-925.
- Smith, J. and D. Wiedman. 2001. "Fat content of south Florida Indian frybread: Health implications for a pervasive Native-American food." *Journal of the American Dietetic Association* 101(5):582-585.
- Smith, J.P. and B. Edmonston. 1997. "The face of the U.S. population in 2050." in *The New Americans: Economic, Demographic, and Fiscal Effects of Immigration*. Washington D.C.: National Academy Press.
- Snipp, C.M. 1992. "Sociological perspectives on American Indians." *Annual Review of Sociology* 18(1):351-371.
- Spickard, P.R. 1989. *Mixed Blood : Intermarriage and Ethnic Identity in Twentieth-Century America*. Madison, Wisconsin: University of Wisconsin Press.

- Steinberg, L. and A.S. Morris. 2001. "Adolescent development." *Annual Review of Psychology* 52(1):83-110.
- Tzeng, J.M. and R.D. Mare. 1995. "Labor-market and socioeconomic effects on marital stability." *Social Science Research* 24(4):329-351.
- U.S. Supreme Court. 2003. "Loving v. Virginia (1967)." Pp. 60-63 in *Mixed Race America and the Law*, edited by K.R. Johnson. New York: New York University Press.
- Udry, J.R. 1979. "Age at menarche, at first intercourse and at first pregnancy." *Journal of Biological Science* 11:433-441.
- Udry, J.R. 1988. "Biological predispositions and social control in adolescent sexual behavior." *American Sociological Review* 53(5):709-722.
- Udry, J.R., R.M. Li, and J. Hendrickson-Smith. 2003. "Health and behavior risks of adolescents with mixed-race identity." *American Journal of Public Health* 93(11):1865-1870.
- Vesely, S.K., V.H. Wyatt, R.F. Oman, C.B. Aspy, M.C. Kegler, D.S.R. M., L. Marshall, and K.R. McLeroy. 2004. "The potential protective effects of youth assets from adolescent sexual risk behaviors." *Journal of Adolescent Health* 34(5):356-365.
- Videon, T.M. and C.K. Manning. 2003. "Influences on adolescent eating patterns: the importance of family meals." *Journal of Adolescent Health* 32(5):365-373.
- Visscher, T.L. and J.C. Seidell. 2001. "The public health impact of obesity." *Annual Review of Public Health* 22(1):355-375.
- Vivero, V.N. and S.R. Jenkins. 1999. "Existential hazards of the multicultural individual: Defining and understanding "cultural homelessness"." *Cultural Diversity and Ethnic Minority Psychology* 5(1):6-26.
- von Salisch, M. 2001. "Children's emotional development: Challenges in their relationships to parents, peers, and friends." *International Journal of Behavioral Development* 25(4):310-319.
- Weisfeld, G.E. and L. Woodward. 2004. "Current evolutionary perspectives on adolescent romantic relations and sexuality." *Journal of the American Academy of Child and Adolescent Psychiatry* 43(1):11-19.
- White, S.D. and R.R. Deblasse. 1992. "Adolescent sexual behavior." *Adolescence* 27(105):183-191.
- Wight, R.G., J.E. Sepulveda, and C.S. Aneshensel. 2004. "Depressive symptoms: How do adolescents compare with adults?" *Journal of Adolescent Health* 34(314-323).

Williams-Leon, T.K. 1992. "Prism lives: Identity of binational Amerasians." in *Racially Mixed People in America*, edited by M.P. Root. Newbury Park, CA: Sage Publications.

Xiaojia, G., G.H. Elder, M. Regnerus, and C. Cox. 2001. "Pubertal transitions, perceptions of being overweight, and adolescents' psychological maladjustment: Gender and ethnic differences." *Social Psychology Quarterly* 64(4):363-375.

Xie, Y. and K. Goyette. 1997. "The racial identification of biracial children with one Asian parent: Evidence from the 1990 Census." *Social Forces* 76(2):547-570.

Zimmer, M. 2001. "Explaining marital dissolution: The role of spouses' traits." *Social Science Quarterly* 82(3):464-477.

Zweig, J., S.D. Phillips, and L.D. Lindberg. 2002. "Predicting adolescent profiles of risk: looking beyond demographics." *Journal of Adolescent Health* 31(4):343-353.

APPENDIX A: QUESTIONNAIRES

Appendix A1: SUINN-LEW ASIAN SELF-IDENTITY ACCULTURATION SCALE (SL-ASIA)

INSTRUCTIONS: The questions which follow are for the purpose of collecting information about your historical background as well as more recent behaviors which may be related to your cultural identity. Choose the one answer which best describes you.

1. What language can you speak?

- A. Asian only (for example, Chinese, Japanese, Korean, Vietnamese, etc.)
- B. Mostly Asian, some English
- C. Asian and English about equally well (bilingual)
- D. Mostly English, some Asian
- E. Only English

2. What language do you prefer?

- A. Asian only (for example, Chinese, Japanese, Korean, Vietnamese, etc.)
- B. Mostly Asian, some English
- C. Asian and English about equally well (bilingual)
- D. Mostly English, some Asian
- E. Only English

3. How do you identify yourself?

- A. Oriental
- B. Asian
- C. Asian-American
- D. Chinese-American, Japanese-American, Korean-American, etc.
- E. American

4. Which identification does (did) your mother use?

- A. Oriental
- B. Asian
- C. Asian-American
- D. Chinese-American, Japanese-American, Korean-American, etc.
- E. American

5. Which identification does (did) your father use?

- A. Oriental
- B. Asian
- C. Asian-American
- D. Chinese-American, Japanese-American, Korean-American, etc.
- E. American

6. What was the ethnic origin of the friends and peers you had, as a child up to age 6?

- A. Almost exclusively Asians, Asian-Americans, Orientals
- B. Mostly Asians, Asian-Americans, Orientals
- C. About equally Asian groups and Anglo groups
- D. Mostly Anglos, Blacks, Hispanics, or other non-Asian ethnic groups
- E. Almost exclusively Anglos, Blacks, Hispanics, or other non-Asian ethnic groups

7. What was the ethnic origin of the friends and peers you had, as a child from 6 to 18?

- A. Almost exclusively Asians, Asian-Americans, Orientals
- B. Mostly Asians, Asian-Americans, Orientals
- C. About equally Asian groups and Anglo groups
- D. Mostly Anglos, Blacks, Hispanics, or other non-Asian ethnic groups
- E. Almost exclusively Anglos, Blacks, Hispanics, or other non-Asian ethnic groups

8. Whom do you now associate with in the community?

- A. Almost exclusively Asians, Asian-Americans, Orientals
- B. Mostly Asians, Asian-Americans, Orientals
- C. About equally Asian groups and Anglo groups
- D. Mostly Anglos, Blacks, Hispanics, or other non-Asian ethnic groups
- E. Almost exclusively Anglos, Blacks, Hispanics, or other non-Asian ethnic groups

9. If you could pick, whom would you prefer to associate with in the community?

- A. Almost exclusively Asians, Asian-Americans, Orientals
- B. Mostly Asians, Asian-Americans, Orientals
- C. About equally Asian groups and Anglo groups
- D. Mostly Anglos, Blacks, Hispanics, or other non-Asian ethnic groups
- E. Almost exclusively Anglos, Blacks, Hispanics, or other non-Asian ethnic groups

10. What is your music preference?

- A. Only Asian music (for example, Chinese, Japanese, Korean, Vietnamese, etc.)
- B. Mostly Asian
- C. Equally Asian and English
- D. Mostly English
- E. English only

11. What is your movie preference?

- A. Asian-language movies only
- B. Asian-language movies mostly
- C. Equally Asian/English-language movies
- D. Mostly English-language movies only
- E. English-language movies only

12. What generation are you? (circle the generation that best applies to you:)

- A. 1st Generation = I was born in Asia or country other than U.S.
- B. 2nd Generation = I was born in U.S., either parent was born in Asia or country other than U.S.
- C. 3rd Generation = I was born in U.S., both parents were born in U.S, and all grandparents born in Asia or country other than U.S.
- D. 4th Generation = I was born in U.S., both parents were born in U.S, and at least one grandparent born in Asia or country other than U.S. and one grandparent born in U.S.
- E. 5th Generation = I was born in U.S., both parents were born in U.S., and all grandparents also born in U.S.
- F. Don't know what generation best fits since I lack some information.

13. Where were you raised?

- A. In Asia only
- B. Mostly in Asia, some in U.S.
- C. Equally in Asia and U.S.
- D. Mostly in U.S., some in Asia
- E. In U.S. only

14. What contact have you had with Asia?

- A. Raised one year or more in Asia
- B. Lived for less than one year in Asia
- C. Occasional visits to Asia
- D. Occasional communications (letters, phone calls, etc.) with people in Asia
- E. No exposure or communications with people in Asia

15. What is your food preference at home?

- A. Exclusively Asian food
- B. Mostly Asian food, some American
- C. About equally Asian and American
- D. Mostly American food

16. What is your food preference in restaurants?

- 17. Do you**

- 18. Do you**

- 19. If you consider yourself a member of the Asian group (Oriental, Asian, Asian- American, Chinese-American, etc., whatever term you prefer), how much pride do you have in this group?**

- 20. How would you rate yourself?**

- 21. Do you participate in Asian occasions, holidays, traditions, etc.?**

- 22. Rate yourself on how much you believe in Asian values (e.g., about marriage, families, education, work):**

23. Rate your self on how much you believe in American (Western) values:

24. Rate yourself on how well you fit when with other Asians of the same ethnicity:

96

(do not fit)

(fit very well)

25. Rate yourself on how well you fit when with other Americans who are non-Asian (Westerners):

1

2

3

4

5

(do not fit)

(fit very well)

26. There are many different ways in which people think of themselves. Which ONE of the following most closely describes how you view yourself?

- A. I consider myself basically an Asian person (e.g., Chinese, Japanese, Korean, Vietnamese, etc.). Even though I live and work in America, I still view myself basically as an Asian person.
- B. I consider myself basically as an American. Even though I have an Asian background and characteristics, I still view myself basically as an American.
- C. I consider myself as an Asian-American, although deep down I always know I am an Asian.
- D. I consider myself as an Asian-American, although deep down, I view myself as an American first.
- E. I consider myself as an Asian-American. I have both Asian and American characteristics, and I view myself as a blend of both.

Appendix A2: SATAQ-R					
Please read each of the following items, and circle the number that best reflects your agreement with the statement.					
Completely Disagree	Neither Agree or Disagree				Completely Agree
1	2	3	4	5	
1. I would like my body to look like the women who appear in TV shows and movies.	1	2	3	4	5
2. I believe that clothes look better on women that are in good physical shape.	1	2	3	4	5
3. Music videos that show women who are in good physical shape make me wish that I were in better physical shape.	1	2	3	4	5
4. I do not wish to look like the female models who appear in magazines.	1	2	3	4	5
5. I tend to compare my body to TV and movie stars.	1	2	3	4	5
6. In our society, fat people are regarded as attractive.	1	2	3	4	5
7. Photographs of physically fit women make me wish that I had better muscle tone.	1	2	3	4	5
8. Attractiveness is very important if you want to get ahead in our culture.	1	2	3	4	5
9. It's important for people to look attractive if they want to succeed in today's culture.	1	2	3	4	5
10. Most people believe that a toned and physically fit body improves how you look.	1	2	3	4	5
11. People think the more attractive you are, the better you look in clothes.	1	2	3	4	5
12. In today's society, it's not important to always look attractive.	1	2	3	4	5
13. I wish I looked like the women pictured in magazines who model underwear.	1	2	3	4	5
14. I often read magazines and compare my appearance to the female models.	1	2	3	4	5
15. People with well-proportioned bodies look better in clothes.	1	2	3	4	5
16. A physically fit woman is admired for her looks more than someone who is not fit or toned.	1	2	3	4	5
17. How I look does not affect my mood in social situations.	1	2	3	4	5
18. People find individuals who are in shape more attractive than individuals who are not in shape.	1	2	3	4	5
19. In our culture, someone with a well-built body has a better chance of obtaining success.	1	2	3	4	5
20. I often find myself comparing my physique to that of athletes pictured in magazines.	1	2	3	4	5
21. I do not compare my appearance to people I consider very attractive.	1	2	3	4	5

Appendix A3: The Self Objectification Questionnaire

Directions: We are interested in how people think about their bodies. The questions below identify 10 body attributes. We would like you to *rank order* these body attributes from that which has the greatest impact on your physical self-concept (rank this a “9”), to that which has the least impact on your physical concept (rank this a “0”)

Note: It does not matter *how* you describe yourself in terms of attribute. For example, fitness level can have a great impact on your physical self-concept regardless of whether you consider yourself to be physically fit, not physically fit, or any level in between.

Please first consider all attributes simultaneously, and record your rank ordering by writing the ranks in the rightmost column.

IMPORTANT: Do Not Assign The Same Rank To More Than One Attribute!

9 = greatest impact

8 = next greatest impact

.

.

1= next to least impact

0 = least impact

When considering your physical concept...

1....what rank do you assign to *physical coordination*?

2....what rank do you assign to *health*?

3.... what rank do you assign to *weight*?

4.... what rank do you assign to *strength*?

5....what rank do you assign to *sex appeal*?

6....what rank do you assign to *physical attractiveness*?

7....what rank do you assign to *energy level (i.e. stamina)*?

8....what rank do you assign to *firm/sculpted muscles*?

9....what rank do you assign to *physical fitness level*?

10....what rank do you assign

to *measurements (i.e. chest, waist, hips)*?

Appendix A4: Body Parts Satisfaction Scale-Revised (BPSSR)

Using the scale provided, please rate how satisfied you have been with each body part during the PAST MONTH.

	Extremely Dissatisfied					Extremely Satisfied
1. Weight	1	2	3	4	5	6
2. Hair	1	2	3	4	5	6
3. Complexion	1	2	3	4	5	6
4. Overall Face	1	2	3	4	5	6
5. Arms	1	2	3	4	5	6
6. Stomach	1	2	3	4	5	6
7. Buttocks	1	2	3	4	5	6
8. Hips	1	2	3	4	5	6
9. Upper Thighs	1	2	3	4	5	6
10. General Muscle Tone	1	2	3	4	5	6

Appendix A5: Eating Attitudes Test (EAT-26)						
The following screening questionnaire is designed to help you determine if your eating behaviors and attitudes warrant further evaluation. The questionnaire is not intended to provide a diagnosis. Rather, it identifies the presence of symptoms that are consistent with either a possible eating disorder or disordered eating and warrant a complete evaluation.						
Please check a response for each of the following statements:	Always 3	Usually 2	Often 1	Some times 0	Rarely 0	Never 0
1. Am terrified about being overweight.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Avoid eating when I am hungry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Find myself preoccupied with food.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Have gone on eating binges where I feel that I may not be able to stop.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Cut my food into small pieces.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Aware of the calorie content of foods that I eat.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Particularly avoid food with a high carbohydrate content (i.e. bread, rice, potatoes,etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Feel that others would prefer if I ate more.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Vomit after I have eaten.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Feel extremely guilty after eating.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Am preoccupied with a desire to be thinner.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Think about burning up calories when I exercise.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Other people think that I am too thin.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Am preoccupied with the thought of having fat on my body.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. Take longer than others to eat my meals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Avoid foods with sugar in them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Eat diet foods.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Feel that food controls my life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Display self-control around food.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Feel that others pressure me to eat.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Give too much time and thought to food.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Feel uncomfortable after eating sweets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Engage in dieting behavior.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Like my stomach to be empty.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. Have the impulse to vomit after meals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Enjoy trying new rich foods.	<input type="checkbox"/> 0	<input type="checkbox"/> 0	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3

Appendix B: Informational Study Recruitment Flyer

Researchers at The University of Georgia, College of Public Health want to learn about eating disorders and body image in Asian females. **Research is always voluntary and CONFIDENTIAL.**

Would the study be a good fit for me?

This study might be a good fit for you if:

- Asian (Japanese, Chinese, Taiwanese, Korean)
- Female
- Student at UGA
- At least 18 years old

What would happen if I took part in the study?

If you decide to take part in the research study, you:

- Will take a brief online survey

There may be possible benefits if you take part in the study.

- Knowledge about your own personal health habits
- Contribute to research on Asian / Asian Americans and health behaviors

**To take part in this research study, please go to :
<https://www.surveymonkey.com/s/asianbodyimage>**

The principal researcher for this study is Hannah Jackson, MPH at The University of Georgia, Department of Health Promotion and Behavior. For more information or questions: **hannahlj@uga.edu**

Appendix C: IRB Approval



Office of The Vice President for Research
DHHS Assurance ID No. : FWA00003901

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APPROVAL FORM

Date Proposal Received: 2012-03-07

Project Number: 2012-10756-0

Name	Title	Dept/Phone	Address	Email
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Title of Study: Disordered eating and body image among Asian/Asian Americans

45 CFR 46 Category: Expedite 7

Parameters:

Waiver of Signed Consent 46.117 (c) (2);

Change(s) Required for Approval:

Revised recruitment materials;

Revised Application;

Revised Consent Document(s);

Approved : 2012-04-17 Begin date : 2012-04-17 Expiration date : 2013-04-16

NOTE: Any research conducted before the approval date or after the end date collection date shown above is not covered by IRB approval, and cannot be retroactively approved.

Number Assigned by Sponsored Programs:

Funding Agency:

Your human subjects study has been approved.

Please be aware that it is your responsibility to inform the IRB:

- ... of any adverse events or unanticipated risks to the subjects or others within 24 to 72 hours;
- ... of any significant changes or additions to your study and obtain approval of them before they are put into effect;
- ... that you need to extend the approval period beyond the expiration date shown above;
- ... that you have completed your data collection as approved, within the approval period shown above, so that your file may be closed.

For additional information regarding your responsibilities as an investigator refer to the IRB Guidelines.
Use the attached Researcher Request Form for requesting renewals, changes, or closures.
Keep this original approval form for your records.

Chairperson or Designee,
Institutional Review Board