

THE RELATIONSHIP AMONG CULTURE-SPECIFIC FACTORS, PUBERTAL
TIMING, AND BODY IMAGE AND EATING DISORDERED SYMPTOMS AMONG
ADOPTED KOREAN ADOLESCENT GIRLS

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DEDICATION

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Abstract

The aim of this dissertation was to examine the role of developmental and culture-specific factors in body image concerns and eating disordered symptoms among internationally, transracially adopted adolescent girls. I specifically sought to replicate past research that suggested early pubertal timing was associated with eating disordered outcomes; to examine the association between racial, ethnic, and adoption factors and eating disordered outcomes; and to test whether these latter associations were moderated by pubertal timing in two samples of adopted female Korean Americans. Early menarche significantly predicted body dissatisfaction, but only in the second study. In the first study there were significant main effects of both birth preoccupation and racial discomfort on two of the body image and ED symptom outcomes – binge eating and weight preoccupation. The first study also revealed a significant main effect between cultural socialization and compensatory behaviors. In the second study, there were significant main effects of birth preoccupation on body satisfaction and ED symptoms. There also were significant main effects of both adoptive identity and ethnic identity on satisfaction with Asian appearances. Across both studies, there was no support for the hypothesis that age of menarche would moderate the association between culture-specific factors and eating disordered outcomes. The study findings provide a cultural framework to help uncover the process and mechanisms by which cultural differences in body image and ED symptoms may exist.

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INTRODUCTION

Eating disorders (EDs) and disordered eating affect a significant minority of girls and women and can result in serious medical complications and increased risk for mortality (Crow et al., 2007; Crow, Praus, & Thuras, 1999). Women are four times more likely to develop EDs than are men (Rosen & Gross, 1987) and EDs represent the third most common form of chronic illness among 15- to 19-year-old adolescent women (Madhusmita et al., 2004). These statistics are considered underestimations, however, as EDs tend to be undiagnosed in up to 50% of cases (Madhusmita et al., 2004). Although the causes of EDs are not clear, researchers posit a range of genetic, biological, personality, and environmental explanations, including interactions among the four factors, as contributing to eating pathology (Bulik, Sullivan, Wade, & Kendler, 2000; Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004). What is well-documented is that the most common age of onset for EDs is the time between early adolescence to young adulthood, with fewer instances of the first onset of illness occurring in adulthood and late adulthood (Attie & Brooks-Gunn, 1995). The critical timing of ED onset suggests that the multi-level changes occurring during puberty may significantly contribute to the development of EDs. Pubertal timing has been found to play a role in some studies, although findings are mixed (Blythe, Simmons, & Zakin, 1985; Stice, 2002). For many racial and ethnic minorities, adolescence also marks a time when individuals begin to integrate salient ethnic, racial, and other culture-specific experiences into their self-concept. Unfortunately, little is known about the role of ethnicity, race, and culture in the development of EDs and body image concerns during adolescence.

Eating disorders and related problems such as body image concerns and subclinical levels of eating concerns are oftentimes assumed to be a product of the West (Keel & Klump, 2003). Defined primarily as a Western problem, researchers have until recently assumed that eating problems exist almost exclusively among White women with high socioeconomic status (SES) (Smolak & Striegel-Moore, 2001). But body image and ED-related concerns are a growing problem among racial/ethnic minorities, as well as men and people of varying social economic status (SES) (Cummins, Simmons, & Zane, 2005). Unfortunately, research on body image and ED-related problems with minority groups is relatively limited, and has tended to oversimplify the concepts of culture and ethnicity in investigating etiology and manifestations of EDs. Extant research has focused primarily on Black women and girls (Crago, Shisslak, & Estes, 1996), and on White and non-White group comparisons, generally concluding that ethnic minority status protects women from EDs (Wildes & Emery, 2001). However, the use of non-White comparison groups is problematic because it aggregates together many different groups and disregards within group differences among non-Whites. In many of the studies using non-White comparison groups, Black respondents comprise a disproportionately large subset of the minority sample. Thus, the findings are reflective of mainly Black participants, and it remains difficult to generalize to other racial/ethnic minority groups.

Recently, researchers have improved their study sampling beyond Black versus White and White versus non-White comparisons, and have examined differences in prevalence rates, ED risk factors, and symptomatology between women from various minority groups and White women. These between-group studies, however, have produced equivocal and often contradictory results (Shaw, Ramierez, Trost, Randall, &

Stice, 2004). Between-group studies provide a foundation for understanding differences in EDs, but the categorical treatment of ethnicity has led some researchers to prematurely conclude that membership in a given ethnic group may protect women from body dissatisfaction and ED-related problems (Cummins, Simmons, & Zane, 2005). This conclusion reflects a simplified understanding of ethnic group membership, and fails to explain within-group processes and mechanisms by which culture-specific factors contribute to EDs.

Certain racial/ethnic minority groups, particularly Asian and Asian American women, may not be protected from body image and ED-related concerns. Some Asian women have higher levels of body dissatisfaction than do White women (Shaw et al., 2004). In one study (Robinson, Killen, Litt et al., 1996), Asian women in the lowest body mass index (BMI) bracket reported the highest level of body dissatisfaction. This negative correlation between BMI and body dissatisfaction suggests that some Asian women who are underweight may be prone to dieting and restrained eating, and are at heightened risk for developing EDs. Moreover, body dissatisfaction for certain Asian and Asian American women has been found to be a more complex issue than simply a desire to be thin. For example, body dissatisfaction may be higher for Asian women who desire to possess White physical features, which is posited by researchers to reflect some Asian women's discontent with racially-charged facial and body features (Hall, 1995; Mok, 1998a). These findings regarding the unique expression of ED symptoms among Asian/Asian American women suggests that Western assumptions of ED symptomatology do not necessarily hold for certain non-White groups, and highlight the importance of looking beyond between-group comparisons.

Researchers have attempted to understand the role of culture-specific influences in Asian/Asian American women's vulnerability to developing body image and ED-related problems, by focusing on the hypothesis that the globalization of Western cultural values through the media acts as a primary promoter of eating pathology (Jackson, Keel, & Lee, 2006). To test this globalization hypothesis, researchers have examined how acculturation level impacts ED-related outcomes. Acculturation refers to the extent to which immigrants who enter the U.S. adopt the behaviors, traditions, values, and culture of the dominant society (Berry, 1997). In ED research, it is presumed that acculturation reflects increased Westernization, and serves as a probable culprit for the rise in body dissatisfaction and ED symptoms among Asian women (Gunewardene, Huon, & Zheng, 2001). However, research findings are equivocal and often contradictory, with no set of studies able to substantiate a clear link between acculturation and EDs (Stark-Wroblewski, Yanico, & Lupe, 2005). The lack of conclusive evidence suggests that there may be other culture-specific factors contributing to the increase in body image and ED-related concerns among Asian and Asian American women.

Ethnic identity may be a more meaningful culture-specific variable to study in the context of body image and ED-related concerns. Ethnic identity develops in the context of the individual belonging to a minority ethnic group within the larger society (Phinney, 1992), and refers to a personal and group identification and affiliation with one's ethnic group. It involves an individual's acquisition and retention of cultural characteristics that are incorporated into one's self-concept. Moreover, ethnic identity development begins in early adolescence, which coincides with the vulnerable period when body image and ED-related concerns often emerge. Empirical evidence also suggests that ethnic identity

serves to protect some racial/ethnic minorities from maladaptive psychological consequences (Yoo & Lee, 2008). Thus, it is possible that ethnic identity may serve as a unique risk or protective factor for developing body image and ED-related concerns for racial/ethnic minorities.

In addition to ethnic identity, other culture-specific factors, such as racial and cultural socialization, may serve a protective function for racial/ethnic minorities. Racial and cultural socialization pertain to the efforts parents make to negotiate racial, ethnic, and cultural experiences within the family (Lee, Grotevant, Hellerstedt, Gunnar, & IAP Team, 2006). These efforts to promote positive aspects of race and culture are related to positive adjustment, and are posited to protect children of color from the potential adverse effects of discrimination. For instance, research has demonstrated that children whose parents promoted their culture and ethnicity reported higher self-concept and more positive feelings about their in-group than children whose parents did not provide the same cultural backdrop (Hughes, 2003). The focus of most of the empirical work on the protective role of racial and cultural socialization against adverse consequences, however, has been on same-race, non-adopted families.

Transracial adoptees may be particularly vulnerable to psychological consequences such as body dissatisfaction and ED symptoms, in light of the unique racial, ethnic, and cultural experiences they presumably experience. Transracial adoptees are individuals adopted either internationally or domestically, who are racially and ethnically different from their adoptive parents. Lee (2003a) posited that many of these adoptees may be confronted with the transracial adoption paradox, which he defined as a contradictory set of cultural experiences related to being juxtaposed between one's

parents' White culture and one's own heritage culture. The cultural paradox experienced by transracial adoptees may render some susceptible to undue pressures associated with the internalization of White culture and the thin-ideal. The internalization of White standards, which likely contributes to the cultural ambivalence felt by some transracial adoptees, is also putatively linked to body image and ED-related concerns among racial/ethnic minority women. However, researchers have yet to explore the specific mechanisms and processes by which the transracial adoption paradox may contribute to body image and ED-related outcomes for international, transracial adoptees.

Preliminary evidence seems to suggest that the transracial adoption paradox may impact body image for some transracial adoptees by intensifying pressures to conform to Western appearance standards. According to qualitative reports from the direct perspective of adoptees, Korean adoptees sent to the U.S. and parts of Europe cited having insecurities about racially charged aspects of their appearance. These studies suggest that the racially-charged body dissatisfaction endorsed by some transracial adoptees can be further complicated by their membership in a White household (Evan B. Donaldson Adoption Institute, 2002; Song & Lee, 2009). The internalization of White norms may represent transracial adoptees' desire to validate their inclusion to both their White household, and to the White majority society. The added challenge of having to come to terms with their adoption status may further complicate transracial adoptees' perceptions of their physical selves. Despite the theoretical importance of culture-specific factors in understanding the development of body image and ED-related concerns, little is empirically known about the culture-specific experiences of transracial adoptees, and the

link between culture-specific factors and body image and ED-related outcomes for this group of adoptees.

An inherent part of resolving the transracial adoption paradox is the successful integration of one's personal identity, ethnic identity, and adoptive identity within the context of being reared in a racially discrepant household. Identity formation among transracial adoptees is postulated to be a more complex process than it is for non-adopted individuals, as transracial adoptees have the added task of coming to terms with both their adoption status and the loss of their birth culture (Grotevant, 1997; Lee, 2003a). Adoptive identity development is a process that is unique to the experience of adopted individuals, and involves having to negotiate one's adoptive status into one's sense of self. Components of adoptive status include membership in a biologically unrelated family and, for those adopted transracially, the immutable physical differences with adoptive parents. A related, yet distinct construct to adoptive identity pertains to curiosity about one's birth origins, particularly the feelings surrounding the loss of knowledge of one's birth family. Exploration of birth history is oftentimes inconclusive for international adoptees, as birth records and access to information about birth family is limited, if not unavailable. Grotevant (1997) has extensively theorized the process of adoptive identity development, and has suggested that an essential part of successful integration of one's self-concept is to explore all aspects of one's identity, and the multiple groups to which one belongs. In support of this theoretical postulation, Basow, Lilley, Bookwala, and McGillicuddy-DeLisi (2008) found that individuals with positive feelings about their adoptive status had better psychological adjustment than those endorsing negative feelings about their adoptive status. These preliminary findings suggest that transracial

adoptees who encounter difficulties integrating their multiple identities may be vulnerable to adverse mental health outcomes. However, further empirical endeavors are necessary to establish cogent hypotheses regarding the role of culture-specific factors implicit to negotiating the transracial adoption paradox, in the long-term psychological adjustment of transracial adoptees.

Only recently have researchers interested in the field of adoption begun to recognize the need to examine the potential link between post-adoptive culture-specific experiences and psychological adjustment for transracial adoptees. Although research on the general psychological outcomes of international adoptees suggests that their short-term adjustment is positive (Juffer & van Ijzendoorn, 2007), preliminary research suggests that post-adoptive adjustment into adolescence and adulthood does not necessarily persist for some international, transracial adoptees. On the one hand, transracial adoptees appear to be well assimilated and well adjusted into the majority society (Lee, 2003a). On the other hand, more recent findings suggest that some transracial adoptees are not necessarily as well adjusted compared to non-adopted counterparts. For instance, Hjern, Lindblad, & Vinnerljung (2002) found in their sample of international adoptees in Sweden, the majority of whom were born in Asia or Latin America, that they were three to four times more likely than non-adopted Swedish counterparts with similar socioeconomic status to have attempted suicide and have psychiatric admissions, and five times more likely to have a drug addiction. Although Hjern et al.'s study did not directly measure culture-specific factors, or link culture-specific experiences to negative outcomes for transracial adoptees, their results suggest the possibility that there may be underlying culture-specific bases of maladaptive outcomes associated with efforts to

assimilate. Other studies have even suggested serious mental health consequences attributed to self-reported experiences with racism and discrimination for transracial adoptees (Cederblad, Hook, Irhammar, & Mercke, 1999; Lee, 2003a). Taken together, the mixed findings suggest that there may be individual differences in the post-adoptive adjustment of transracial adoptees. Moreover, culture-specific experiences may be related to psychological adjustment such as ED-related outcomes for these adoptees.

In summary, few studies exist that examine the impact of culture-specific experiences relevant to the transracial adoption paradox on post-adoptive adjustment, particularly outcomes related to body image and EDs. There are even fewer studies that focus on the direct perspective of adoptees, as most studies tend to be based on reports from adoptive parents (Song & Lee, 2009). Moreover, considering that the development of culture-specific factors such as ethnic identity and adoptive identity coincides with the timing of pubertal development, it seems warranted to examine the role of developmental and culture-specific effects on body image and ED-related outcomes for transracial adoptees. Specifically, it would be meaningful to examine whether there is an interaction between culture-specific factors related to the transracial adoption paradox and pubertal timing, and the extent to which the interaction contributes to body image and ED-related outcomes for international, transracial adoptees.

In this dissertation, I attempt to improve current understanding of how culture-specific factors relate to risk and protection for body dissatisfaction and EDs for transracially, transnationally adopted Korean American girls, during a developmental period when body image and eating concerns begin to take shape. To provide a foundation for my study rationale, I first review current research on the role of puberty

and pubertal timing in the development of body image and ED-related concerns. I also discuss findings and limitations from cultural studies on ED prevalence rates and symptoms, including a discussion of how culture-specific factors can help inform our understanding of the cultural context in which body image and ED-related concerns affect Asian/Asian American women. Next, I present the state of cultural research on transracial adoptees, and discuss the ways in which this group may be at heightened risk for body image and ED-related concerns due to enhanced pressures to internalize White standards, including mainstream views of attractiveness. In this section on transracial adoptees, I further discuss how the identity formation of transracial adoptees can be complicated by their existence in paradoxical cultural worlds. Last, I present study hypotheses and the methodology used to test them, followed by a summary of the results and conclusions that are drawn based on study findings.

LITERATURE REVIEW

Eating Disorders and Eating Disordered Concerns: Background, Prevalence and Definitions

Approximately 0.3% and 1% of young women in the U.S. and Western Europe meet the stringent criteria outlined by the Diagnostic and Statistical Manual for Mental Disorders, 4th edition (DSM-IV-TR, 2000) for anorexia nervosa (AN) and bulimia nervosa (BN), respectively (Hoek & van Hoeken, 2003). These rates reflect diagnosable cases of EDs and are likely underestimates of subclinical rates, considering as many as 20% of adolescent girls and young women experience subclinical forms of eating pathology (Graeber, Tyrka, & Brooks-Gunn, 2003). In fact, two-thirds of ED cases are actually cases of eating disorders not otherwise specified (EDNOS), which are not full threshold diagnoses (Hoek, 2006). The accuracy of prevalence rates is also questionable due to the tendency for those who engage in ED behaviors to conceal their illness and not seek professional help. For instance, a study looking at incidence rates of EDs in the general population found that approximately one-third of individuals diagnosed with AN and 6% of individuals who meet criteria for BN receive mental health care (Hoek & van Hoeken, 2003). The increasing rates of mortality and attempted suicide associated with EDs and ED symptomatology also contribute to the gravity of EDs as a growing epidemiologic and psychiatric concern (Crow et al., 2007; Crow, 1999; Stice, 2001).

According to the DSM-IV-TR (2000), Anorexia Nervosa (AN) is characterized by the refusal to maintain body weight at or above a minimally normal weight for one's age and height, and an intense fear of gaining weight, even when underweight based on objective measures. AN is further defined as a disturbance in how one views one's body

weight and/or shape and a self-evaluation that is based on an over-emphasis on one's weight or shape. The diagnostic guideline based on body mass index (BMI) for determining underweight status is less than or equal to $17.5 \text{ kg} / \text{m}^2$ (McIntosh et al., 2004). AN is comprised of two subtypes. One is characterized by restrained eating and/or non-purging behaviors (e.g., fasting, excessive exercise) and the other incorporates binge eating and/or purging behaviors (e.g., self-induced vomiting, laxative misuse, etc.). In order to meet current AN diagnostic criteria, amenorrhea (i.e., the absence of at least three menstrual cycles) must be present in post-menarcheal women. Experts in EDs debate over the usefulness of this definition, as clinicians have identified many cases of AN in which menstrual status is unrelated to weight status.

Bulimia Nervosa (BN) is similarly characterized by the DSM-IV-TR (2000) as a disturbance in body weight/shape image and a negative self-evaluation based on weight and/or shape. However, cases of BN present at or above normal weight. Additionally, there are two subtypes of BN. Both subtypes involve binge eating and compensatory behaviors, but one subtype involves purging behaviors whereas the other involves non-purging behaviors. A recurrent episode of binge eating is defined as eating during a discrete period of time an amount that is larger than what is considered normal for others in a similar context. An important element of a bulimic binge is that the individual engaging in a binge feels unable to stop or control how much is eaten. The purging BN subtype is characterized by experiencing inappropriate compensatory behaviors after a binge, enduring for a period of three months, occurring at least twice a week (e.g., self-induced vomiting, use of laxatives). The non-purging BN subtype is characterized by use

of alternative compensatory tactics, such as excessive exercise or fasting, to counteract the effects of large consumption of calories.

There are serious physical and psychological consequences that can persist throughout adulthood due to both AN and BN. Some of the physical complications include amenorrhea, anemia, bradycardia, cardiac murmur, extreme bone loss, dull or loss of scalp hair, lunago hair, sleep disturbance, diminished libido, reduced core temperature, insensitivity to pain, and death (American Academy of Pediatrics, 2003). Physiological complications specific to bingeing and purging include dermatological changes, salivary gland enlargement, erosion of tooth enamel, pancreatitis, esophageal or gastric dilation, fluid and electrolyte imbalances, and possible seizure activity (DSM-IV-TR, 2000). AN alone has a mortality rate of 5% from medical complications and suicide (American Psychiatric Association, 1994; Crow, 2005; Crow et al., 2007). Psychological ramifications associated with starvation include impaired concentration, loss of general interests, depressive symptoms, social withdrawal, and a focus on food-related concerns (DSM-IV-TR, 2000).

The high rate of subclinical levels of EDs (20%) reflects not only a problem in the current diagnostic criteria, but also suggests that individual ED symptoms and ED-related concerns are important outcomes that warrant empirical attention. Moreover, research indicates that many adolescents often experience subclinical or partial EDs due to the need for symptoms to sustain over a period of time with substantial intensity to meet diagnostic severity (Chamay-Weber, Narring, & Michaud, 2005). Thus, use of psychiatric diagnoses on adolescents may be premature, particularly if the partial ED symptoms spontaneously remit before adulthood. The problems associated with using

diagnostic criteria for adolescents have led some researchers to criticize current categorical definitions of EDs as not being comprehensive, and propose that definitions of the disorder should instead lie on a continuum. The two opposing views of using categories versus a continuum reflect a long-standing controversy in the EDs field. According to the continuum hypothesis, various eating disordered cognitions and behaviors, such as body dissatisfaction and dieting, differ by degree from clinical levels of EDs (Chamay-Weber et al., 2005). Body discontent or body dissatisfaction, for example, is a cognition that is closely associated with clinical levels of EDs, although not everyone who experiences body dissatisfaction will necessarily develop a diagnosable ED. Not surprisingly, previous work has demonstrated that high body dissatisfaction (and conversely, low body satisfaction) is correlated with dieting and restrictive eating patterns, and the development of diagnosable EDs, in addition to a variety of other health implications (Kelly, Wall, Eisenberg, Story, & Neumark-Sztainer, 2005).

Body dissatisfaction, and how it relates to body image, can be symptomatic of diagnosable EDs or can predict the development of diagnosable EDs, depending on the context in which it is being used. For instance, body image distortion, the perception of one's body to be significantly larger than it really is, is symptomatic of AN. Body dissatisfaction related to an over-emphasis placed on weight and shape in determining self-worth is another cognitive distortion symptomatic of both AN and BN. High body dissatisfaction that exists in isolation of diagnosable EDs is indicated to be predictive of developing EDs later on. Body dissatisfaction is also estimated to exist in 25% - 80% of adolescent girls (Kelly et al., 2005), and may not necessarily advance to clinical levels. Thus, body dissatisfaction is posited to be a strong antecedent of clinical levels of EDs,

and can also present as a sub-threshold concern that exists in many adolescent girls.

Therefore, it is important to examine levels of body dissatisfaction among non-clinical populations in order to gauge prodromal levels of eating disordered problems.

Adolescence and Pubertal Development, Pubertal Status, and Pubertal Timing

Adolescence marks an important developmental period during which the individual undergoes a series of normative changes. Some of the major developmental tasks include the integration of a changing body shape, body image and reproductive capacity into one's self-representation. Major psychosocial transitions include the transition toward greater autonomy from parents, development of peer friendships and sexual relationships, and the organization of a sense of self that regulates mood, impulse and self-esteem. In normal development, these transactional processes crystallize to form a functioning, integrated system (Attie & Brooks-Gunn, 1995).

Pubertal development consists of a set of biological processes producing changes to one's reproductive physiology (hormonal and organic level) and physical appearance (somatic level) (Petersen, Crockett, Richards, & Boxer, 1988), as well as contributes to changes in psychological processes and psychosocial outcomes (Dorn, 2006; Kaltiala-Heino, Marattunen, Rantanen, & Rimpela, 2003). Pubertal development has the potential to influence numerous aspects of physiology, behavior, drug metabolism, motivation, emotion, and some aspects of cognitive development, ultimately impacting medical and psychiatric outcomes (Dorn, Dahl, Woodward, & Biro, 2006). Individual differences in the onset of pubertal development are quite variable with some individuals completed with the process in elementary school, whereas others are still undergoing pubertal changes when they graduate from high school (Ellis & Essex, 2007). Unfortunately,

despite its integral role in development, pubertal development has only recently been addressed by developmental researchers (Dorn et al., 2006).

Many important pubertal changes appear to begin in early adolescence and adolescence, although at the hormonal level changes can begin even earlier. Adolescence, the interval between childhood and the assumption of roles and responsibilities commensurate with adulthood, is marked by physical, mental, and emotional development, concomitant with cognitive and social role changes (Dorn et al., 2006). Pubertal processes, however, are not confined to the age period typically associated with adolescence. The earliest phase of puberty, known as *adrenarche* or the “awakening of the adrenal glands,” can begin as early as 6 to 8 years of age. Adrenarche is characterized by rising levels of hormones in the absence of visible physical signs such as breast, genital, or pubic hair development, which emerge in the next phase of pubertal development (Dorn et al., 2006).

Once the hormone levels are appropriately elevated, *gonadarche*, the second phase of puberty, gives rise to the maturation of both primary (ovaries and testes) and secondary sexual characteristics (pubic hair, breast, and genital development). The hallmark of gonadarche is the reactivation of the hypothalamic-pituitary gonadal (HPG) axis, which was initially activated during the fetal and neonatal period. *Menarche*, defined as the onset of menses in girls, is the only clearly identifiable pubertal event that occurs during gonadarche (Dorn et al., 2006).

A pivotal marker of pubertal development, menarche plays a critical role in the reorganization of an adolescent girl’s body image and sexual identity (Caspi & Moffitt, 1991). Although recognized as important constructs to study, there is no clear consensus

as to what is the best approach to operationalizing and measuring pubertal development, pubertal status, and pubertal timing. Pubertal development concerns the cumulative series of processes associated with physical, sexual, and psychosexual maturation. Pubertal status refers to the degree of physical maturation or development one has attained (Ge & Natsuaki, 2007). Pubertal timing is defined as the rate at which pubertal development and status are attained, and is typically contextualized relative to same-sex peers.

A physical examination using the Tanner criterion is considered by some to be one of the most valid and reliable measures of pubertal stage, but often difficult to employ due to the intrusive nature of the assessment. Another problem with employing the Tanner method is that a parent or health professional needs to be involved to accurately assign an individual to a particular stage (Coleman & Coleman, 2002). Still others question the reliability and validity of the photographs used in the Tanner stages, as well as the distinctions made between some of the stages, arguing the need to collapse some of the stages (Coleman & Coleman, 2002).

Two other empirical measures of pubertal development are the Pubertal Development Scale (PDS) and the Adolescence Scale (AS) (Coleman & Coleman, 2002). The PDS is a self-report survey based on a four point likert scale in which boys and girls are asked sex-relevant questions about their current maturation status. Female respondents, for instance, are asked about their growth spurt, body hair growth, skin changes, breast development and menarche. Based on tests assessing the psychometric strength of the PDS, researchers conclude that the PDS is adequate only for rough estimates and for use in longitudinal studies (Coleman & Coleman, 2002). The AS is a self-report survey that asks respondents to rate their pubertal development relative to

other members of the same sex and age at menarche, for girls. The five-point likert scale ranges from “much earlier” to “much later” relative to same sex peers. Alpha reliability statistics suggest that the AS is promising; however, few studies have validated the use of this retrospective measure (Coleman & Coleman, 2002).

Age of menarche, the age at which menstruation commences, is often used to measure pubertal status and pubertal timing because menarche offers a clear demarcation of sexual maturation. In light of the wide individual variation in the onset of menarche, the timing of menarche may be more consequential for girls’ development than pubertal development, pubertal status, and the experience of menarche itself (Caspi & Moffitt, 1991). Researchers have demonstrated the validity of the retrospective recall of age of menarche, in response to the concerns raised regarding the problems associated with the subjective nature of self-reports. First, research indicates that age of menarche is a relatively salient and memorable event during pubertal development, and that the accuracy of recall is reduced as the time interval between menarche and recall is increased (Koo & Rohan, 1997). This finding suggests that the accuracy of recall increases the closer the time between age of menarche and age of completing the survey (i.e., age when age of menarche is recalled). Second, another study reported that relative to the recall of other aspects of menstrual history (i.e., cycle length and occurrence of regularity), age of menarche was more accurately recalled even after 30 years elapsed since the women in this study initially reported their age of menarche (Must et al., 2002). Third, Coleman and Dwyer (1994) found that up to 40 years later, 80% of their participants reported their age of menarche within one year of its actual occurrence. Evidence suggests that age of menarche is a relatively accurate and reliable source of

information, particularly the closer the time period between age of menarche and the age at which age of menarche is recalled.

Some have criticized the use of self-reported age of menarche because menarche marks the last stage of pubertal development, and thus is argued to be an inaccurate indicator of the age of pubertal *onset* (Dorn et al., 2006). Nevertheless, reviews of different methods of assessing pubertal development seem to conclude that there is no perfect method, and that the different methods have strengths and weakness in their psychometric strength and ease of application (Coleman & Coleman, 2002). The only clear conclusion that can be drawn is that the caveats to using a particular method for measuring pubertal development, pubertal status, and pubertal timing should be carefully considered by the researcher before implemented.

Developmental Context of Eating Disorders

Eating problems are conceived as negative outcomes that can arise in part due to the conflicts associated with the developmental passage into adolescence and adulthood (Steiner et al., 2003). Specifically, some researchers have posited that eating problems may result when pubertal demands become overwhelming (Attie & Brooks-Gunn, 1995). For example, adolescents who experience trouble with the internal and external changes associated with puberty may resolve pubertal challenges by asserting control and competence through a rigid preoccupation with food and eating (Steiner et al., 2003). Consistent with this viewpoint, the onset of EDs is typically during the period between ages 14 to 25, with late-onset EDs (after age 25) not as common (Attie & Brooks-Gunn, 1995). Research also has shown that ED symptoms begin at puberty and tend to remit by mid-life and the menopausal years (Klump et al., 2005). By contrast, EDs that emerge

after age 25 are believed to be triggered by stressful life events and chronic stress, which are qualitatively different precipitators than for the predominant type of EDs that emerge in adolescence (Klump et al., 2005).

In light of the time-specific nature of the onset of EDs, researchers have become interested in understanding the critical context of growth and maturation in which EDs evolve. For instance, AN and BN are theorized as having independent patterns of onset with different presentations and different correlates. Anorexic type eating problems seem to emerge during the passage into adolescence, whereas bulimic tendencies likely appear during the passage out of adolescence into young adulthood (Attie & Brooks-Gunn, 1989). It is believed that AN may be a maladaptive response to one's fears related to maturation. It is no coincidence that the lack of eating and rigidity associated with AN can cause delays in achieving menarche (Steiner et al., 2003). The use of food in BN appears to regulate mood and negative arousal in response to insecurities about increasing independence, which is why BN is oftentimes seen as a regressive form of resistance to the prospect of exiting one's family (Steiner et al., 2003).

Empirical evidence in developmental and behavior genetics research supports the conceptual argument that puberty marks a critical period for the development of ED problems. Longitudinal studies suggest that low body image reported in early adolescence significantly predicts greater eating problems, even when initial eating scores are controlled (Attie & Brooks-Gunn, 1989). Behavior genetics research provides further evidence supporting the argument that pubertal timing is important in the etiology of EDs. In one of the first studies to look at the differential heritability of eating pathology in prepubertal and pubertal twins, significant shared *environmental* effects

influenced ED scores in prepubertal twins, and significant *genetic* effects influenced ED scores in pubertal twins. Genetic effects accounted for 3% to 9% of the variance in overall eating disturbances in 11-year-old twins, but accounted for greater than 50% of the variance in 17-year-old twins (Klump, McGue, & Iacono, 2003). These findings have been corroborated by recent research that suggests that ovarian hormones that appear during puberty may play an important role in the heritability of EDs (Klump et al., 2005). These researchers found that the genetic diathesis of EDs may be organized by prenatal androgens, triggered by the rise in estrogens during puberty in girls, and exacerbated in adulthood by the continued presence of estrogens. These findings suggest that gonadal hormones may activate EDs, as ED symptoms are found to show significant heritability once girls have reached puberty. Taken together, these heritability findings suggest that puberty may be a vulnerable period for developing EDs.

The accumulation of normal body fat and the biological and hormonal changes that propel pubertal development coincide with many other important psychosocial changes that occur during adolescence. For instance, the transition into junior high school is accompanied by a host of novel experiences – the transfer to a new, impersonal school environment, social pressures to date, disruption of prior peer networks, and increased academic demands (Attie & Brooks-Gunn, 1995). ED attitudes and behaviors may reflect a maladaptive response to the multiple changes that co-occur with bodily changes. These social and academic changes are not necessarily followed by negative responses for all girls; however, evidence suggests that the greater number of simultaneous changes one experiences, the more girls' self-esteem, social participation, and grade point average suffer (Attie & Brooks-Gunn, 1995). Moreover, early maturing girls may have the least

time to develop cognitively and emotionally, and fewer resources from which to draw from, thus placing them at heightened risk for encountering problems during this sensitive period of adjustment.

The coincidental onset of heterosocial activity (forming friendships with mixed-sex peers), the beginning of formal dating, and initial experimentation with sex can further complicate the significance of pubertal development and pubertal timing in their contribution to body image problems and the development of EDs and ED-related concerns. As such, the nature and quality of relationships during this formative period is believed to be related to the development of EDs during puberty. The tendency for girls to place greater importance on the link between body satisfaction and self esteem than boys magnifies the pressure to successfully engage in various forms of mixed-sex socialization (Attie & Brooks-Gunn, 1995). This heightened pressure in girls to maintain appearances is consistent with objectification theory, which posits that society has ingrained in girls and women the need to internalize a male observer's perspective in evaluating their physical and sexual appeal (Frederickson, 1997). For instance, girls and women may gauge heterosocial success based on romantic attractiveness, which researchers posit is directly connected to the importance placed on physical looks for girls (O'Dea & Abraham, 1999). Consequently, heterosexual girls may attempt to increase their heterosociability by dieting to enhance their physical appearance and, in turn, their attractiveness to the opposite sex.

The interactions between puberty-specific challenges and the psychosexual challenges of early adolescence have been found to contribute to the development of EDs and ED-related problems in young girls (Caffman & Steinberg, 1996). Research

findings suggest that for those who have attained menarche, dating and mixed-sex intermingling appear to be significantly related to dieting and eating problems. Problems with sexuality are posited as triggering the onset of AN, whereas BN is associated with precocious sexual behavior (Ruuska, Kaltiala-Heino, Koivisto, & Rantanen, 2003). Furthermore, those who mature earlier tend to intermingle with older peers and have an earlier onset of dating versus later maturers, leaving these girls more susceptible to entering into relationships with the opposite sex (Caffman & Steinberg, 1996). Hence, it is meaningful to understand the concerted role of pubertal development, pubertal timing and other related developmental contexts to understand how adolescence marks a vulnerable period during which body image and eating disturbances can arise.

Pubertal Development and Pubertal Timing and Psychosocial Consequences

The extant literature is divided with regard to what aspects of pubertal development, pubertal status, and pubertal timing contribute most significantly to psychological outcomes. Caspi and Moffitt (1991) offered three rivaling hypotheses regarding the relation between the timing of pubertal changes and social psychological changes, which has subsequently been empirically expanded on by other researchers. The first hypothesis is the *stressful change hypothesis*, which states that the inherently stressful nature of puberty may disrupt development and give rise to psychological disturbances (Caspi & Moffitt, 1991). This model disregards the actual timing of puberty as critical, and posits that all girls will exhibit some distress, the greatest stress to occur during the period of greatest change.

The second hypothesis suggests that the timing of pubertal development may be critical to adjustment. Specifically, the *off-time hypothesis* states that events that occur

earlier or later than anticipated may lead to adjustment difficulties. This second hypothesis argues that being off time in either direction can have negative consequences for an adolescent girl who is forced to negotiate the demands of her new status without social support and validation (Caspi & Moffitt, 1991).

The third hypothesis, the *early-timing hypothesis*, argues that those who mature early are most vulnerable to adjustment difficulties. One of the reasons for this deleterious prediction is that others may attribute greater maturity to early-maturing girls than is warranted by their actual age. This chronological age inappropriate treatment may create difficulties because early-maturing girls are confronted with issues that do not correspond with their cognitive and emotional levels of maturity. Examples of such issues are starting to date at an earlier age than peers, and adults expecting older behaviors from early-maturing girls. Relatedly, early maturers tend to spend more time with older peers, which has been shown to mediate the relationship between early maturation and norm-breaking behaviors (Magnusson, 1988).

Caspi and Moffitt (1991) directly compared these three hypotheses and found data to corroborate the early-timing hypothesis. They specifically found that early-maturing girls exhibited the most adjustment difficulties at age 13, reporting more symptoms of internalizing disorders and having engaged in more delinquent activities than later maturing peers, although eating problems were not specifically measured. They added another dimension to their investigation and found evidence suggesting that early onset of menarche, per se, may not be what gives rise to later problems, but that early menarche may *accentuate* behavioral problems among girls predisposed to behavioral problems earlier in childhood (i.e., accentuation model). Although the outcome variable in Caspi

and Moffitt's (1991) models was delinquency, researchers have attempted to replicate Caspi and Moffitt's seminal work using other psychological outcomes.

Since Caspi and Moffitt's (1991) seminal paper delineating three rivaling hypotheses related to pubertal development and pubertal timing, researchers have attempted to replicate findings for outcomes other than delinquent behaviors. For instance, Ge, Conger, and Elder (1996) found that early maturing girls experienced significantly higher levels of psychological distress compared to their on-time and late maturing peers, supporting the notion that early-timing of menarche is critical to the later onset of problem behaviors. In fact, based on results from four waves of comparisons, they found that the adverse effects of early menarche persisted through tenth grade (Ge et. al, 1996). The long-term persistence of adverse effects all the more refutes the stressful change hypothesis, which posits that negative outcomes stem from the distressing nature of pubertal changes, and that the greatest emotional disturbance occurs at the onset of menarche or shortly thereafter (Caspi & Moffitt, 1991).

An earlier rate of physical development in girls appears to be related to numerous deleterious outcomes compared to those who arrive at menarche within an average or later time than peers. Examples of detrimental outcomes include depression, substance abuse, externalizing behaviors, risky sexual behavior, abortion, breast cancer, and obesity (Mendle et al., 2006). Ge, Conger, and Elder (2001) found that girls who experienced menarche at a younger age than their peers endorsed higher depressive symptoms than other boys and girls throughout their six years of secondary schooling. In support of this finding, Graber et al. (2004) found that girls who entered puberty earlier than their peers had higher lifetime prevalence rates of depressive disorders, anxiety, disruptive behavior

disorders, and elevated antisocial personality traits, as well as lower quality of relationships and more limited social networks.

Pubertal Timing in Relation to Body Image and Eating Problems

The timing of pubertal changes is an important factor that is believed to contribute to the development of EDs and ED-related concerns. The developmentally normal “fat spurt” associated with female puberty can precipitate dieting behaviors during adolescence. Girls on average gain 11 kilograms (24 lbs) of weight during puberty (Cauffman & Steinberg, 1996). The increase in adiposity that is associated with pubertal development leads to girls’ bodies departing from the thin ideal, which can lead to an elevated sense of uneasiness about one’s body. It has been found that girls who begin puberty earlier than their peers are likely to be heavier and to feel greater discontent about their weight and appearance in comparison to their prepubertal peers, those who have yet to undergo physical changes reflective of sexual maturation (Graber, Seeley, Brooks-Gunn, & Lewinsohn, 2004).

As girls’ bodies mature, body image appears to relate to self perceptions of physical attractiveness, which is found to be implicated with self-esteem for girls (Cauffman & Steinberg, 1996). Research suggests that with age, girls tend to rely more on perceptions of their body than concrete attributes such as actual body size to shape their self-concept (Keel, Fulkerson, & Leon, 1997). Girls’ increased reliance on body image coincides with elevations in the internalization of the thin ideal, which refers to the extent to which one accepts socially defined ideals of attractiveness and engages in behaviors to achieve these ideals (Thompson & Stice, 2001), suggesting that increases in the internalization of the thin ideal may be due in part to the body changes associated

with puberty. This trend to be focused on external validation of one's physical worth may be related to the tendency for girls and women to internalize a male observer's evaluation of one's physical and sexual attractiveness (Frederickson, 1997). Further evidence suggesting that biochemical changes associated with pubertal changes may contribute to increases in the internalization of the thin ideal is the research finding that degree of genetic influence on ED scores increases with age, while environmental influences decreases with age (Klump et al., 2005).

The psychological response of feeling dissatisfied with one's body can in turn lead to behavioral attempts to return to a thinner, prepubertal physique. An increase in body dissatisfaction among girls who mature early places them at relatively greater risk for developing EDs and ED-related problems because their weight gain tends to be a larger fraction of their total body weight, leaving these girls more dissatisfied with their heavier bodies than their later maturing peers (Cauffman & Steinberg, 1996). Numerous longitudinal studies with adolescent girls have found that body dissatisfaction is one of the strongest predictors of EDs (Graber et al., 2004; Leon, Fulkerson, Perry, & Cudeck, 1992; Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004; Stice, 2002). In fact, among those with AN and BN body dissatisfaction is posited as one of the most predictive factors for remission and improvement during and after treatment, as well as the most relevant antecedent for developing these disorders (Mangweth-Matzek, Rupp, Hausmann, Kemmler, & Biebl, 2007). What is more, researchers found that heavier girls at earlier stages of puberty in comparison to thinner girls at later stages of puberty were more likely to report ED symptoms one year later (Keel et al., 1997). A study in Finland found that the age of menarche among girls with BN was significantly earlier compared with

the mean age at menarche in the general adolescent population in Finland (Ruusaka et al., 2003).

Stice and Whitenson (2002) argued that there may be two pathways to body dissatisfaction for post-menarcheal girls, based on their two-wave analysis of thin-ideal internalization and BMI. According to their longitudinal, prospective study on girls ages 11 to 15, the first and most potent predictor of body dissatisfaction was thin-ideal internalization, which supports the notion that internalizing societal pressures to be thin may be causally related to body dissatisfaction. They also found that BMI emerged as the second most powerful predictor of body dissatisfaction, in the absence of particular pressures to be thin. Interestingly, both of these pathways were found to place adolescent girls at approximately the same level of risk for onset of body dissatisfaction (Stice & Whitenson, 2002). These findings suggest that the period of menarcheal maturation coincides with the period during which internalization of societal messages about desirability of thinness and increases in BMI take place.

Researchers have empirically shown that the increase in adiposity that co-occurs with menarche may be directly responsible for the body dissatisfaction to which post-menarcheal girls are vulnerable. Attie and Brooks-Gunn (1989) found in their prospective, longitudinal study among non-clinical adolescent girls that eating problems emerged in response to physical changes that accompany pubertal development. They also found that lower body image (i.e., higher body dissatisfaction) measured during puberty (grades 7 to 10) was predictive of eating problems two years later, irrespective of whether or not eating problems were initially reported. This effect held even when other variables, including physical maturation, were covaried, which reinforces a developmental

psychopathological framework suggesting that factors associated with eating problems in later adolescence are relatively independent of those that initiate them. This finding also corroborates the notion that high levels of body dissatisfaction during pubertal development may predispose a later onset of eating problems. EDs and disturbed self-images have also been identified as psychosomatic outcomes associated with early pubertal timing, in addition to the other problems above-mentioned (Kaltiala-Heino, Marttunen, Rantanen, & Rimpela, 2003; Mendle et al., 2006). Taken together, these findings seem to suggest that an earlier rate of physical development in girls may be related specifically to body image and ED-related concerns compared to those who arrive at menarche within an average or later time than peers.

Researchers have specifically sought to investigate the effects of early menarche on body image and EDs in order to examine whether the early-timing hypothesis (Caspi & Moffitt, 1991) is applicable to multiple psychological outcomes. Graber et al. (2004) conducted a cross-sectional epidemiological study testing whether pubertal timing was associated with an array of mental health symptoms and disorders, including EDs. They found that in girls early menarche was related to more current and lifetime history of adjustment problems. Specific to EDs, early-maturing girls had significantly elevated lifetime rates of diagnosable EDs compared to on-time peers (3.5% versus 0.8%). Similarly, Kaltiala and Heino (2003) found in their school based cross-sectional study in Finland that earlier age of menarche was associated with higher frequency of all internalizing and externalizing problems measured, including BN and BN symptoms. These findings lend further credence to the notion that societal pressures for thinness may be especially strong for early maturing girls because of the greater discrepancy between

their actual and ideal bodies due to pubertal weight gain (i.e., higher BMI) (Harrison, 2001). For those who have internalized this pressure for thinness, increased weight discrepancy can lead to body dissatisfaction and the use of inappropriate weight loss strategies to meet thin-ideal standards, which can eventually escalate to diagnosable levels of EDs.

The notion that early menarche begets body dissatisfaction, however, is not without dissent. Stice and Whitenson (2002) found, based on their prospective investigation, that early menarche did not predict subsequent increases in body dissatisfaction over and beyond the effects of thin-ideal internalization and BMI. To this effect, Stice and Shaw (2002) also found, in their review of prospective studies, that early menarche did not emerge as a significant predictor of later increases in body dissatisfaction. Instead, their review concluded that there was stronger support for the notion that elevated perceived pressure to be thin, thin-ideal internalization, and higher BMI are risk factors for subsequent body dissatisfaction for female adolescents and young women. These researchers found that body dissatisfaction was predictive of the persistence of bulimic symptoms (among those who previously met diagnostic criteria), a relation which was mediated by dieting behaviors. Moreover, Smolak and Levine (1993) found that girls who both had early menarche and had experienced multiple, synchronously distressing events (e.g., onset of dating, transition to middle school) were at heightened risk for eating and body image problems.

The mixed findings may seem to suggest that earlier timing of menarche alone may be unrelated to the development of body dissatisfaction and eating problems. However, extant findings do not necessarily refute the postulation that increases in

adiposity and heightened awareness of societal pressures to be thin, experiences which have been demonstrated to occur during pubertal development, are related to body dissatisfaction and ED-related outcomes. The body of opposing research reflects the need for studies to help improve our understanding of how multiple, simultaneous processes that occur during pubertal development, and the relative timing at which these events take place, impact later outcomes independently or cumulatively with predisposed vulnerabilities. There is a need for further research to test the notion that a cumulative interplay of critical events that occur during pubertal development, including the timing of menarche, is important to the onset of body image and ED-related concerns. In particular, the development of culture-specific events, such as ethnic identity, the timing of which also coincides during pubertal maturation, has not yet been tested in conjunction with developmental markers.

In summary, puberty marks a critical period of development that can impact the psychological health of girls. The interaction of biochemical and psychosocial and psychosexual changes that occur during puberty brings with it a host of developmental hurdles that need to be properly overcome to continue on a path of adaptation. One line of evidence suggests that early pubertal timing may be related to heightened risk for body image and ED-related concerns for girls, in addition to numerous other maladaptive outcomes. This risk is driven by the increase in body dissatisfaction that accompanies normal pubertal weight gain. Body dissatisfaction is perpetuated by cultural and sociocultural influences that pressure girls and women to attain an impossible standard of thinness. The putative formation of culture-specific factors, such as ethnic identity,

during puberty may also be an important developmental process contributing to body image and ED-related outcomes for racial/ethnic minority youth.

Social Psychological Theory Related to Eating Disorders

It is believed that the etiology of EDs is rooted within the social and cultural standards of Western society. Specifically, Western society emphasizes the desirability of thinness and attractiveness and these beliefs about attractiveness and body shape lead people to define themselves in terms of body shape and weight. It is the internalization of this thin ideal, or the extent to which individuals accept socially defined ideals of attractiveness and engage in behaviors to achieve these ideals, which places girls and women at risk for developing unhealthy attitudes about eating and body image standards (Thompson & Stice, 2001).

The media is one of the most pervasive messengers of the Western value that thinness is equated with success and perfection (Stice, Schupak-Neuberg, Shaw, & Stein, 1994). Researchers have found that over the past 40 years the number of full-body shots of women on the covers of popular fashion magazines has significantly increased and, over the past 20 years, there has been a significant decrease in the overall body size of models photographed (Sypeck, Gray, & Ahrens, 2004). Similarly, the BMI of Miss American pageant winners (i.e., the representative beauty ideal) has decreased over the past 40 years (Rubinstein & Caballero, 2000). Exemplars of ideal slenderness and beauty are used by companies to attract audiences, which ultimately lead to profit making from the increased consumerism. Spokespersons are selected based on how well they portray attributes other women desire in physical appearance, social status, and wealth. The models themselves are idealized, as well as their characteristics (i.e., body shape and

size). Consequently, Sypeck et al. (2004) argued that Western culture has idealized thinness to the point where the physical appearance women wish to attain can no longer be achieved through balanced diet and exercise.

Thompson and Stice (2001) purported that the media operates according to the social comparison theory in its contribution to body dissatisfaction and ED-related outcomes. According to this theory, individuals who perceive themselves as falling short of the thin ideal feel higher levels of body dissatisfaction in comparison to those who hold a more positive body image (Thompson & Stice, 2001). In the context of EDs, upward social comparison occurs when one compares oneself to a thinner other and is related to reduced self-esteem; whereas downward social comparison occurs when comparing oneself to a less thinner other and is related to increased self-esteem (Tiggemann, 2003). In other words, the relationship between media influences and body dissatisfaction is mediated by social comparison (Harrison, 2001; van den Berg, Thompson, Obremski-Brandon, & Covert, 2002). Specifically, women who compare themselves to the media's portrayal of physical perfection are bound to encounter a large discrepancy between their ideal and actual selves, which may lead to efforts to decrease the discrepancy using dire means. Undoubtedly, social comparison is an important factor in the relationship between thin ideal internalization and ED symptomatology.

Internalization of the thin ideal, already established as a strong predictor of body dissatisfaction for adolescent girls, continues to impact women as they age into adulthood. The assumed pathway is that women who internalize the thin ideal have adopted the media's representation of slenderness as their own ideal and engage in social comparison, which is thereafter presumed to result in body dissatisfaction (Stice et al., 1994). In turn,

internalization of the thin ideal can lead to the development of ED behaviors and attitudes. Stice et al. found that the relationship between overall media exposure and body dissatisfaction was mediated by internalization of the thin ideal. The current research supports the notion that there may be a relationship between the idealization of thinness and body image and ED-related concerns in Western culture, and that this relationship is mediated by both social comparison and the internalization of the thin-ideal.

Eating Disorders and Eating Disordered Concerns as a Product of the Western World

Keel and Klump (2003) conducted a meta-analysis of the incidence rates of AN and BN across time and cultures to determine the extent of culture's role in the etiology of EDs. Their aim was to examine whether EDs existed in time periods or cultures that did not subscribe to the notion that women ought to be thin. Evidence that EDs did not exist in contexts that did not idealize thinness in women would suggest that AN and BN could likely be attributed to the increasing idealization of thinness in Western, industrialized countries. In their landmark study, Keel and Klump found no cases of AN and BN in cultures relatively free from Western influence. Thus, their findings supported the notion that AN and BN are culture-bound, with some evidence suggesting that BN may be more culture-bound than AN, and that increased exposure to Western culture's idealization of thinness would render one more vulnerable to developing an ED. Numerous studies have corroborated the theory that increased awareness and internalization of the thin ideal that are propelled by Western perspectives are associated with EDs and ED-related problems in young women (Hermes & Keel, 2003).

If the assumption that EDs and Westernization are related is true, a person's risk for developing an ED should increase as one is exposed to Western culture and its

idealization of thinness and begins to accept these standards as relevant to oneself. The basis of this assumption is that the media's portrayal of extremely thin women and the inherent messages of such images are artifacts of socially constructed Western ideals, suggesting that the more Westernized a culture is, the higher the rates of body image disorder and ED-related concerns. In support of this assumption, numerous studies have shown higher prevalence of EDs in economically developed than developing countries. For instance, Becker, Burwell, Gilman, Herzog, and Hamburg (2002) studied change in ED symptoms of Fijian adolescent girls in 1995 and 1998, after different amounts of exposure to television. This sample was presumed to have had minimal exposure to Western culture prior to the study, and also traditionally preferred larger women. They found significant elevations in EAT-26 scores over the three-year period, particularly among those who were exposed to television versus a comparison group unexposed to media. Moreover, they found a significant increase in the percentage of girls who engaged in self-induced vomiting over the three years. Similarly, Akiba (1998) demonstrated that Iran, a culture relatively unexposed to Western media, reported less prevalence of body dissatisfaction versus an American comparison group.

The link between increased economic development and Westernization may not be surprising. Economic liberalization encourages the deregulation of various media channels (e.g., television, magazine, newspaper, and advertising). Slim, flawless models, oftentimes White American celebrities, are chosen as spokespersons to project an influential image that resonates with the thin ideal. Advertising conglomerates capitalize on the marketability of the thin-is-beautiful concept which sets in motion widespread consumerism. Increased consumption propels financial mobility and further

industrialization with which comes heightened pressures to mimic those occupying the top tiers of the global economic hierarchy. In this vein, the association that develops between thinness and prestige likely stems from the intricate interplay of hegemonic forces that come with global economic change.

Consistent with the assumption that the culture-specific factors related to ED onset are propelled by the *Western* notion of the thin-ideal, EDs have been previously thought to be largely a problem that occurs nearly exclusively to White women with middle-to-upper socioeconomic status (SES) (Story, French, Resnick & Blum, 1995; Smolak & Stiegel-Moore, 2001). Dissatisfaction with one's body shape due to perceived overweight has also been assumed to be a Western, White, and female phenomenon (Kowner, 2002). These biases are furthermore reflected in the research focus that has primarily concerned itself with White girls and women with high SES. Grabe and Hyde (2006) stated that little is known about individual differences in body dissatisfaction and ED-related concerns among women because much of the research has been conducted on predominantly White female samples with little focus on racial/ethnic differences.

Body Image and Eating Disorders Research on Racial/Ethnic Minority Groups

Defined primarily as a Western problem, researchers have until recently assumed eating problems exist almost exclusively among White women with high SES (Smolak & Stiegel-Moore, 2001). Relatively little is known about the etiology and nature of body image and ED-related concerns among racial/ethnic minorities living in Western countries, as well as throughout the world. Current research suggests that EDs and ED-related issues are a growing problem among racial/ethnic minorities as well as men and people of varying SES (Cummins et al., 2005; Shaw et al., 2004).

The concepts of culture and ethnicity are oversimplified in research that examines the cause and manifestation of EDs among minority groups. Past research comparing White and non-White groups generally concludes that ethnic minority status protects women from EDs (Crago, Shisslak, & Estes, 1996; Smolak & Striegel-Moore, 2001; Wildes & Emery, 2001). However, the use of non-White comparison groups is problematic because it aggregates many different groups into a single category. Oftentimes these non-White groups are comprised disproportionately of Black respondents, disregarding the great amount of heterogeneity that exists within a non-White category. There is also a lack of power in studies that employ non-specific non-White groups due to the small sample sizes of the racial/ethnic minority groups. Thus, conclusions drawn from White versus non-White comparisons may not be accurate or representative of the larger population (Wildes & Emery, 2001).

The overgeneralized conclusion that White women experience greater levels of body dissatisfaction and ED concerns than non-White women have reinforced the inaccurate notion that racial/ethnic minority women are less at risk for eating disturbances than their White counterparts. The assumption that White women have more body image and ED-related disturbances than racial/ethnic minorities also serves to perpetuate the marginalization of racial/ethnic minority group members who are underserved both in research attention given and in receiving mental health services. However, recent studies are beginning to dispute this overgeneralization that non-Whites are protected from body image and ED-related concerns.

Current research studies that have attempted to account for heterogeneity in samples conclude that certain women of color may be susceptible to developing ED

symptoms (Shaw et al., 2004), although Black women seem to be the most protected compared to other groups. In Black-White comparison studies, Black women tend to have lower rates of body dissatisfaction, lower perceptions of overweight, and engage in less dieting compared to White women (Story, French, Resnick, & Blum, 1995). Altabe (1998) also found that Black women have the most positive self-perception, consistent with the general finding that Black women tend to have higher self-esteem than White women (Roberts, Cash, Feingold, & Johnson, 2006). Roberts et al. found in their meta-analysis looking at Black versus White differences in body dissatisfaction, that Black women are significantly more satisfied with their bodies than White women for reasons other than differing attitudes toward weight.

The positive body image of Black women is believed to stem from the relatively large ideal body size reinforced by their cultural values, and from the hypothesized tendency for Black women to resist conforming to White notions of beauty and attractiveness (Grabe & Hyde, 2006). One hypothesis states that Black women do not frequently engage in social comparison when confronted with media images of thinness which tend to overrepresent White women with whom Black women do not relate (Tiggeman, 2003). It is also posited that a strong affiliation with one's Black identity liberates Black women from having to conform to an externally-derived standard of beauty (Grabe & Hyde, 2006; Collins, 1991). Furthermore, Black culture tends to perceive personality traits as a form of beauty, and to place less emphasis on external characteristics (Striegel-Moore, Schreiber, & Pike, 1995). Research findings have also suggested that Black men prefer larger sized women in comparison to White men's preferences (Akan & Grilo, 1995). It is not surprising, then, that Black women tend to

have relatively higher body satisfaction despite that their group has on average a higher BMI than Whites (Akan & Grilo, 1995).

Recently, researchers have improved their sampling biases to look beyond White vs. non-White/Black comparisons. For example, some studies have examined differences in prevalence rates of body image and eating disturbances across different racial/ethnic groups. These findings have been inconsistent, however, with some researchers finding differences between certain racial/ethnic minorities and Whites, and other studies finding no significant racial/ethnic differences in body image and eating pathology.

One set of findings has demonstrated that White and racial/ethnic minority women are similarly disturbed in body image and eating problems. Fernandez, Malacrne, Wilfley, and McQuaid (2006) found that Asian American and White women did not differ significantly on a Bulimia subscale derived from a factor analysis of the Bulimia Test-Revised (BULIT-R) on a sample of female racial/ethnic minorities that comprised Blacks, Whites, Asian Americans, and Latino Americans. A study examining a community sample of Hispanic, Black, Asian American, and White women found that all groups were equally likely to endorse symptoms of AN, BN, binge eating disorder, and EDNOS, albeit White women were at highest risk for developing a diagnosable ED (Cachelin, Veisel, Barzegarnazari, & Streigel-Moore, 2000). Moreover, Cummins, Simmons, and Zane (2005) demonstrated that similar levels of body dissatisfaction appear to be present across White and non-White groups. A meta-analysis also revealed no significant differences in body dissatisfaction between Black, Hispanic, Asian American, and White women (Shaw, Ramierez, Trost, Randall, & Stice, 2004). The lack of racial/ethnic variation in body dissatisfaction seems to suggest that ethnic groups may

have reached parity in ED-related concerns due to the widespread prevalence of the Western emphasis on thinness.

Other researchers have found that some racial/ethnic minority groups are relatively less disturbed than White Americans in body image and eating concerns. A meta-analysis of 35 studies indicated that White men and women had significantly higher levels of body dissatisfaction and eating disturbances than did non-Whites (Wildes, Emery, & Simons, 2001). Regan and Cachelin (2006) also found within their multi-ethnic community sample that fewer Asian/Asian American women engaged in compensatory behaviors such as induced vomiting and use of laxatives, diuretics, and diet pills, in comparison to Hispanic, Black, and White women. The authors postulated that this result may be related to the Asian/Asian American women in their sample having the lowest average body weight, and in turn less perceived pressure to control their weight using purging and compensatory behaviors. Lee and Lock (2007) also found in their sample of clinically anorexic adolescents that Asian Americans scored significantly lower on the restraint and weight concerns subscales of the Eating Disorders Examination (EDE) than did their White counterparts.

Still other researchers have argued that Asian and Asian American women may actually be at heightened risk for body dissatisfaction and ED-related problems. In support of the view that Asian women are at elevated risk for ED-related problems, Story, French, Resnick, and Blum (1995) found that Asian American women reported higher levels of binge eating and out of control eating compared to Whites, Blacks, Hispanics, and American Indians, although the difference with White counterparts was not statistically significant. Sanders and Heiss (1998) found similar eating attitudes, body

dissatisfaction, and body size perception among Asian American and White women, but found that Asian American women exhibited a significantly higher “fear of fat” than White counterparts. The extent to which this fear is related to a fear of legitimate adiposity, however, is unclear, as evidenced by Robinson et al.’s (1996) finding that among the leanest 25% of their sample, Asian girls endorsed the highest body dissatisfaction.

Researchers have attempted to tease apart specific body image and eating concerns within the racial and ethnic group differences found. For instance, Grabe and Hyde (2006) found in their meta-analysis across multiple racial and ethnic groups that White women were at greatest risk for clinical cases of EDs, but that Asian American women exhibited greater body dissatisfaction. Specifically, there was a higher frequency of binge/purge behaviors reported by White women compared to Japanese American women, but Japanese American women reported significantly greater body dissatisfaction than did White women (Grabe & Hyde, 2006; Lee & Lee, 2000). Similarly, in their study among women who endorsed having weight concerns, Haudek, Rorty, and Henker (1999) found that Asian Americans reported significantly higher levels of shape concern, drive for thinness, and body dissatisfaction than White Americans.

Taken together, these findings suggest that among minority groups, Asian and Asian American women may be at similar or increased risk for ED-related concerns compared to White women. Shaw et al. (2004) found that Asian Americans and Whites endorsed significantly higher levels of internalization of the thin ideal than did Blacks or Hispanics. Evans and McConnell (2003) cited that Asian American women are more likely to endorse mainstream beauty ideals than Black women, leaving Asian American

women vulnerable to the views espoused by the thin ideal. A cross-cultural comparison between East- and South-Asian women and White British women found that there was a low prevalence of diagnosable EDs in Pakistan, Hong Kong, Singapore, and China, but that these same women endorsed similar levels of ED attitudes and behaviors, and in some cases more ED symptoms than White British counterparts (Lee & Lee, 2000). Asian and Asian American respondents have also been found to endorse other ED attitudes, such as dietary restraint and weight and dieting concerns, at higher rates than White respondents (Cummins et al., 2005). One of the most striking results was Robinson et al.'s (1996) finding in their study among northern California middle school girls that Asian American girls with the lowest BMI expressed greater body dissatisfaction than White counterparts in the magnitude of one third of a standard deviation.

ED research has made great strides to include women of color in its empirical pursuits; however, research continues to lag behind in expanding its work to racial/ethnic minorities. Most of the studies examining pubertal development and pubertal timing have focused on White adolescent girls. This narrow focus is a crucial oversight, as models of risk should not be assumed to be the same in different racial and ethnic groups (Franko & Striegel-Moore, 2002). Ge et al.'s (2001) study marks one of few developmental studies that have incorporated racial and ethnic group comparisons. They found that for adolescent girls the onset of menarche brings with it increased adiposity which then triggers body dissatisfaction, but only for White Americans and Hispanic Americans; the same effect was not true for Black Americans. Although commendable that non-White groups were examined in this study, group comparisons do not shed light on the processes by which racial and ethnic group differences exist. Comparisons between racial

and ethnic groups do not address, for instance, the extent to which pubertal timing differences within racial and ethnic groups relate to differences in body dissatisfaction and eating problems.

Moreover, certain racial/ethnic minority groups continue to be neglected in developmental and ED-related research. The extent to which the connection between early menarche and increased BMI leads to body dissatisfaction for Asian and Asian American adolescents, for instance, is not well understood. Siegel, Yancey, Aneshensel, and Schuler (1999) were one of the first to include a sample of Asian Americans in their multi-ethnic study looking at the relation between perceived pubertal timing and body image. They found that only White and Hispanic girls who perceived themselves as maturing earlier compared to peers were vulnerable to having body image concerns. Interestingly, body image ratings of Asian Americans were not influenced by perceived pubertal timing; in fact, this group was the least inclined to see themselves as early maturers.

Covariates in Eating Disorders and Eating Disorders Related Research

Research has shown the importance of including covariates to ensure detected relationships are not a function of intervening factors, and to shield against drawing conclusions based on spurious results (Jaccard, Guilamo-Ramos, Johansson, & Bouris, 2006). To ascertain the strength of empirical findings, researchers have attempted to identify factors that may confound detected group differences in ED-related outcomes (Cummins et al., 2005). Factors typically associated with increased risk for body image and ED problems are high SES, high level of education, and strong identification with White, middle-class values (Cummins et al., 2005). BMI is an example of another

important intervening factor that researchers have found may confound the interpretation of noted racial/ethnic group differences in body image and ED-related outcomes (Cummins et al., 2005).

Researchers have documented the insignificance of racial/ethnic group differences in specific body image and ED-related concerns once BMI was covaried (Cummins et al., 2005; Wardle, Bindra, Fairclough, & Westcombe, 1993). For instance, Gluck and Geliebter (2002) found that the statistically significant differences in ideal body size among Black, Asian American, and White college aged women disappeared after controlling for BMI. Similarly, Arriaza and Mann (2001) found that after controlling for the significantly higher BMI of Hispanic female participants in comparison to White and Asian American groups, the elevated weight and shape concerns in Hispanic women disappeared. Relatedly, Yates, Edman, and Aruguete (2004) reported that BMI was highly correlated with body dissatisfaction among White, Black, Filipino American, Chinese American, Hawaiian, and multiethnic college students. That is, for all groups studied, body dissatisfaction increased as BMI increased. Moreover, covarying BMI concealed an initial finding that White and Asian American women exhibited greater body discrepancy and eating pathology compared to Black women (Yates et al., 2004).

Taken together, these findings regarding BMI suggest that differences in body image and ED-related outcomes may be a function of BMI and not racial and ethnic group variation, and underscores the importance of acknowledging the confounding role of BMI in ED-related research. It is also important to note that BMI is not necessarily positively correlated with body dissatisfaction across all racial and ethnic groups for all members of these groups. This caveat was made apparent by Robinson et al.'s (1996)

finding that the Asian American girls in their study with the lowest BMI endorsed the highest body dissatisfaction.

In addition to BMI, studies examining body image and ED-related outcomes should consider the potential confounding role of self-esteem and personal identity. When investigating possible predictors of body dissatisfaction and ED symptoms, it is important to ensure that the significant relationship between thin ideal internalization and body dissatisfaction, for instance, is not due to low self-esteem. If the significant relation between thin ideal internalization and body dissatisfaction remain after controlling for covariates such as self-esteem, then the finding speaks to the strength of the effect. Variations of measurements of self-esteem include measures of well-being and satisfaction with life, both of which have been demonstrated to be correlated with self-esteem (Diener, Emmons, Larsen, & Griffin, 1985; Crocker, Luhtanen, Blaine, & Broadnax, 1994).

Personal identity is another important construct to control as a covariate because of its theoretical association with the development and maintenance of certain ED behaviors. The development of a personal identity, or sense of oneself, is an ongoing process that forms in a social, relational context through interactions with the environment. It is posited that, to arrive at identity resolution, it is necessary to undergo some degree of distress due to the awareness of the discrepancy between the real or actual self and the ideal self (Erikson, 1968).

Personal identity is posited as having an etiological role in the development of ED symptoms, particularly binge eating. Escape theory and functional theory both posit the role of personal identity in the development of binge eating behaviors, although each

suggest different pathways (Wheeler, Adams, & Keating, 2001). According to Heatherton and Baumeister's (1991) escape theory, binge eating represents an effort to escape the distress associated with the painful realization that one's perceived self is falling short of one's perfectionistic self-standards. In essence, the eating disordered behavior provides a way to avoid issues related to the self, and serves as a maladaptive form of protection from the distressing awareness of discrepancies within the self. Similarly, Schupak-Neuberg and Nemeroff's (1993) work based on subclinical bulimics suggests that binge eating behaviors likely stem from a weak or disturbed sense of self identity. Specifically, they found that the subclinical bulimics in their study reported greater identity confusion, were more likely to perceive their identities as enmeshed with others, and reported greater inconsistency in how they viewed themselves from one time to another.

In contrast to the route of escape, functional theory posits that bingeing serves as a coping mechanism by which one avoids meaningful self-introspection. The perceived anxiety then transfers from ego-related distress, which is what initially induced the bingeing, to distress related to the fact that one is engaging in eating disordered behaviors (Wheeler et al., 2001). The key difference between the two models is that whereas escape theory posits that bingeing involves a passive avoidance of identity issues by shifting focus onto a less threatening stimulus (i.e., food), the functional theory posits that bingeing predicts avoidance as the disordered eating is an active means for avoiding identity issues (Wheeler et al., 2001).

Personal identity may also have a confounding role due to its putative association with ethnic identity and adoptive identity (culture-specific factors that will be discussed later in this paper), and because of the simultaneous time period during which personal

identity and ethnic and adoptive identities are presumed to form. For racial/ethnic minorities, it is posited that ethnic identity is an additional domain of one's ego-identity that develops during adolescence and young adulthood (Phinney, 1990,1992). The formation of ethnic identity entails the incorporation of cultural characteristics into one's self-concept, and develops in the context of belonging to a minority ethnic group. Thus, it is conceptualized as there being both a personal and social or political component to self-defining one's ethnicity (Phinney, 1992). It can be argued that a similar conceptualization applies for adoptive identity, although further empirical work is needed to substantiate this assumption.

Furthermore, research findings suggest that pubertal timing is related to identity crisis, which serves as an additional reason that personal identity is an important construct to control as a covariate. According to a preliminary investigation of retrospective self-report data on adolescent boys and girls, Berzonsky and Lombardo (1983) found that early maturing girls were more apt to deal with personal identity issues than were later maturers, based on responses to an identity status interview. These findings suggest that pubertal timing may be implicated in the development of personal identity, and demonstrate the potential for personal identity to confound main effects that involve pubertal timing as an independent or moderator variable.

Chronological age is important to covary to help ensure that age does not confound the hypothesized effects of age of menarche, especially considering that many of the constructs involved are developmental in nature. Controlling for age is aimed to help rule out spurious findings that are a function of chronological age differences versus the targeted variables. For instance, entering age as a covariate can help ensure that the

relationships that are detected between independent and dependent variables are not driven by chronological age. The close association between BMI and age further substantiates the importance of including age as a covariate in body image and ED-related research (Siegel et al., 1999).

The quality of parental environment as perceived by an adolescent is arguably an important variable to covary in ED-related research, as it is believed to be etiologically implicated with the onset and maintenance of EDs. Poorer family functioning has been found in eating disordered families more than in normal control families (Schmidt, Humfress, & Treasure, 1997). One theory posited by Minuchin (Dare, Le Grange, Eisler, & Rutherford, 1994) is that four key transactional family characteristics play a partial etiological role in the development of an ED in a child: enmeshment, overprotectiveness, rigidity, and lack of conflict resolution (Dare et al., 1994). In addition to these themes, other theories include excessive cohesiveness, reduced emotional expressivity, poor attachments, and high levels of conflict as also being idiosyncratic of ED familial patterns (Schmidt et al., 1997). Families of bulimic children have been specifically characterized as chaotic and lacking in parental warmth and care, in addition to being highly conflictual (Schmidt et al., 1997).

Parent-child relationships in general are noted by researchers as undergoing an increasing amount of strain during adolescence, a negative transition which appears to be more punctuated for girls than for boys (McGue, Elkins, Walden, & Iacono, 2006). Adolescence marks a developmental period typically characterized by profound psychological change and increasing levels of autonomy, events which have been shown to alter the child's perceptions of her relationships with parents. Specifically, research has

shown that the quality of relationships, from the adolescent's perspective, is perceived as declining moderately but consistently from age 11 to age 14 (McGue et al., 2006). In their study, McGue et al. reported that the deterioration in quality of parent-child relationship was greater for girls than for boys. In light of the negative developmental changes in parent-child relationships and the etiological role that family functioning plays in eating pathology, the child's perception of the quality of her family environment can potentially confound results. For instance, researchers have found that detected ethnic group differences in body image and ED-related outcomes were actually a function of cultural differences in parenting styles (Jennings, Forbes, McDermott, Hulse, & Juniper, 2006), a point which will be discussed later at greater length.

Acculturation and Eating Disorders among Asian/Asian American Women

Increased acculturation and acculturative stress may contribute to elevated body dissatisfaction among Asian American girls. Researchers have attempted to understand the role of cultural influences, such as acculturation, in contributing to ED risk among Asian and Asian American women. Acculturation is the most widely used proxy for Westernization in many of these studies, although the investigations have employed different measures of acculturation. Acculturation is defined as the process of psychosocial change that occurs when a group or individual, such as a member of an immigrant group, acquires the cultural values, language, norms and behaviors of a dominant society (Berry, 1997). Acculturation also relates to the extent to which behaviors, traditions, values, and culture of the dominant society are adopted (Berry, 1997). It is presumed that increased acculturation reflects increased Westernization and is thus posited to be a probable culprit for the rise in ED concerns among Asian women

(Gunewardene, Huon, & Zheng, 2001). However, there are mixed results in this area of research, with no set of studies able to substantiate a clear link between acculturation and body image and ED problems.

Researchers have conducted studies on native populations residing in countries outside of the U.S. to address the hypothesis that increased acculturation may be related to an incline in eating disturbances among racial/ethnic minority women living in Western countries. Some studies report that groups assumed to be more acculturated endorse greater levels of ED symptoms, whereas other studies report no conclusive connection between acculturation and EDs. Davis and Katzman (1997) found in their study of 197 Chinese students studying in the U.S. that there was a significant positive relationship between acculturation and ED symptoms, such as drive for thinness and bulimic tendencies. Similarly, Ball and Kenardy (2002) found that Asian immigrants living in Australia exhibited lower levels of body dissatisfaction than did White women. Furthermore, according to Cummins et al.'s (2005) study, native South and East Asian populations were found to have lower rates of EDs than those living in Western countries.

However, the link between acculturation and EDs has not been well replicated. In fact, studies have even found that internalization of the thin ideal may not be positively related to level of acculturation, and instead there may be a negative relationship between acculturation level and ED symptomatology (Stark-Wroblewski et al., 2005). For instance, Thomas et al. (2002) found that Asian adolescents in their study, presumed to be less acculturated than White counterparts, scored significantly higher than White adolescents on a measure of ED symptoms. Jennings et al. (2006) also found that native Thai women exhibited significantly higher levels of eating disturbances than their Asian

Australian and White Australian counterparts, also suggesting a negative relation between acculturation level and eating pathology. One interpretation of this negative relationship is that EDs and ED-related concerns may have been present in Asian cultures prior to Westernization, and that Asian women who are acculturated into Western cultures over long periods of time may become inured to cultural pressures and thus be at decreased risk for ED-related problems than native groups or recent immigrants. Other studies suggest that rates of body dissatisfaction and ED symptoms among indigenous groups are the same if not higher than those found in Western countries (Jackson et al., 2006). The inconsistencies in studies examining the effect of acculturation on ED-related outcomes may suggest that the demarcations of Western influences are not well differentiated. Indeed, the relationship between acculturation level and ED-related outcomes may not be a linear one.

Further contributing to the equivocal nature of the literature, other studies have altogether refuted the hypothesis that increased acculturation is related to increased risk for EDs and body dissatisfaction. Wildes et al.'s (2001) meta-analysis found a weak overall mean effect for the relationship between acculturation and eating disturbance in all of the non-White groups included in their analysis, including Asian/Asian American samples. Sussman, Truong, and Lim (2006) also found that acculturation resulted in higher body esteem and body satisfaction among Chinese-American women. In further support of the notion that acculturation may not be relevant to ED outcomes, Jackson et al. (2006) found in their study among three groups of Korean women, that the more acculturated women (second-generation Korean Americans) scored significantly lower on a measure of ED outcomes (EAT-26) than the other two comparison groups of native

Koreans and Korean immigrants. In essence, Jackson et al. (2006) demonstrated that acculturation levels were not correlated with EAT-26 scores.

The discrepancy in findings concerning the etiological role of acculturation has led researchers to propose alternative hypotheses related to acculturation. One alternative hypothesis purports that *acculturative stress* increases susceptibility to EDs and other mental health problems. Acculturative stress relates to the stress that stems from the clashing of opposing world views, as well as the stress that stems from adjusting to a new environment without the support of culturally mediated and protective social resources (Hwang, 2008). Research findings suggest that as immigrants proceed to acculturate, risk for psychological maladjustment may increase as a result of increases in acculturative stressors (Hwang, 2008). In support of the acculturative stress hypotheses, Lau, Lum, Chronister, and Forrest (2006) found that Asian American women who identified more strongly with traditional Asian values reported higher levels of body dissatisfaction. They also found that Asian American women with highly internalized notions of Western standards of beauty endorsed higher levels of body dissatisfaction. These contrasting findings suggest that the acculturative stress related to experiencing a clash of cultures for an immigrant Asian woman may heighten one's risk for body image and ED-related concerns. These paradoxical findings may also suggest that there are factors operating in both cultures to increase body dissatisfaction.

The equivocal results suggest that the acculturation hypothesis may not provide a parsimonious explanation for racial and ethnic group differences in body image and ED-related outcomes. Jennings et al. (2006) posited that their findings regarding higher scores on measures of ineffectiveness, interpersonal distrust, maturity fears and social

insecurity by the less acculturated group (Thai and Asian Australian women) may reflect differences in the quality of parenting between groups. Jennings et al. posited that higher ED scores may reflect the tendency for Asian women to have overprotective parents, to receive less encouragement toward independent values, and to experience heightened levels of conflict with parents due to intergenerational cultural clashes in comparison to White women. Similarly, Haudek, Rorty, and Henker (1999) found that none of the ED outcomes were significantly related to levels of acculturation, but instead were related to perceived lack of parental warmth. Specifically, they found that Asian American women perceived their parents to be less caring than did White counterparts; the quality of parental bonding was an important variable influencing the kinds and amounts of eating concerns experienced. These results suggest that explanations other than acculturation need to be considered in explaining group differences in body image and ED-related outcomes. Moreover, the quality of relationships with parents, as already mentioned, may be an important confounding variable important to address in study analyses.

Several limitations to the current ways in which acculturation is measured may also contribute to the inconsistencies in research findings. One explanation for equivocal findings is that measures assume that acculturation is a linear process. Most acculturation measures do not account for the likelihood that individuals may simultaneously be highly acculturated to the Western culture and strongly adhere to one's heritage culture (Kang, 2006). As such, linear measures of acculturation do not adequately account for bicultural identification. In studies that have used a linear measure of acculturation, it cannot be assumed that individuals who are less acculturated adhere more strongly to their heritage culture and values than those who are more acculturated. Only two known studies have

used acculturation measures that examine one's level of integration, defined as one's level of bicultural identification (Wildes et al., 2001).

A second possible explanation for inconsistent results is that measurements of acculturation fail to tap into relevant aspects of Westernization that directly relate to the internalization of thinness. For example, languages spoken and music preferences do not necessarily assess the extent to which one has adopted Western appearance norms. Kim, Atkinson, and Yang (1999) asserted that acculturation is a two-dimensional construct comprised of both values and behavioral acculturation, with host culture's behaviors oftentimes adopted at a faster rate than the host culture's values (Kim et al., 1999). Acculturation measures, however, tend to assess primarily behavioral acculturation, disregarding the measurement of discrepant values that may simultaneously exist in one's view of self, individualism versus collectivism, and importance of conformity to norms (Lau et al., 2006).

The third limitation to the use of acculturation to gauge level of Westernization is that it may be argued that in the 21st Century, people do not have to live in the U.S. to be exposed to Western culture and, in turn, to internalize values such as the thin ideal. It is possible that the increasing globalization of the world economy has contributed to negligible differences in the cultural experiences of women living in the U.S. and in other economically developed countries, such as certain East Asian countries. The comparable rates of clinical cases of EDs in Japan and the U.S. support the argument that Western culture may already pervade many industrialized nations outside the U.S. As such, it may not be informative to measure the link between acculturation level and body image and

ED-related outcomes of individuals from Asian countries such as Japan, Hong Kong, or South Korea.

In light of the above-mentioned limitations, the use of acculturation as a proxy for level of exposure to Western standards of thinness seems to offer little to help enhance our understanding of the role that culture plays in risk and protection for body image and ED-related problems for minority groups. The focus on acculturation does not necessarily advance our understanding of the cultural implications of body image and ED-related concerns. The lack of empirical evidence available to substantiate the hypothesis that body image and ED problems are related to acculturation suggests that individuals living in industrialized parts of Asia may have been exposed to the thin ideal prior to their entry into the U.S. Arguably, thin ideal values have pre-existed in many East Asian cultures, making it unnecessary for one to be exposed to Western culture, per se, to internalize thin ideal standards. Thus, the empirical focus on levels of acculturation does not help advance our understanding of within group differences. An understanding of within group differences may help illuminate unique risk and protective factors related to body image and ED-related concerns for Asian American women.

Body Dissatisfaction Related to Racial Appearances

An alternate to the hypothesis that increased acculturation leads to body image and ED-related problems for Asian American girls is that body dissatisfaction may stem from racially charged body concerns that are unrelated to weight and shape. Hall (1995) postulated that uniquely Asian features that clash with the Western ideal may lead to internalization of the thin ideal, and in turn, increased risk for EDs, although this notion was not empirically tested. Sanders and Heiss (1998) postulated that, for minority group

members, a general dissatisfaction with racial features that are different from the American ideal may be more salient for Asians and Asian Americans than a fear of adiposity. The body image concerns that certain Asian American immigrants experience may stem from the social pressures of having to assimilate into the world and adopt the standards of the majority culture. Dissatisfaction with racial appearances may render Asian Americans susceptible to developing body image and ED-related problems if there are discrepancies between perceived body image and body ideals. Haudek, Rorty, and Henker (1999) also found that, among women concerned with weight, Asian Americans reported significantly higher levels of shape concern, drive for thinness, and body dissatisfaction than White Americans.

Asian and Asian American women may experience pressures to fit in with non-weight related physical appearances (e.g., facial features) (Hall, 1995). Based on the assumption that the social comparison theory provides a viable explanation for how body dissatisfaction develops, it would also explain how Asian/Asian American women may be prone to body dissatisfaction unrelated to weight. Media images being compared to are primarily White woman, as well as Asian celebrities who oftentimes emulate White appearances either through cosmetic or surgical means. Indeed, Asian American women have been found to have comparable levels of body dissatisfaction as White counterparts, but lower satisfaction with race-specific body parts (e.g., eyes and face) (Mintz & Kashubeck, 1999). Hall (1995) posited that Asian American women are more inclined to experience body dissatisfaction because their physical features fall further from the European ideal. Mintz and Kashubeck (1999) also found that Asian American women reported low self-esteem and low levels of satisfaction with their racially defined features.

Moreover, Mok (1998a; 1998b) found that both Asian American men and women rated Whites as being more physically attractive than Asians.

The growing popularity of using cosmetic means to alter natural features suggests some Asian/Asian American women may attempt to conform to unrealistic White ideals (Hall, 1995). Asian/Asian Americans were found to be more likely than any other racial group to endorse use of cosmetic surgery (Evans & McConnell, 2003). Furthermore, the surgeries Asian women have been found to predominantly undergo undo physical features related to race. For instance, Kaw (1993) reported that over 40 percent of Asian/Asian American cosmetic surgery patients requested eyelid surgery, and 20 percent for nasal implants. These alarming findings attest to the notion that many Asian/Asian Americans strive to achieve White, mainstream standards of physical beauty. When faced with the impossibility of attaining an ideal standard, Asian/Asian Americans may be at risk for body dissatisfaction and related body image concerns.

Despite the presence of many risk factors for body image and ED-related concerns among Asian/Asian American women, they continue to be an understudied group in the area of body image and ED research (Lau, Lum, Chronister, & Forrest, 2006). In particular, there is a lack of research focus on the influence of culture-specific factors unique to Asian/Asian American women that may predispose Asian/Asian American women to be at increased risk for body image and ED-related problems (Lau et al., 2006).

Oversimplification of Culture in Body Image and Eating Disorders Research

Much progress has been made in the consideration of racial/ethnic minority groups and culture-specific factors in the body image and ED literature. What began as

an area of study focused primarily on White, high SES women, has increasingly expanded to include specific non-White groups, populations residing abroad, and the effects of Westernization via acculturation. However, there is still room to improve the ways in which culture is analyzed to help understand individual differences in body image and ED-related outcomes.

Previous attempts to study cultural differences pertaining to body image and EDs have methodological limitations that make interpretation difficult. Many researchers have a tendency to apply race, ethnicity, and culture interchangeably without clearly defining these terms (Wildes et al., 2001). Another problem is that many of the ethnic group comparison studies tend to treat ethnicity as a demographic variable. Whatever differences are found are interpreted then as differences between two or more demographic groups. However, a focus on differences based on ethnic label oversimplifies how one identifies with one's ethnicity, which is a deeply complex internal process that significantly shapes one's self-concept, particularly for people of color (Helms, 1990). The inconsistent findings from ethnic group comparison studies lend further support to the argument that ethnicity as a demographic label does little to expand our current understanding of cultural differences in body image and ED-related outcomes. Similarly, Fernandez et al. (2006) expressed that there is a need for more studies on the expression of ED symptoms in ethnically diverse samples to help explain the etiology of differences noted between groups. Researchers have erroneously interpreted racial/ethnic group differences as suggesting that ethnicity protects certain non-White groups from ED-related outcomes, without examining the processes and

mechanisms by which ethnic identity may predispose or buffer an individual from cultural pressures to be thin.

Researchers have yet to assess the nature and extent to which ethnic identity and other relevant culture-specific factors relate to how individuals cope with and perceive instances of racism and discrimination, and in turn how experiences with racial oppression relate to body image and ED-related outcomes. This consideration would be particularly relevant for Asian/Asian Americans, for whom body dissatisfaction appears to be due in part to their discontent with racially-charged features (Hall, 1995). Evidence suggests that Asian/Asian American women may be more vulnerable to the influences of White standards of attractiveness and thin ideal images portrayed by the media in comparison to other racial/ethnic minorities (Hall, 1995; Mok, 1998b). Moreover, low BMI, which is associated with reduced risk among White women, does not necessarily protect Asian/Asian American women from feeling dissatisfied about their bodies (Robinson et al., 1996). Moreover, researchers have demonstrated that some Asian/Asian American women express a greater fear of fat than White women (Sanders & Heiss, 1998). The negative correlation between BMI and ED vulnerability, and the heightened fear of fat among some Asian/Asian American women may create a dangerous trajectory leading towards eating disordered tendencies. The perception that one is overweight, despite what objective measures indicate, is one of the clinical hallmarks of EDs, particularly AN.

Ethnic Identity, Cultural Socialization, and Discrimination: Definitions and Background

Ethnic Identity. The development of ethnic identity is theorized to be a dynamic process that changes over time, similar to the process of personal identity development

(Phinney & Ong, 2007). It is believed that ethnic identity is a component of personal identity for people of color. Ethnic identity refers to an individual's acquisition and retention of cultural characteristics that are incorporated into one's self-concept, and it develops in the context of the individual belonging to a minority ethnic group within the larger society (Phinney, 1992). It also incorporates a positive bias about one's group, which is believed to increase and maintain feelings of self-worth (Pfeifer et al., 2007). Moreover, ethnic identity is distinct from racial identity, which concerns how individuals construct their identities in response to an oppressive and highly racialized society (Helms, 1990).

Ethnic identity begins to form during childhood and undergoes major developmental changes in adolescence and young adulthood (Farver, Narang, & Bhadha, 2002). It is during adolescence that many minority youths attempt to learn more about their cultural heritage and begin to explore the implications of ethnic group affiliation and membership. This quest for one's ethnic identity is believed to be an attempt to resolve uncertainties about the meaning of one's ethnicity, and to feel comfortable with one's sense of self, which in turn likely predict positive psychological adjustment (Farver et al., 2002). The processes specific to ethnic identity development coincide with other developmental tasks such as changing peer relationships, asserting autonomy from parents, and the myriad psychosocial changes that accompany sexual maturation. Thus, the task of ethnic identity formation is presumably an additional challenge for racial/ethnic minority adolescents, one which coincides with the timing of pubertal development.

Various researchers have found evidence that suggests the events surrounding the transition to junior high school may trigger the exploration of one's ethnic identity, such as the start of self-segregation behaviors by ethnicity (Quintana et al., 2006). Quintana (2007) found that among Black, Latino, and Native American adolescents there was an increase in ethnic identity exploration over time, particularly in the transition into and during middle school, but a deceleration of ethnic identity exploration during high school. He posited that the development of ethnic identity is likely related to environment changes related to the transition to middle school, which is oftentimes associated with changes in the ethnic composition of one's environment (Quintana, 2007). In other words, ethnicity appears to become salient during the transition from a homogenous to heterogeneous neighborhood, which for many occurs in middle school.

Ethnic identity has received research attention in its connection to positive adjustment, which in turn is assumed to relate to reduced risk for psychopathology. It has been posited by researchers that high levels of ethnic identity are related to a secure sense about the meaning of one's ethnicity, feeling comfortable with one's sense of self, relatively positive psychological adjustment, high self-esteem, self-confidence, and a sense of purpose in life (Farver et al., 2002). French, Seidman, Allen, and Aber (2006) posited that forming a healthy, developed identity through ethnic identity exploration and commitment are essential to one's mental health. Similarly, longitudinal research suggests that focusing on the positive aspects of one's ethnic group is associated with positive adjustment, well-being, and low levels of depression (Quintana, 2007). Moreover, Lee and Yoo's (2004) study which factor analyzed components of ethnic identity found

that the factors of clarity and pride positively correlated with self-esteem, although engagement did not.

Ethnic Identity and Body Image and Eating Disorders Risk and Protection. Ethnic identity is an important culture-specific construct that develops at a critical period of maturation and which confers psychological protection through its positive relation to self-esteem. For these reasons, it is important to understand how ethnic identity may relate to body dissatisfaction and ED risk and protection for racial/ethnic minorities. During puberty, racial/ethnic minority girls are negotiating physical, emotional, and social changes while at the same time trying to make sense of their ethnic identity. It is also during puberty when body image and ED-related problems arise as a maladaptive response to meeting the developmental challenges surrounding identity formation (Attie & Brooks-Gunn, 1995). Salient aspects of ethnic identity, such as positive ethnic attitudes and identification, affirmation, and belonging with an ethnic group, are identified as playing an important role in maintaining self-esteem for people of color when confronted with environmental stress (Phinney & Ong, 2007). Furthermore, research findings suggest that ethnic identity predicts higher self-esteem among Asian American women (Lee, 2003b). In addition to elevating self-esteem, a strong identification with one's heritage culture may help Asian American women feel positively about their racially charged physical features. Root (2001) recognized the potential protection ethnic identity may serve, and was one of the first scholars to urge researchers to attend to how ethnic identity may predict and protect women of color from disordered eating.

There is one known study that has examined the role of ethnic identity in predicting ED correlates and outcomes among Asian American college students. Phan

and Tylka (2006) found that ethnic identity predicted higher self-esteem, but did not directly predict thin ideal internalization, body preoccupation, and ED symptoms. Instead, ethnic identity indirectly affected only two of these outcomes (thin ideal internalization and body preoccupation) via its association with self-esteem. Thus, high ethnic identity was related to high self-esteem, which was negatively related to thin ideal internalization and body preoccupation. In their study, ethnic identity, however, did not have a strong direct or indirect relationship with ED symptoms. In fact, high ethnic identity was found to intensify the relationship between pressure for thinness and body preoccupation, which runs counter to the above-mentioned findings that high ethnic identity relates to positive psychological outcomes.

One explanation for these contrary findings is that high ethnic identity is assumed to be related to a strong sense of collectivism, which is not measured in most ethnic identity scales and which was not separately measured in Phan and Tylka's (2006) study. Collectivistic attitudes are assumed to be held by those with high ethnic identity among Asian Americans. To explain their unexpected results, Phan and Tylka posited that ED symptoms may be more intense in women with higher ethnic identity because these women presumably hold stronger collectivistic values. The assumption is that it is important for individuals with high collectivism to foster interpersonal harmony within the family and community. The researchers argued that part of maintaining harmony may include increased pressure to conform in a manner that appeals to important others. For some women, this burden may involve the pressure to attain thin ideal standards. Women with high collectivism may be more prone to the inherent appearance pressures associated with self-objectification (Frederickson, 1997). Although a novel finding,

further testing is necessary before these results can be regarded as conclusive.

Furthermore, their study aggregated many different ethnic groups together as a single Asian American group, which might have distorted results and prevented a meaningful analysis of within group differences.

Cultural Socialization and Preparation for Bias. In addition to ethnic identity, the racial and cultural socialization provided by parents represents another culture-specific factor that has been found to be related to adjustment outcomes for racial/ethnic minorities. Racial and cultural socialization typically refers to the ways in which parents negotiate the racial, ethnic, and cultural experiences within the family and seek to promote or hinder racial and ethnic identity development in the child (Lee et al., 2006; Song & Lee, 2009). Preparation for bias is a specific form of racial socialization which refers to the extent to which parents make efforts to promote their child's awareness of racism and discrimination and to prepare her to cope with experiences with marginalization (Hughes et al., 2006). These efforts to promote or hinder racial/ethnic identity development in the child can, in turn, impact the types of cultural experiences children seek as they increase their autonomy (Hughes, 2003).

Racial and cultural socialization are commonly viewed as a set of adaptive and protective practices that racial/ethnic minority parents engage in to promote children's ability to function in society (Stevenson, 1995). Studies have shown that cultural socialization is directly related to positive adjustment in children. For instance, according to a study of same-race families, children whose parents emphasized their culture and ethnicity reported higher self-esteem and more favorable in-group attitudes, and more knowledge about their group than children whose parents did not provide this cultural

backdrop (Hughes, 2003). Many of these studies, however, have examined the impact of racial and cultural socialization by assessing racial attitudes or beliefs versus actual behaviors used to engage in the values endorsed, and are heavily reliant on the limited perspective of only the parents (Song & Lee, 2009).

Cultural socialization is also posited to significantly impact ethnic identity development, as parents are instrumental in the transmission of cultural messages regarding children's behavior, attitudes, and potential to function in multiple cultural worlds (Hughes, 2003). In one study examining Mexican immigrant families, adolescents' positive feelings toward their group membership was noted as likely being an attitude that mirrored their parents' views, rather than based on personal exploration. That is, parents who strongly identified with their Mexican culture were likely to teach their children about their ethnic background and to also have children who strongly identified as Mexican (Farver et al., 2002). These findings suggest that for racial/ethnic minority adolescents, cultural socialization may also contribute to individual differences in ethnic identity; higher levels of cultural socialization is expected to relate to higher levels of ethnic identity, and in turn, to positive adjustment.

Most of the research work specific to preparation for bias has been on Black families, and results indicate that explicit forms of preparation for bias do not typically occur, although Black families do endorse having other types of discussions around discrimination (Hughes et al., 2006). Less is known about the prevalence of preparation for bias among non-Black minority groups, although it is presumed that the frequency of parents engaging in preparation for bias likely varies across racial/ethnic groups. Research on non-White groups excluding Black Americans is sparse, and the level of

preparation for bias that occurs does not seem to necessarily reflect the level of racism to which a particular group has historically been subjected (Hughes et al., 2006). For instance, one study found that Japanese Americans, who were subjected to pervasive discrimination during World War II, rarely discussed issues surrounding the internment years with posterity (Hughes et al., 2006). The evidence that does exist, albeit disconnected and focused on Black families, seems to suggest that preparation for bias may not be especially salient for racial/ethnic minority parents. It is unclear whether this trend would be replicated among adoptive parents raising transracially adopted children, as less research has focused on understanding racial-cultural socialization processes in mixed racial families.

Discrimination. The lack of preparation for bias by parents of racial/ethnic minority children, however, is not reflective of the impact that experiences with racism and discrimination have on people of color. In fact, experiences with racism and discrimination have been found to impact adjustment outcomes and to interact with ethnic identity to produce individual differences in psychological health for Asians/Asian Americans. Much of the research focus on the topic of racism, however, has been on Black Americans with less attention placed on other racial/ethnic minority groups (Alvarez, Juang, & Liang, 2006), an unfortunate trend that has been followed by body image and EDs researchers. Racism is experienced at both personal and group levels, and people of color can be subjected to racism through both intentional and unintentional forms of discrimination (Alvarez et al., 2006), defined as behavioral instances of racism. Increased perception of racism and discrimination is often associated with negative consequences for Asian Americans, at a rate comparable to the effects on other

racial/ethnic minorities. According to a 3-year longitudinal study of a sample of Black, Latino, and Asian American adolescents, increases in perceived discrimination over time were associated with decreases in self-esteem and increases in depressive symptoms (Greene, Way, & Pahl, 2006). Relatedly, Lee (2003b) reported that for Asian American college students, discrimination was negatively associated with psychological well-being and positively related to distress. The U.S. surgeon general's report also affirms the negative health consequences of racism for racial/ethnic minorities, in addition to mental health ramifications (U.S. Department of Health and Human Services, 2001).

Interaction of Culture-Specific Factors on Psychological Outcomes. Scholars have examined the moderating role of ethnic identity on the relationship between perceived discrimination and psychological adjustment, although the literature is divided with regard to whether ethnic identity protects against the above-mentioned deleterious effects of racism and discrimination. One line of studies has demonstrated that high ethnic identity confers greater psychological adjustment versus low ethnic identity when perceived as being confronted with high levels of racial discrimination (Mossakowski, 2003). Other researchers have found that ethnic identity may actually exacerbate the psychological effects of frequent racial discrimination for Asian Americans (Yoo & Lee, 2008). Still others have found no significant interaction effects between ethnic identity and perceived discrimination.

Researchers attempted to address the inconsistent findings in their quasi-experimental study of Asian American college students, but were unable to resolve the specific question of whether ethnic identity buffers against the negative effects of perceived discrimination (Yoo & Lee, 2008). They found that high ethnic identity

predicted lower situational well-being and lower positive affect when participants imagined multiple incidents versus a single instance of racial discrimination, but that low ethnic identity predicted higher situational well-being and higher positive affect when participants imagined multiple incidents versus a single instance of racial discrimination. Although dissent remains, these studies highlight the importance of increasing our understanding of how culture-specific factors such as ethnic identity and racial and cultural socialization impact psychological outcomes for Asian Americans, particularly for outcomes about which little is known, such as body image and ED-related concerns.

Most of the research examining ethnic identity and other culture-specific factors assumes that individuals are raised in a mono-racial/ethnic home, with nearly all the studies focused on the experiences of immigrant children and families. Researchers have tried to understand the unique processes involved in ethnic identity development for underrepresented racial/ethnic minorities such as biracial and multi-racial individuals, but not much is known. The limited research that has examined biracial identity has found that biracial respondents have lower ethnic identity compared to Black, Latino, and Asian adolescent counterparts, but higher ethnic identity than Whites (Bracey, Bamaca, & Umana-Taylor, 2004). Biracial individuals are also assumed to experience more confusion about their ethnic identity than monoracial individuals due to race-related projections from society that may be inconsistent with one's self-perceptions. Inconsistencies between self and other perceptions are hypothesized to lead to identity problems for some, which are posited to negatively affect the self-esteem of biracial individuals, although this has not been empirically substantiated (Bracey et al., 2004).

In summary, the literature suggests that culture-specific factors impact the adjustment of racial/ethnic minorities. Ethnic identity development is an integral part of identity formation for children and adolescents of color, and evolves as the individual encounters changes in the level of diversity in her environment, and as self-exploration occurs over the course of pubertal development. Racial and cultural socialization refers to the set of practices that parents bestow onto their children to help equip them to face a racially-stratified world. These efforts to prepare children to face racial inequities are posited to occur alongside the child's personal and autonomous development of her ethnic identity. Empirical evidence suggests that ethnic identity and racial/cultural socialization are related to positive adjustment, and serve to protect racial/ethnic minorities against the potential adverse effects of discrimination. Despite what is known about the critical timing of these culture-specific factors, and their potential protective function for racial/ethnic minorities, little is known about how ethnic identity and racial/cultural socialization relate to body image and ED-related outcomes. A focus on how these culture-specific factors relate to body image and ED-related outcomes may help uncover the processes and mechanisms by which within-group differences exist, and may offer a more meaningful empirical examination than a focus on ethnicity as a demographic category.

Cultural Research on International, Transracial Adoptees

Since its formal establishment in the 1950's, international adoption rates have been increasing with approximately 85% of all transracial adoptions occurring internationally. An estimated 300,000 children have been placed in American homes over the past fifty years. Recent statistics indicate that international adoption is on the rise,

with a three-fold increase in annual international adoptions from 7,000 in 1990 to more than 22,000 in 2005 (U.S. Department of State, 2006). Among this large influx of children adopted from overseas, over 120,000 adoptions have originated from South Korea (U.S. Census, 2000). In fact, approximately 10% of the total Korean American population in the U.S. is comprised of adopted individuals from South Korea (U.S. Census, 2000). The high percentage of international, transracial adoptions being made reflects the tendency for White couples to view international adoption as a more viable and less controversial option than either same-race or transracial domestic adoption (Lee, 2003a). One posited reason for this preference for international adoption over domestic adoption is that children adopted from overseas tend to be infants and young children (Lee, 2003a).

Transracial adoption is defined as the joining of racially different children and parents through adoption and can occur both domestically and internationally (Lee, 2003a). An international adoptee is someone who is adopted from a country outside of the U.S., and who is almost always placed with White American parents. Some examples of sending countries include Russia, Guatemala, China, and South Korea. An international, transracial adoptee is not only someone whose country of origin lies outside of the U.S., but whose race and ethnicity is visibly different from that of her parents. Whereas an Eastern or Western European adoptee may more readily pass as a White American, it would be virtually impossible for an adoptee from East Asia to be assumed to be a biological child of her White parents. In both of these international adoption scenarios, the adoptive parents are primarily White, and are able to provide a stable home for their children as reflected by their typically high SES. As such, researchers have noted

that with regard to key characteristics, many internationally adopted children share fairly similar post-adoptive home conditions (Feigelman, 2000).

Most adoption studies primarily concern understanding how various pre-adoptive factors, such as age at adoption and quality of care received before adoption, impact current adjustment (Lee, 2003a). Many of these studies are well-designed, longitudinal investigations with robust findings that suggest infants adopted before age one seem to generally form positive attachments and experience overall good adjustment (Juffer & Rosenboom, 1997; Hellerstedt et al., 2007). Children adopted from South Korea and China for the most part were provided with a relatively high quality of pre-adoptive care (Gunnar, Van Dulmen, & The International Adoption Project Team, 2007). The combination of adequate pre-adoptive conditions and early age at placement, along with the stable home environment provided by White parents, is believed to be the main reason for the high level of functioning and adjustment in many international, transracial adoptees. Both domestic and international adoptees have been the focus of much empirical attention. However, most of the research on international adoptees have been developmental outcome studies that have made group comparisons of adoptees based on country of origin, but have neglected to conduct a more meaningful examination of the cultural experiences of international, transracial adoptees.

Due to the assumption based on empirical results that many international adoptees are well adjusted, relatively little is known about the post-adoptive correlates of adjustment among international, transracial adoptees. Researchers have only recently begun to directly examine how cultural experiences can impact the post-adoptive adjustment of adult transracial adoptees. Preliminary findings reveal the importance of

understanding how issues surrounding race and ethnicity for transracial adoptees may be related to their later adjustment. In fact, a study on international adoptees in Sweden, nearly all of whom were originally from Asia or Latin America, indicates that these adoptees were more likely to have serious mental health problems such as suicide, attempted suicide, drug addictions, and alcohol abuse concerns than non-adopted adolescent and young adult counterparts living in Sweden (Hjern et al., 2002). What is more, these adverse mental health outcomes were comparable to the adjustment outcomes of immigrant children living in Sweden, suggesting that the increased risk for mental health problems in international, transracial adoptees may be attributable to the discrimination and prejudice received by individuals with non-Swedish appearances (Hjern et al., 2002). Other researchers also found that many internationally, transracially adopted adolescents in Sweden reported feeling self-conscious or being teased because of their foreign looks, instances of discrimination which reminded them of their marginalized position in Swedish society (Cederblad et al., 1999).

Descriptive reports of adopted Korean adults' experiences with racism and discrimination further corroborate quantitative findings. Freundlich and Lieberthal's (2000) survey of Korean adult adoptees who attended The Gathering of the First Generation of Adult Korean Adoptees held in Washington, D.C. in 1999 provides a rich understanding of experiences related to culture, racism, and ethnicity. The attendees at this conference endorsed the contradictory experience of feeling marginalized in society as a person of color, regardless of their inclusion in a White household. In essence, the contradiction between one's self-perceptions and how others label them impacted the lives of these transracial adoptees interpersonally, professionally, and even

psychologically. In this qualitative study a direct link between the reported paradoxical cultural experiences and ethnic identity was not examined, although experiences of marginalization would arguably influence the development of one's ethnic identity.

Transracial adoptees are largely racial/ethnic minorities who are adopted by White American parents, whose race, ethnicity, and culture are different from the adopted child's. Similar to the experience of biracial individuals, transracial adoptees arguably have contradictory cultural experiences that can impact their ethnic identity development that is unique from a monoracial individual. For instance, biracial individuals and transracial adoptees may both be perceived by society as a minority, regardless of how they self identify. They may also feel marginalized from both the majority and minority worlds. Transracial adoptees also have the additional task of negotiating their adoptive identity with their ethnic and personal identities, which compounds an already complicated process of identity formation. Researchers have not given equal attention to ethnic identity development in minority groups outside of monoracial immigrant children and families raised by biological parents. The few studies that have examined the cultural experiences of transracial adoptees have found that these adoptees tend to be more assimilated to the majority culture than monoracial non-adopted counterparts. The greater assimilation has been assumed to mean that they also have lower ethnic identity than monoracial peers (Lee, 2003a).

A notable degree of within-group variability in the racial/ethnic identity of transracial adoptees has been found in recent studies looking at the ethnic identity of transracial adoptees (Lee, 2003a). One meta-analysis found that transracial adoptees had significantly lower racial/ethnic identity than same-race adoptees (Hollingsworth, 1997).

Another study found that domestic transracial adoptees reported discomfort over their racial appearances, while at the same time endorsing a strong affiliation with one's race and ethnicity (Brooks & Barth, 1999). A descriptive study looking at Korean Danish adoptees revealed that they felt more comfortable identifying as Danish (White) than Korean (Evan B. Donaldson Adoption Institute, 2002). The tendency for some transracial adoptees to identify strongly with the majority culture is consistent with other studies that posit that transracial adoptees tend to be highly acculturated to the White majority culture (Lee, 2003a). Nonetheless, the ambivalence some adoptees feel about their racial background and ethnic heritage underscores the challenges transracial adoptees may face in reconciling their birth roots with their present cultural realities. Cederblad et al. (1999) postulated that adolescence, specifically ages 14 to 16, is likely one of the most difficult periods for an international, transracial adoptee, as this period is marked by an overwhelming desire to fit in with and feel accepted by peers from the majority culture. Relatedly, based on their longitudinal study of problem behaviors among international adoptees, Verhulst, Althaus, and Versluis-den Bieman (1990) reported that behavior problems in this group of adoptees increased from the period of prepuberty to adolescence.

In recognition of the need to better understand how ethnic identity and related culture-specific experiences shape post-adoptive adjustment for international, transracial adoptees, researchers have begun to examine the cultural experiences of this group. Lee (2003a) is the first to mention the *transracial adoption paradox* as a significant intrapsychic experience many adoptees may face. He defined the transracial adoption paradox as the conflict that arises when confronted with the contradiction between how

one is treated in society as a racial/ethnic minority, and one's membership within her White household (Lee, 2003a). This paradoxical experience in many ways can resemble some of the adverse encounters with racism that non-adopted people of color experience. Unique to the paradoxical cultural experience of transracial adoptees, however, includes the challenge of having to negotiate simultaneous, multiple aspects of oneself, which is presumably a more complex task than it is for non-adopted individuals. Part of the paradox is coming to terms with the loss of one's birth culture and birth family (Dorow, 2006). The child is left feeling disconnected from her birth culture and race as she is raised by White parents who likely have no firsthand knowledge of her birth heritage. Transracial adoptees also have unique cultural socialization experiences being raised by White parents, which in turn likely impact the adoptee's autonomous efforts to seek cultural experiences.

The quality of cultural socialization provided by parents is an experience that may be unique for transracial adoptees and their families versus non-adopted families. Cultural socialization within transracial adoptive homes is noteworthy to examine because the ways in which families negotiate transracial and transnational challenges contribute to the children's racial/ethnic identity development (Lee, 2003a). Transracial adoptees raised by White adoptive parents likely have vastly different cultural socialization experiences from children growing up in same-race households. For same-race families, cultural socialization is largely a mixture of unconscious and conscious processes that involve the transmission of cultural values, customs, and behaviors from parents (and others) to children, which in turn helps cultivate children's racial/ethnic identity development. For transracial and transnational families, the transmission of

culture is more extrinsic, explicit, and oftentimes more superficial because the responsibility for socialization of the child lies with White parents who do not share the child's ethnic and racial heritage (Lee, 2003a). These unique cultural socialization experiences are believed to contribute to a qualitatively different process of ethnic identity formation for transracial adoptees than for same-race individuals.

Most of what is known about the cultural experiences of transracial adoptees is based on the quality of parents' engagement in cultural socialization. Cultural socialization studies among transracial families have found that parents differ in what strategies they use, and in parenting beliefs about what is helpful and necessary. Nearly all of the cultural socialization studies have focused on parents' perspectives, and have found that adoptive parents address the transracial adoption paradox in a variety of different ways (Lee, 2003a). Some parents may actively encourage their children to learn about their culture through participation in culture camp and learning the child's heritage language, whereas others may take a more passive approach by waiting for their children to express interest in exploring their cultural roots. It is presumed that parents who initiate and engage in cultural socialization do so with the hope that the child will develop a strong sense of her racial/ethnic identity, which in turn has been found to relate to well-being (Lee, Yoo, & Roberts, 2004). Although parents play a pivotal role in facilitating cultural opportunities, there is need for more studies to measure the direct perspective of transracial adoptees, as this aspect of the adoptive experience is not well understood and may differ substantively from the perspective of parents (Meier, 1999).

Previous adoption research that has examined the relationship between cultural socialization and ethnic identity development has focused mainly on children and

adolescents. Lee and Quintana (2005), for example, found that cultural exposure is related to the ethnic identity development of adopted Korean children. In another study, Yoon (2001) found that adopted Korean adolescents who perceive their parents as supportive of their cultural socialization efforts feel more positively about their race/ethnicity compared to peers who lacked such parental support. Yoon posited that a positive ethnic identity can serve to buffer an individual from psychological maladjustment. Scroggs and Heitfield (2001) examined children's ethnic identity by asking adoptive parents how they would characterize their child's racial heritage (e.g., American, Chinese-American, or Chinese). This approach to understanding ethnic identity is not only problematic in how it defines racial/ethnic identity, but it also fails to address the self-perceptions of adoptees' own racial/ethnic identity. Thus, it would be meaningful to understand the cultural experiences involved in ethnic identity development to help understand how transracial adoptees come to terms with the paradoxical nature of their multiple cultural identities. Moreover, it is important to follow the development of transracial adoptees' cultural experiences as they enter adolescence and beyond. Little is known about the adjustment of transracial adoptees as they come of age in a pluralistic society, an experience which may furthermore contribute to the irresolution of their transracial adoption paradox.

There is only one known study that attempted to examine the direct perspective of transracial adoptees on how their cultural socialization experiences may be related to their ethnic identity. In this mixed-method study using Korean adult adoptees, the researchers found that cultural socialization experiences provided by parents and engaged in by adoptees during young adulthood (ages 18 to 21) significantly related to stronger

ethnic identity (Song & Lee, 2009). These activities consisted of visiting Korea, which included a search for birth parents for some participants, attending culture camps, interacting formally and informally with other Koreans (both adopted and non-adopted) and Asian Americans, and moving into a more racially and ethnically diverse environmental setting.

More recently, researchers have attempted to uncover additional culture-specific factors that may be related to later adjustment for transracial adoptees. For instance, preliminary findings suggest that, for transracial adoptees, adoptive identity and unresolved questioning about their birth origins may be as important as ethnic identity, cultural socialization, and preparation for bias in shaping post-adoptive experiences. Researchers have attempted to quantitatively examine prospective psychological effects of the transracial, transnational adoption cultural experience using a longitudinal data set that includes information on numerous behavior outcomes of adopted individuals (Sibling Interaction and Behavior Study; SIBS). Included in this study are items that assess the cultural experiences of international, transracial adoptees, which take into consideration the multi-faceted attitudes and behaviors related to the transracial adoption paradox. Preliminary findings in an unpublished report reveal that among Korean adopted girls, adoptive identity, a positive attitude about adoption and one's adoption status, was related to fewer externalizing problem behaviors. For the Korean adopted boys in the sample, birth preoccupation, or greater preoccupation with unresolved questions about one's birth family, at a younger age was related to greater externalizing behavior problems (Lee, Perry, Sharma, & McGue, 2007). Based on the findings of other researchers, preliminary evidence suggests that positive feelings about one's adoption status was related to self-

acceptance or higher self-esteem, independent of possible intervening effects of ethnic identity or cultural socialization (Basow et al., 2008).

The recent findings reveal that the cultural experiences of international, transracial adoptees appear to be related to their behavioral and psychological outcomes. The culture-specific factors of ethnic identity, adoptive identity, cultural socialization, birth preoccupation, and preparation for experiences with discrimination are important to the experiences of Asian adoptees, and yet have received little empirical focus. Further studies are needed to improve our understanding of the relationships that likely exist among cultural experiences and long-term adjustment, including body image and ED-related outcomes.

International, Transracial Adoptees as an Overlooked Risk Group for Body Image and Eating Disordered Concerns

Little is known about how cultural experiences may be related to psychological outcomes for transracially adopted individuals, let alone body image and ED-related problems. Holden's (1991) study of inpatient records at a hospital in the United Kingdom is the only known study that has considered the potential correlations between adoption and EDs; however, his findings are based on a heavily skewed clinical sample and are likely uninterpretable. According to his retrospective chart review 3.8% of inpatients with AN and BN were adopted. His study also found that adoptees with EDs had significantly higher levels of behavioral disturbance than 18 matched, non-adopted controls. These findings should be interpreted with caution, however, as the sample characteristics did not specify whether international, transracial adoptees were included in the studies.

Other studies have focused on psychological outcomes of non-clinical samples of adoptees, but have not specifically examined body image and ED-related outcomes. There has been even less research focus on international, transracial adoptees. Studies that have examined psychological outcomes in non-clinical samples of international adoptees have found that those adopted in infancy into high SES home environments are for the most part protected from mental health problems (Gunnar et al., 2007). Not all international adoptees are also transracial, however, which introduces an important caveat regarding the potential adverse impact of experiences with racism attributable to non-White appearances that may exist for some international adoptees (Hjern et al., 2002). International adoptees who are perceived as racial/ethnic minorities in society, and those who are repeatedly teased or discriminated against are identified as being at heightened risk for body dissatisfaction and other ED-related problems.

Internationally, transracially adopted women, particularly those adopted from Asian countries, may be an overlooked high risk group for body image and ED-related concerns, as Asian Americans appear to be at comparable if not greater levels of risk for body image and ED-related problems as Whites, and yet are underrepresented in body image and ED-research (Grabe et al., 2006). First, Asian adoptees are assumed to be fully assimilated into White mainstream society and are raised in high SES, socially competitive environments. These adoptees have presumably internalized the thin ideal notion propagated by Western values. Second, they are likely predisposed to feeling dissatisfied with racially charged physical features, a form of body dissatisfaction which arguably may be more accentuated by the transracial adoption paradox. These feelings of body dissatisfaction coincide with pubertal development, a sensitive phase during which

one attempts to negotiate her physical and psychological maturational processes. This process may be further intensified for transracial adoptees who want to fit in with appearance and attractiveness standards set by White peers and family members. Third, Asian adopted girls may be prone to running into challenges fulfilling developmental tasks around shaping one's identity, including both ethnic and adoptive identities, which can lead to maladaptive outcomes such as exerting control via ED symptoms. The formation of these multiple identities are also impacted by the quality and frequency of cultural socialization opportunities afforded to these girls by their adoptive parents. The level of perceived support from parents in exploring one's birth culture can also impact self-esteem and other psychological outcomes. Fourth, these girls may experience a hastened age of menarche being raised in a household with an unrelated adult male (i.e., the adoptive father) (Mendle et al., 2006).

Overview of the Present Research

This dissertation examined how culture-specific factors and pubertal timing are related to body image and ED symptoms among adopted Korean American girls and adolescents, a specific Asian American group overlooked even within cultural and cross-cultural research. The risk and protective roles that culture-specific factors play in the development of body image and ED-related concerns is not well understood in the literature. Moreover, culture-specific factors such as ethnic identity and adoptive identity tend to be under-investigated among Asian adoptees. Additionally, research on the link between pubertal timing and ED-related outcomes for racial/ethnic minorities is sparse in the developmental literature. The present study used data collected from two samples with corresponding culture-specific factors, although identical measures were not used.

The first dataset came from the Sibling Interaction and Behavior Study (SIBS), a longitudinal study that examines numerous behavioral outcomes of adopted individuals. The second sample is the Korean Adoptee Data (KAD), which is comprised of Korean adopted children and adolescents, reporting on numerous attitudes and behavior outcomes.

I conducted two studies in order to attain replication of research findings regarding relatively new research questions posed on a sample of Korean adoptees. The two studies used different measures of independent and dependent variables, although the measures are conceptually similar to warrant comparison. The first study used a novel measure of culture-specific experiences of transracial adoptees. This scale is comprised of five subscales that measure culture-specific factors pertaining to racial, ethnic, and adoptive experiences. Symptoms of EDs were measured using an adaptation of a scale that measures clinical EDs. In Study 2 the culture-specific variables pertaining to racial, ethnic, and adoptive experiences were assessed using five separate measures. The dependent variables in Study 2 consisted of three scales that assessed: ED-related symptoms, body satisfaction, and satisfaction with Asian appearances.

Based on the conceptual and empirical bases reviewed above, the following general hypotheses were investigated in this dissertation across both studies. More specific hypotheses, including a visual illustration of hypothesized results, will be presented prior to the description of each study.

Hypothesis 1. I hypothesized that early menarche would be related to greater body dissatisfaction and ED symptoms. I predicted that the negative relation between age of

menarche and ED-related outcomes would hold even after controlling for potential confounds.

Hypothesis 2. I hypothesized that culture-specific factors indicative of adjustment, such as ethnic identity and cultural socialization, would be negatively associated with body image problems and ED symptoms. Conversely, I expected that culture-specific factors indicative of maladjustment would be positively associated with body image problems and ED symptoms. These relationships were expected to hold even after controlling for potential confounds.

Hypothesis 3. I applied Caspi and Moffitt's (1991) accentuation model, which posits that cumulative risk factors will exacerbate negative outcomes. Specifically, I hypothesized that pubertal timing, as measured by age of menarche, would produce an enhancing interaction effect on the relationship between culture-specific factors and body image and ED symptoms. Specifically, I hypothesized that early menarche would be related to heightened ED symptoms and body dissatisfaction for individuals who endorse low levels of positive culture-specific factors, or high levels of adverse culture-specific factors. I expected that these relationships would hold even after controlling for potential covariates.

STUDY 1

Hypotheses for Study 1

Given the lack of understanding of the relationship between culture-specific factors and ED symptoms among transracial, international adoptees, the purpose of the first study was to examine the main effects of pubertal timing, racial (racial discomfort), ethnic (cultural socialization), and adoptive (adoptive identity and birth preoccupation) factors on body image and ED symptoms. Additionally, I was interested in understanding the extent to which pubertal timing moderates the relationship between cultural factors and ED outcomes. I selected age, BMI, well-being, personal identity, and positive parental environment as potential covariates. These covariates were selected based on the expectation that they would likely confound the relationship between culture-specific predictors and ED-related outcomes due to the expected correlation between the covariates and the dependent variables (Jaccard et al., 2006).

- 1) First, I expected that age of menarche would be negatively related to ED symptom outcomes, based on the hypothesis that early menarche would be related to greater ED symptoms, and relatively later menarche would serve to protect individuals from ED symptoms.
- 2) Second, I hypothesized that adoptive identity and cultural socialization would be negatively related to all four ED subscales, as these two culture-specific variables are hypothesized to protect against ED symptoms. I also expected that birth preoccupation and racial discomfort, suggestive of lower levels of adjustment, would be positively related to the four ED outcomes.

- 3) Third, I hypothesized that the main effects between the culture-specific factors and ED symptoms, and the main effects between age of menarche and ED symptoms would hold even after controlling for BMI, age, well being, positive parental environment, and personal identity.
- 4) Fourth, I hypothesized that age of menarche would moderate the relationship between culture-specific factors and ED symptom outcomes. In accordance with the accentuation model (Caspi & Moffitt, 1991), I hypothesized that low levels of protective culture-specific factors (adoptive identity and cultural socialization), and high levels of adverse culture-specific factors (birth preoccupation and racial discomfort), in combination with early menarche, would produce an enhancing interaction effect on ED symptoms. Specifically, I predicted that early menarche should be related to heightened ED symptoms for individuals who endorse low levels of adoptive identity and cultural socialization (protective factors), and high levels of birth preoccupation and racial discomfort (risk factors). I hypothesized that these moderation effects would hold even after controlling for BMI, age, well being, positive parental environment, and personal identity. (see Figures 1 and 2 for representative illustrations of hypothesized effects).

Figure 1

Hypothesized Moderation Effect of Age of Menarche on the Link between Adverse Culture-Specific Factors and Eating Disordered Symptoms (MEBS)

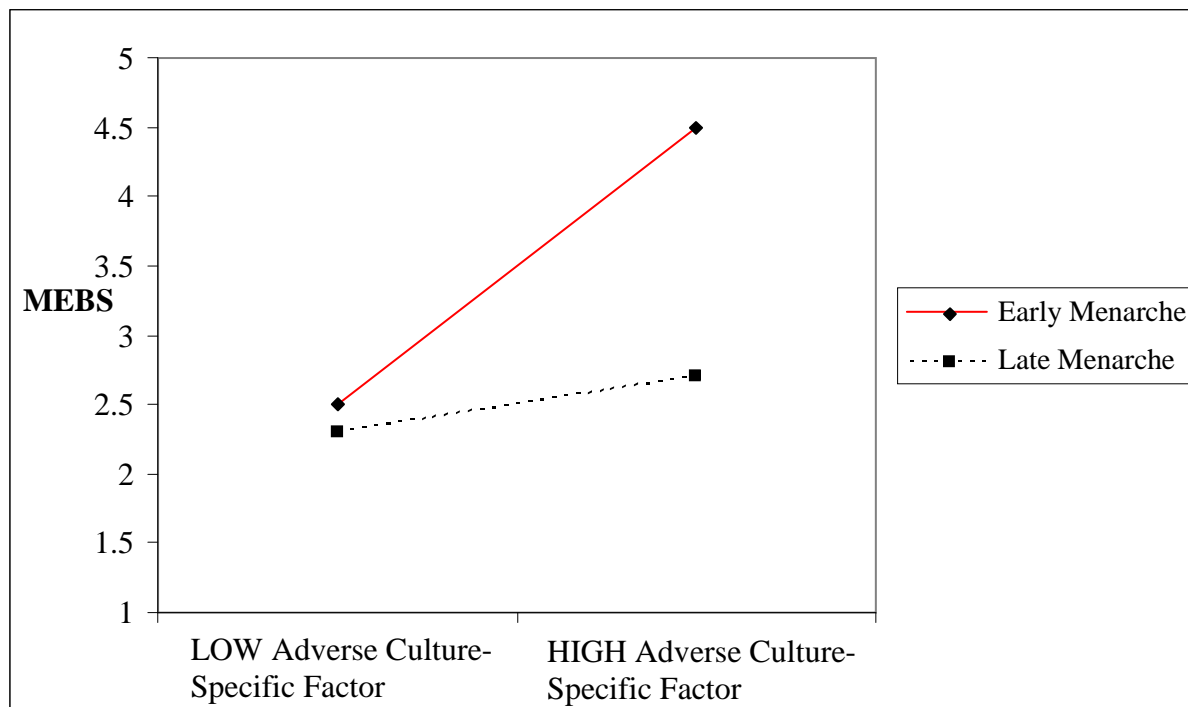
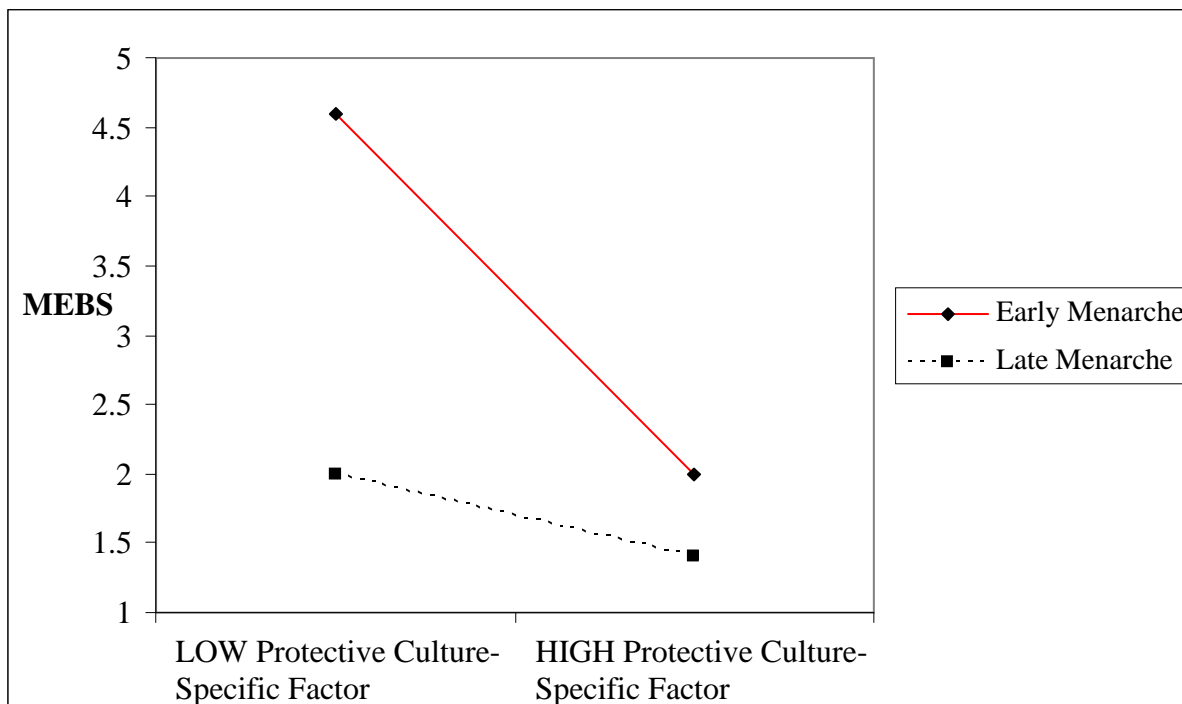


Figure 2

Hypothesized Moderation Effect of Age of Menarche on the Link between Protective Culture-Specific Factors and Eating Disordered Symptoms (MEBS)



Method for Study 1

Sample

I used data from the ongoing Sibling Interaction and Behavior Study (SIBS; McGue et al., 2007), a longitudinal study of adopted and biological siblings reared together. Each of the families consisted of at least one parent and two adolescent children (mean age = 14.9 years, SD = 1.9), whose age difference was not to exceed 5 years. Families with adopted children were identified through records from the three largest, private adoption agencies in Minnesota. All adopted children were required to be placed for adoption prior to 2 years of age (mean = 4.7 months, SD = 3.4 months). Non-adoptive

families were identified using state birth records and selected to have a pair of siblings of comparable age and gender to the adoptive sibling pairs. Sixty-three percent of the eligible adoptive families and 57% of the eligible nonadoptive families agreed to participate in the study.

Eligibility requirements for adoptive families included having: 1) an adopted adolescent between the ages of 11 and 21 who had been placed permanently in the adoptive home prior to the age of 2 years, and 2) a second adolescent in the home who was not biologically related to the adopted adolescent. This second child could have been biologically related to one or both of the parents or adopted and placed before age 2. Non-adoptive families met eligibility requirements if they had a pair of full biological adolescent siblings.

Sample representativeness was determined using a brief phone interview to 73% of nonparticipating but eligible families, assessing various demographic information (e.g., parents' education and occupational status, number of behavioral disorders in children participants based on parent report). Based on this assessment, the study sample was determined to be representative of the population of families from which it was drawn, and did not differ from families with two or more children in the metropolitan region where the study was located (McGue et al., 2007).

The SIBS sample included 409 adoptive and 208 nonadoptive families, each consisting of an adolescent sibling pair and one or both of their parents. Among the adoptive families there were 124 families in which the second adolescent was a biological child of one or both of the adoptive parents, and 285 families in which both participating adolescents were adopted and placed into the adoptive home prior to age 2.

The gender composition of the sibling pairs in the adoptive families was 96 male/male, 148 female/female, and 163 male/female. The majority of adopted participants (72%) were Asian, whereas non-adopted participants were predominately White (95%).

One of the overall objectives of the SIBS study is to determine whether individuals adopted as infants are at increased risk for a host of mental health problems as young adults. The assessments administered to SIBS participants include: 1) comprehensive measure of externalizing and internalizing disorders; 2) substance use, abuse, and dependence; 3) individual-level markers of risk (e.g., personality); 4) family relationships; and 5) other environmental risk factors.

For the purposes of this dissertation, the primary independent variables were examined using a survey that inquired about race and culture related experiences, and the primary dependent variables were measured using the Minnesota Eating Behavior Survey (MEBS). I also used age of menarche, an item on a survey that asks about key life events, to estimate pubertal timing. SIBS assessments have thus far been collected at three time points. The analyses for this dissertation focused on data collected at the second wave of collection which marks the first follow-up (FU1) assessment, three years subsequent to the initial intake assessment. Rate of participation at FU1 was above 90%. At FU1 both adopted and non-adopted offspring ranged from middle-adolescence to late-adolescence to early adulthood. Eating attitudes and behaviors were not measured at the initial assessment, nor were they measured in male SIBS participants.

The present study focused only on the adopted female sample, the overwhelming majority of whom were adopted from South Korea. There was only a small percentage of international adoptees of non-Asian, non-White descent, and was omitted from the

analyses. Although 1,232 adolescents have participated in the SIBS study thus far, this analysis was necessarily restricted to the female, Korean adopted participants who completed measures of disordered eating at FU1. At FU1 there were 259 female respondents adopted from South Korea, although some of these participants were adoptive siblings from the same adoptive home. For the purposes of this dissertation, 204 participants who completed all study measures were included in the study analyses. Participants gave written informed assent or consent as appropriate, and their parents gave written informed consent. Participants received \$100 for each assessment that they completed, in addition to reimbursement for travel expenses. Mean age of Korean female respondents from this study was 18.31 ($SD = 2.19$).

Measures

Transracial Adoption Scale (TAS). Experiences pertinent to race, culture, and adoption were measured using a self-report survey that was developed for this study. The items were created based on a review of the literature on cultural socialization of international, transracial adopted individuals. The items were scaled on a 4-point scale from 1 (definitely true) to 4 (definitely false). Example items measuring race and culture experiences include “I feel unaccepted by others because of my race”, “I feel comfortable talking about racial issues with my parents/friends”, and “My parent(s) try to meet people from my own race so they can learn more about it.” Example items of questions that measured attitudes about one’s transracial adoption status and birth origin include “I feel good that I’m adopted”, “I wish I knew what my birthmother/birthfather looks like”, and “I wish my adoptive parent(s) were a different race than they are”. The 52 items that comprised this survey looking at race, culture, and adoption were factor analyzed on the

entire sample of Korean adopted individuals, and found to be comprised of five subscales, which were used as variables to measure the cultural experiences of international, transracial adoptees. The five subscales and associated internal reliability estimates on the female Asian sample were as follows: Adoptive Identity (alpha of .78), Birth Preoccupation (alpha of .89), Cultural Socialization (alpha of .93), Racial Discomfort (alpha of .70), and Race Talk (alpha of .66). Only the first four factors were used in the main analyses due to the low internal reliability of Race Talks, and the relatively low item loadings in the factor analysis of this subscale.

Minnesota Eating Behavior Survey (MEBS). The MEBS is a 30-item, true-false, self-report questionnaire, and is a revised version of the Eating Disorders Inventory (EDI) (Garner, Olmsted, & Polivy, 1983). The original phrasing from the EDI was revised so that individuals 10 and older would be able to comprehend the items. In addition to the EDI items, five items were developed to assess compensatory behaviors that are not included in the EDI: self-induced vomiting, abuse of laxatives, diuretics, diet pills, and exercise. The scale items are rated on a 4-point scale from 1 (definitely true) to 4 (definitely false). The MEBS assesses not only risk factors for the development of clinical eating disorders, but also a more general level of concern with body image and eating habits. Factor analysis of the MEBS has yielded 4 subscales: Body Dissatisfaction (alpha reliability of .86) (BD; “dissatisfaction with the size and/or shape of one’s body”), Weight Preoccupation (alpha reliability of .89) (WP; “preoccupation with dieting, weight, and the pursuit of thinness”), Binge Eating (alpha reliability of .77) (BE; “the tendency to engage in episodes of overeating, as well as thoughts about binge eating”), and Compensatory Behavior (alpha reliability of .70) (CB; “the tendency to use or to

contemplate using inappropriate compensatory behaviors such as self-induced vomiting and laxatives to control weight”) (Klump, McGue, & Iacono, 2000, p. 241). The remaining subscales of the EDI are not included in the MEBS. The MEBS has been shown to have adequate reliability, $r(678) = .55, p < .01$ at age 11; $r(600) = .60, p < .01$ at age 17) and its subscales are stable across a three year time period (Klump et al., 2000).

Pubertal timing. Age of menarche was used to determine pubertal timing. I employed this method to assess pubertal timing because evidence suggests that age of menarche is a relatively accurate and reliable source of information, particularly the closer the time period between age of menarche and when age of menarche is recalled (Koo & Rohan, 1997). For this sample, thirty-five percent of respondents achieved menarche at age 13; twenty-eight percent arrived at menarche at age 12; sixteen percent arrived at menarche at age 11; eleven percent reached menarche at age 14; four percent achieved menarche at age 15; three percent at age 10; two percent at age 16; and one percent at age 9.

BMI (kg/m²). BMI was calculated for each participant, based on self-reported weight and height values provided by participants on a general information sheet. The purpose of obtaining BMI information was to determine which girls are underweight, normal weight, and overweight. Research indicates that self-reported weight and height are highly correlated with measured weight and height (Palta, Prineas, Berman, & Hannan, 1982). The average BMI for this sample was 22.92 (SD = 3.94).

Well-Being. The variable of well-being was measured using the Personality Booklet – Youth, Abbreviated (PBYA) for participants aged 15 and under at the time of administration. Individuals older than age 15 completed the Multidimensional Personality

Questionnaire (MPQ). The PBYA is a self-report measure that is a shortened, 133-item version of the Minnesota Personality Questionnaire (MPQ). The scale items are rated on a 4-point scale from 1 (definitely true) to 4 (definitely false). In this study I used only the Well-being subscale as a covariate to ensure results were not due to individuals' reported sense of well-being. For this sample, the alpha reliability of the well-being factor measured by the PBYA was .95. The MPQ is a self-report measure of personality consisting of 198 items. The scale items are rated on a 4-point scale from 1 (definitely true) to 4 (definitely false). The internal reliability (alpha) of the well-being subscale as measured by the MPQ for this sample was $\alpha = .91$. The Well-being subscale of both measures, which are identical subscales, were used to create a well-being score. In this study, well-being was used as a covariate.

Personality Supplement for Siblings (Supp-Sib). The Supp-Sib is a 13-item self-report questionnaire that measures one's identity and comfort with oneself ($\alpha = .88$). The scale items are rated on a 4-point scale from 1 (definitely true) to 4 (definitely false). Example items include "I have a good sense of who I am", "Compared to others my age, I am confused about who I am," and "I feel like I don't belong to anyone". Identity was used as a covariate in the study.

Parental Environment Questionnaire (PEQ; McGue, Elkins, Walden, & Iacono, 2006). The PEQ is a 50-item self-report scale that measures the quality of the family environment from the perspective of both parents and child. The survey asks family members to rate statements describing their interactions with other family members on a 5-point scale ranging from 1 (*definitely true*) to 4 (*definitely false*). Parents and children each rated their interactions with each other independently. The present study focused

only on the child reports of the quality of home environment, specifically on the PEQ Conflict subscale. The scale items are rated on a 4-point scale from 1 (definitely true) to 4 (definitely false). Higher scores reflect increasingly positive views about one's parental environment. Example items include "I prefer not to talk about my personal problems with my parent", "My parent and I often get into arguments", and "I get along well with my parent". The measure asks each family member to rate one another creating four subscales: mother to adolescent, father to adolescent, adolescent to mother, and adolescent to father. The present study focused on adolescent to mother and father responses. Inter-item reliability ranged from .87 to .89. The internal reliability (alpha) for the PEQ on the SIBS female sample was $\alpha = .96$.

Results of Study 1

Data Inspection

Before computing any statistics, the data were screened visually in various graphic outputs (e.g., scatter-plots) for anomalies. I also examined the statistical computation of z-scores to detect potential outliers. Standardized scores subtract the mean from each case to provide a revised sample mean of zero, which eases the detection of data that lie significantly above and below the mean value. No abnormality or outliers were identified using these methods.

All MEBS scores were transformed ($\log_{10}x+1$) prior to analyses to correct for the positively skewed data. The raw data were used to calculate correlations, and for reporting means and standard deviations, which is consistent with convention, and helps ease interpretation (Von Ranson, Klump, Iacono, & McGue, 2005).

An analysis of missing values revealed that the covariate positive parental environment was missing 5.9% of possible scores from 204 respondents. The test for missing at random was performed to assess the extent to which missing cases in positive parental environment were correlated with other variables. A significant correlation between missing data in positive parental environment and well-being ($p < .05$) suggested that unavailable data was not missing at random. Thus, I treated missing cases from the variable positive parental environment using maximum likelihood estimation (MLE), which imputes data based on the assumption that missing values are missing at random. MLE is also considered a superior method to imputation by multiple regression, and represents one of the most common methods of imputing missing data (Little & Schluchter, 1985).

Preliminary Analyses

Factor analysis of the Transracial Adoption Scale (TAS). To identify the factor structure of the 52 transracial adoption scale items, a common factor analysis with principal axis factoring and direct oblimin rotation was conducted on the entire adoptive sample of the SIBS data, as the factors were expected to be moderately correlated. This analysis revealed a factor solution of five factors which offered the most parsimonious solution both conceptually and statistically. Thirteen items that had either factor loadings less than .31 or cross-loadings greater than or equal to .30 were eliminated, leaving 37 items. Due to the relatively lower loadings of the subscale Race Talks, this factor was not included in the study analyses. This five-factor solution accounted for 41.74% of the variance of the data (see Table 1 for factor loadings).

The first factor (AI: *Adoptive Identity*) had factor loadings that ranged from .39 to .72. This subscale had a mean score of 3.50 (SD = .48; n = 419), and an alpha coefficient of .86 (10 items). AI consists of items pertaining to the respondent's attitudes about being adopted ("I feel good that I am adopted"). The factor loadings for the second factor (BP: *Birth Preoccupation*) ranged from .38 to .90. The mean score for birth preoccupation was 2.70 (SD = .71; n = 422) and had an alpha coefficient of .90 (9 items). BP items consist of unresolved feelings around the loss of birth ties ("I wish I knew more about my birth mother/father"). The third factor (CS: *Cultural Socialization*) had factor loadings ranging from .45 to .85. This factor had a mean score of 2.80 (SD = .73; n = 436) and an alpha coefficient of .92 (8 items). CS is comprised of items related to activities that contributed to increasing awareness of one's birth culture ("My parents try to help me find out about my race/cultural practices"). The fourth factor (RD: *Racial Discomfort*) had factor loadings that ranged from .48 to .63. This factor had a mean score of 1.70 (SD = .55; n = 423) and an alpha coefficient of .70 (5 items). RD consists of negative sentiments about one's birth race and culture ("I often feel ashamed about my racial background"). The fifth factor (RT: *Talking About Racial Topics* or *Race Talks*) had factor loadings ranging from .34 to .54. This final factor had a mean score of 3.06 (SD = .48; n = 434) and an alpha coefficient of .71 (9 items). RT measures how much one talks about race topics with others ("I feel comfortable talking about racial issues with my friends/parents"). Race Talks was not included in the main analyses due to its low internal reliability, and the relatively low item loadings in the factor analysis of this subscale. (see Table 1 for item descriptions).

Table 1

Factor Loadings of EFA of the 37 transracial adoption experience items

	Adoptive Identity	Birth Preoccu- pation	Cultural Social- ization	Racial Discom- -fort	Race Talks
Glad my parents adopted me	.72				
Feel proud that my parents adopted me	.67				
Feel good that I'm adopted	.64				
Think of my adoptive mom as real mom	.63				
Think of my adoptive dad as real dad	.63				
Like that I'm adopted	.62				
Being adopted makes me feel loved	.57				
I think my parents are happy they adopted me	.55				
Being adopted makes me feel special	.49				
I think parents would love me more if birth child	-.44				
Wish I knew more about my birthmother		.90			
Wish I knew what birthfather looks like		.86			
Wish I knew more about my birthfather		.86			
Wish I knew what my birthmother looks like		.84			
I'd like to meet my birthmother		.82			
I'd like to meet my birthfather		.76			
Bothers me I may have siblings I don't know		.53			
I wish my parents would tell me more about my adoption		.43			
I wish I knew more about my medical history		.38			
I wish I lived with my birth parents		.31			
My parents try help me find out my race (history, customs)			.89		
My parents try participate cultural practices (music, food)			.86		
My parents try help me meet people from my race			.86		
My parents try find out about my race (history, customs)			.86		
My parents try to meet people from my race			.82		
My parents hardly encourage cultural practice (music, food)			-.68		
My parents try hard to help me be proud of my racial background			.60		
My parents don't talk with me about my racial background			-.47		
I feel that it's harder to date some people because of my race				.63	
I often feel ashamed or embarrassed about my racial background				.57	

	Adoptive Identity	Birth Preoccu- pation	Cultural Social- ization	Racial Discom- -fort	Race Talks
I wish that I was a different race than I am				.49	
I feel unaccepted by others because of my race				.48	
I often feel really proud of my racial background				-.40	
I feel comfortable talking about racial issues with my friends					.63
If made fun because of my race would feel comfortable tell friends					.62
Feel comfortable talking about racial issues with parents					.55
If made fun because of my race would feel comfortable tell parents					.53
I would feel comfortable dating someone of different race					.43
My friends don't talk with me about my racial background					-.36
I know how to respond to racial taunts					.32
Friends and I have talked about how respond to racial taunts					.25
Parents talked with me about how respond to racial taunts					.23

Mean group differences for pubertal timing and BMI. Table 2 provides descriptive information on the ED outcome variables, culture-specific predictors, and covariates. The table also provides information on group differences on the outcome and predictor variables for BMI (Underweight, Average Weight, Overweight) and age of menarche categories (On-time/Later onset and Early onset). The only group difference related to ED outcome variables (body dissatisfaction and weight preoccupation) was found in the BMI categories. The overweight group with BMI ≥ 25 reported the greatest body dissatisfaction and weight preoccupation in comparison to those underweight (BMI < 18) and average weight (BMI 18-25). The overweight BMI group was also significantly older in age than the underweight and average groups. There was also a group difference in BMI for the different menarcheal timing groups. Specifically, individuals with an early

menarche were found to have significantly higher BMI than counterparts in the on-time/late menarche group. Inconsistent with the first hypothesis, however, the categorical breakdown of early versus late menarche did not reveal any significant group differences in relation to ED-related outcomes.

Table 2

Descriptive Statistics of Independent and Dependent Variables and Covariates for Different Categories of BMI and Age of Menarche

	Mean (SD)	N	BMI				Menarche		
			Underweight 8-9	Average 144-145	Overweight 47-49	p-value	Ontime/Later 133-142	Early 56-59	p-value
N									
Binge Eating Body	12.94 (3.76)	204	12.33	12.90	13.29	ns	12.99	12.63	ns
Dissatisfaction Weight	12.98 (3.93)	203	8.89	12.20	16.06	< .001	12.90	13.02	ns
Preoccupation Compensatory	17.19 (5.66)	203	14.00	16.59	19.77	.001	17.11	17.28	ns
Behaviors Adoptive	7.78 (2.39)	204	7.22	7.63	8.35	ns	7.76	7.76	ns
Identity Birth	3.58 (.45)	196	3.39	3.58	3.64	ns	3.56	3.63	ns
Preoccupation Cultural	2.72 (.66)	199	3.25	2.69	2.72	ns	2.71	2.74	ns
Socialization Racial	2.90 (.76)	204	3.09	2.94	2.75	ns	2.85	3.04	ns
Discomfort BMI	1.64 (.52)	200	1.55	1.65	1.65	ns	1.67	1.59	ns
Age of Menarche	22.9 (3.90)	203					22.50	23.90	.02
Well Being Positive	12.9 (1.20)	201	13.20	12.90	12.80	ns			
Parent Age	46.74 (36.11)	201	57.78	45.18	49.34	ns	49.79	41.76	ns
	3.12 (.47)	204	2.85	3.15	3.09	ns	3.14	3.11	ns
	18.31 (2.20)	204	16.60	18.20	19.00	.003	18.20	18.60	ns

Numbers represent mean values of variables.

Correlations. Each of the MEBS outcome variables was correlated with each of the TAS predictor variables to examine the extent to which culture-specific factors relate to ED outcomes (Table 3). Consistent with the second hypothesis, adoptive identity was found to have a significant negative correlation with binge eating and compensatory behaviors; and cultural socialization was found to have a significant negative correlation with binge eating and compensatory behaviors. Adoptive identity and cultural socialization are conceptualized as positive culture-specific indicators, which may explain their negative relation with ED outcomes. Also consistent with the second hypothesis, birth preoccupation and racial discomfort, indicators of negative cultural identity, were significantly positively related to most of the ED outcomes. Birth preoccupation was related to all four MEBS outcomes, and racial discomfort was related to binge eating, body dissatisfaction, and weight preoccupation.

As expected, higher BMI was related to greater body dissatisfaction and weight preoccupation; and early menarche was related to greater weight preoccupation. Well-being was significantly negatively related to racial discomfort; unexpectedly, well-being was also significantly positively related to birth preoccupation. Positive family environment was significantly negatively related to all four MEBS subscales; positively related to adoptive identity and cultural socialization; and significantly negatively related to birth preoccupation and racial discomfort. Identity was also significantly negatively related to all four MEBS subscales, birth preoccupation, and racial discomfort; identity was significantly positively related to adoptive identity, well-being, and positive parental environment. Older age was related to greater body dissatisfaction, higher adoptive identity, and higher BMI.

Table 3

Correlations between Transracial Adoption Scale and Eating Disorders Symptoms

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Binge Eating	1													
2. Body Dissatisfaction	.48**	1												
3. Weight Preoccupation	.57**	.72**	1											
4. Compensatory Behavior	.53**	.44**	.65**	1										
5. Adoptive Identity	-.27**	-.13	-.11	-.15*	1									
6. Birth Preoccupation	.24**	.17*	.24**	.18*	-.20**	1								
7. Cultural Socialization	-.17*	-.15	-.14	-.17*	.27**	.15*	1							
8. Racial Discomfort	.30**	.17*	.22**	.12	-.49**	-.01	-.25**	1						
9. BMI	.13	.57**	.29**	.10	.10	.02	-.05	-.04	1					
10. Menarche	-.03	-.07	-.16*	-.09	-.09	-.11	-.12	.07	-.13	1				
11. Well Being	-.10	-.06	-.02	.03	.12	.15*	.07	-.16*	-.00	.02	1			
12. Positive Parent	-.37**	-.24**	-.20**	-.26**	.58**	-.18*	.25**	-.27**	-.03	-.05	.04	1		
13. Identity	-.27**	-.19*	-.19**	-.21**	.50**	-.23**	.10	-.40**	.11	-.10	.17*	.56**	1	
14. Age	.12	.17*	.10	.03	.16*	-.04	.02	.14	.22**	-.06	-.08	.13	.00	1

* $p < .05$; ** $p < .01$; $n = 186$, listwise

Hierarchical Multiple Regression Analyses Testing Main Effects of Culture-Specific Factors on ED Symptoms and Age of Menarche as a Moderator

I first tested for main effects using the TAS culture-specific variables (adoptive identity, cultural socialization, birth preoccupation, and racial discomfort) as predictors of ED symptoms (binge eating, body dissatisfaction, weight preoccupation, compensatory behaviors). I included the following variables as covariates: age, BMI, well-being, identity, and quality of parental environment, due to the significant correlations with these variables and most of the culture-specific predictors and ED symptom subscales.

Hierarchical regression analyses were used to test hypothesized main and interaction effects. I used Aiken and West's (1991) guidelines to test for moderator effects to examine whether age of menarche would moderate the relationship between each of the four culture-specific predictors and each dependent ED symptom variable. Effect size and squared semi-partial correlations were examined to determine the magnitude and unique contribution of each first-order and interaction effect.

I standardized raw scale scores in order to reduce the collinearity between the main effect and the interactions terms, and by performing hierarchical regression analyses individually for each culture-specific predictor (Cronbach, 1987). The standardized independent variables were entered into the regression equation in four successive steps. First, the covariates of age and BMI were entered in Step 1, and well-being, parental environment, and identity were entered in Step 2. These groups of covariates were entered into separate models in accordance to Jaccard et al.'s (2006) recommendation that variables that belong to broad categories, such as demographic or social factors, should not be combined into a single regression equation. Next, the predictor (TAS

subscales) and moderator (age of menarche) variables were entered in Step 3. Finally, in Step 4 the two-way interaction term was entered for each predictor variable (TAS subscale x age of menarche). Significant incremental R^2 in the final step would support the hypothesis that menarche moderates the link between the culture-specific factors and ED-related outcomes. I specified a listwise deletion to treat missing data, under the assumption that this method leads to unbiased parameter estimates. Tables 4 – 7 provide information based on hierarchical regression analyses, including the significance of each step in the set of analyses for each predictor variable.

Binge Eating. The covariates together accounted for 17.8% of the variance in binge eating, $F(5, 180) = 7.80$, with positive parental environment significantly contributing to binge eating, ($\beta = -.29, p < .01$). The inclusion of the culture-specific variables in Model 3 increased the variance accounted for in binge eating to 25.2%, $F(10, 185) = 5.91$. Specifically, birth preoccupation, ($\beta = .21, p < .01$), and racial discomfort, ($\beta = .21, p < .05$), were significantly associated with binge eating, above and beyond the covariates. Contrary to study hypothesis, none of the interaction effects between culture-specific predictors and age of menarche were significant.

Table 4

Summary of Regression Analyses Testing Adoptive Identity, Birth Preoccupation, Cultural Socialization, and Racial Discomfort on Binge Eating

Variable	B	SE	β	R^2	F	sr^2
<i>Dependent variable: Binge Eating</i>						
STEP 1				.03	2.49	
(Constant)	7.40	2.57				
Age	.16	.13	.09			.01
BMI	.11	.07	.11			.01
STEP 2				.18**	7.80**	
(Constant)	16.67	2.93				

Variable	B	SE	β	R^2	F	sr^2
Age	.24	.12	.14			.02
BMI	.10	.07	.10			.01
Well-Being	-.01	.01	-.06			.00
Positive Parent Identity	-2.59	.66	-.33**			.07
	-.05	.05	-.08			.00
STEP 3				.25**	5.91**	
(Constant)	14.33	3.37				
Age	.18	.12	.10			.01
BMI	.09	.07	.09			.01
Well-Being	-.01	.01	-.08			.01
Positive Parent Identity	-2.25	.71	-.29**			.04
Identity	.01	.05	.02			.00
Menarche	-.06	.25	-.02			.00
Adoptive Identity	.12	.34	.03			.00
Birth Preoccupation	.82	.26	.22**			.04
Cultural Socialization	-.32	.27	-.08			.01
Racial Discomfort	.76	.30	.21*			.03
STEP 4				.26	4.25**	
(Constant)	14.63	3.44				
Age	.18	.13	.10			.01
BMI	.09	.07	.09			.01
Well-Being	-.01	.01	-.08			.01
Positive Parent Identity	-2.27	.72	-.29**			.04
Identity	.01	.05	.02			.00
Menarche	-.08	.26	-.02			.00
Adoptive Identity (AI)	.13	.35	.04			.00
Birth Preoccupation (BP)	.76	.27	.21**			.03
Cultural Socialization (CS)	-.30	.28	-.08			.01
Racial Discomfort (RD)	.78	.30	.21*			.03
AI x Menarche	-.32	.30	-.09			.00
BP x menarche	-.05	.27	-.02			.00
CS x menarche	.06	.26	.02			.00
RD x menarche	-.24	.29	-.07			.00

* $p < .05$; ** $p < .01$ $n = 186$, listwise

Weight Preoccupation. The covariates together accounted for 14.3% of the variance in weight preoccupation, $F(5, 180) = 6.01$, with BMI significantly contributing to weight preoccupation, ($\beta = .27, p < .01$). The inclusion of the culture-specific variables and moderator in Model 3 increased the variance accounted in weight preoccupation to 24.2%. $F(10, 175) = 5.58$. Birth preoccupation, ($\beta = .23, p < .01$) and racial discomfort, ($\beta = .21, p < .05$) significantly contributed to weight preoccupation, above and beyond the covariates. Age of menarche only attained marginal significance in Model 3 ($\beta = -.13, p = .052$). The interaction effects between age of menarche and the four culture-specific variables, however, were not significant for weight preoccupation.

Table 5

Summary of Regression Analyses Testing Adoptive Identity, Birth Preoccupation, Cultural Socialization, and Racial Discomfort on Weight Preoccupation

Variable	B	SE	β	R^2	F	sr^2
<i>Dependent variable: Weight Preoccupation</i>						
STEP 1				.09**	8.63**	
(Constant)	6.07	3.85				
Age	.09	.19	.03			.00
BMI	.44	.11	.30**			.08
STEP 2				.14**	6.01**	
(Constant)	15.11	4.62				
Age	.12	.19	.05			.00
BMI	.43	.11	.30**			.08
Well-Being	.00	.01	.02			.00
Positive Parent Identity	-1.22	1.03	-.10			.01
	-.15	.08	-.17†			.02
STEP 3				.24**	5.58**	
(Constant)	15.49	5.24				
Age	.00	.19	.00			.00
BMI	.39	.10	.27**			.06
Well-Being	-.00	.01	-.01			.00
Pos Parent Identity	-1.10	1.10	-.09			.00
	-.09	.08	-.10			.01

Variable	B	SE	β	R^2	F	sr^2
Menarche	-.76	.39	-.13†			.02
Adoptive Identity	.79	.53	.14			.01
Birth Preoccupation	1.34	.41	.24**			.05
Cultural Socialization	-.72	.42	-.12			.01
Racial Discomfort (RD)	1.19	.46	.21*			.03
STEP 4				.24	3.91**	
(Constant)	15.69	5.37				
Age	-.00	.20	-.00			.00
BMI	.39	.10	.27**			.06
Well-Being	.00	.01	-.01			.00
Positive Parent Identity	-1.12	1.12	-.09			.00
Menarche	-.09	.08	-.10			.01
Adoptive Identity (AI)	-.78	.40	-.13			.02
Birth Preoccupation (BP)	.79	.54	.14			.01
Cultural Socialization (CS)	1.30	.43	.23**			.04
Racial Discomfort (RD)	-.70	.43	-.12			.01
AI x menarche	1.20	.47	.21*			.03
BP x menarche	-.19	.46	-.04			.00
CS x menarche	-.02	.42	-.00			.00
RD x menarche	.06	.41	.01			.00
	-.11	.45	-.02			.00

$p < .05$; ** $p < .01$; † $p = .05$ $n = 186$, listwise

Body Dissatisfaction. The covariates cumulatively accounted for 40.2% of the variance in body dissatisfaction, $F(5, 180) = 24.24$, with BMI ($\beta = .57$; $p < .01$) significantly contributing to body dissatisfaction. Birth preoccupation contributed significantly to body dissatisfaction, but only in Model 3; the significant effect did not hold in the final model. None of the main effects between the other culture-specific factors and body dissatisfaction, or the interaction effects between age of menarche and the culture-specific factors were significant for body dissatisfaction.

Table 6

Summary of Regression Analyses Testing Adoptive Identity, Birth Preoccupation, Cultural Socialization, and Racial Discomfort on Body Dissatisfaction

Variable	B	SE	β	R^2	F	sr^2
<i>Dependent variable: Body Dissatisfaction</i>						
STEP 1				.33**	44.79**	
(Constant)	-1.35	2.21				
Age	.09	.11	.05			.00
BMI	.55	.06	.56**			.30
STEP 2				.40**	24.24**	
(Constant)	5.71	2.59				
Age	.11	.11	.06			.00
BMI	.56	.06	.57**			.30
Well-Being	-.00	.01	-.02			.00
Positive Parent Identity	-1.10	.58	-.14			.01
	-.10	.04	-.17*			.02
STEP 3				.43	13.23**	
(Constant)	4.24	3.05				
Age	.09	.11	.05			.00
BMI	.55	.06	.56**			.28
Well-Being	-.00	.01	-.03			.00
Positive Parent Identity	-.81	.64	-.10			.01
	-.07	.05	-.12			.01
Menarche	-.03	.23	-.01			.00
Adoptive Identity	.08	.31	.02			.00
Birth Preoccupation	.55	.24	.14*			.02
Cultural Socialization	-.36	.24	-.09			.01
Racial Discomfort	.35	.27	.09			.01
STEP 4				.44	9.71**	
(Constant)	4.03	3.09				
Age	.12	.11	.07			.00
BMI	.56	.06	.57**			.29
Well-Being	-.00	.01	-.03			.00
Positive Parent Identity	-.94	.65	-.12			.01
	-.07	.05	-.12			.01
Menarche	.01	.23	.00			.00
Adoptive Identity (AI)	.17	.31	.05			.00

Variable	B	SE	β	R^2	F	sr^2
Birth Preoccupation (BP)	.44	.25	.12			.01
Cultural Socialization (CS)	-.31	.25	-.08			.01
Racial Discomfort (RD)	.39	.27	.10			.01
AI x menarche	-.26	.27	-.08			.00
BP x menarche	.32	.24	.09			.01
CS x menarche	-.03	.24	-.01			.00
RD x menarche	-.14	.26	-.04			.00

* $p < .05$; ** $p < .01$ $n = 186$, listwise

Compensatory Behaviors. The covariates together accounted for 8.8% of the variance in compensatory behaviors, $F(5, 169) = 3.66$, with positive parental environment significantly contributing to compensatory behaviors only in Model 2 ($\beta = -.19$; $p < .05$). Once the culture-specific variables and moderator variable were included at subsequent steps, positive parental environment did not remain significant. Cultural socialization significantly contributed to compensatory behaviors in the hypothesized direction ($\beta = -.16$; $p < .05$). None of the main effects between the other culture-specific factors and compensatory behaviors, or interaction effects between age of menarche and the culture-specific factors produced a significant contribution to compensatory behaviors.

Table 7

Summary of Regression Analyses Testing Adoptive Identity, Birth Preoccupation, Cultural Socialization, and Racial Discomfort on Compensatory Behaviors

Variable	B	SE	β	R^2	F	sr^2
<i>Dependent variable: Compensatory Behaviors</i>						
STEP 1				.01	.88	
(Constant)	6.25	1.73				
Age	.01	.09	.01			.00
BMI	.06	.05	.10			.01
STEP 2				.09**	3.47**	

Variable	B	SE	β	R^2	F	sr^2
(Constant)	10.56	2.05				
Age	.04	.09	.04			.00
BMI	.06	.05	.10			.01
Well-Being	.00	.01	.06			.00
Positive Parent Identity	-1.00	.46	-.19*			.02
	-.05	.04	-.12			.01
STEP 3				.13	2.63**	
(Constant)	10.52	2.42				
Age	.03	.09	.03			.00
BMI	.05	.05	.07			.00
Well-Being	.00	.01	.05			.00
Positive Parent Identity	-.83	.51	-.16			.01
Identity	-.05	.04	-.12			.01
Menarche	-.25	.18	-.10			.01
Adoptive Identity	.13	.24	.06			.00
Birth Preoccupation	.34	.19	.14			.02
Cultural Socialization	-.40	.19	-.16*			.02
Racial Discomfort	.08	.21	.03			.00
STEP 4				.14	2.06*	
(Constant)	10.49	2.61				
Age	.03	.09	.03			.00
BMI	.05	.05	.08			.01
Well-Being	.00	.01	.05			.00
Positive Parent Identity	-.83	.51	-.16			.01
Identity	-.06	.04	-.13			.01
Menarche	-.26	.19	-.11			.01
Adoptive Identity (AI)	.13	.25	.05			.00
Birth Preoccupation (BP)	.35	.20	.14			.02
Cultural Socialization (CS)	-.40	.20	-.16*			.02
Racial Discomfort (RD)	.04	.21	.02			.00
AI x menarche	.12	.21	.05			.00
BP x menarche	.02	.19	.01			.00
CS x menarche	.11	.19	.04			.00
RD x menarche	.33	.21	.15			.01

* $p < .05$; ** $p < .01$ $n = 186$, listwise

Summary of Study 1

In Study 1, I investigated main and interaction effects of culture-specific variables and age of menarche on ED symptom outcomes. The purpose of this study was to examine the extent to which culture-specific variables predicted ED symptom outcomes, and whether age of menarche moderated the relationships between culture-specific factors and body image and ED symptom outcomes.

The first hypothesis that age of menarche would be negatively related to ED symptoms was only confirmed for one outcome variable. I found a negative correlation between age of menarche and weight preoccupation, suggesting that earlier age of menarche may be related to a greater desire for thinness.

I next hypothesized that adoptive identity and cultural socialization would be negatively correlated with ED symptom outcomes, based on the hypothesized protective nature of these culture-specific predictors. In support of this hypothesis, adoptive identity was found to be negatively related to binge eating and compensatory behaviors; and cultural socialization was found to be negatively related to binge eating and weight preoccupation. Relatedly, I hypothesized that birth preoccupation and racial discomfort would be positively related to ED symptom outcomes, as these culture-specific variables were hypothesized to reflect maladaptation. In support of this expectation, I found that birth preoccupation was positively correlated with all four ED symptom outcomes, and racial discomfort was correlated with binge eating, body dissatisfaction, and weight preoccupation.

The third hypothesis predicted that there would be significant main effects between the culture-specific predictors and ED symptom outcomes and between age of

menarche and ED symptoms, even after controlling for the confounding role of covariates. I found partial evidence for these hypothesized main effects. Specifically, both birth preoccupation and racial discomfort predicted both binge eating and weight preoccupation; and cultural socialization negatively predicted compensatory behaviors. These results held even after controlling for age, BMI, well-being, positive parental environment, and identity. Early menarche was correlated with weight preoccupation, but failed to significantly predict preoccupation with weight above and beyond the effects of the culture-specific variables and BMI. Also contrary to hypothesis, there were no significant interaction effects between the culture-specific factors and age of menarche for all outcome variables, suggesting that the direct effects of certain culture-specific variables may contribute relatively more to ED symptoms for this sample of adopted Korean American adolescent girls.

Although not hypothesized, results also suggest that BMI may be a stronger predictor than some of the culture-specific variables and pubertal timing for certain ED symptom outcomes. Specifically, lower BMI directly predicted lower levels of weight preoccupation and body dissatisfaction. Another unexpected finding was that quality of parental environment directly predicted binge eating, with a more positive parental environment predicting lower frequency of binge eating behaviors.

Results from the first study suggest that certain culture-specific experiences may be related to ED-related outcomes for female Korean adopted adolescents. In an attempt to corroborate preliminary findings, I tested the link between culture-specific factors and ED-related outcomes in a separate sample of female Korean adopted adolescents. In the

second study, I included an additional measure of body image and improved measures of culture-specific factors.

STUDY 2

The purpose of the second study was to examine the relationship between culture-specific factors and body image and ED symptoms among a separate group of Korean American adopted adolescent girls. I improved the culture-specific measures from the first study by including a measure of ethnic identity and preparation for bias (a subscale of the Cultural Socialization measure). The second study included psychometrically improved measurements of culture-specific factors which were distinct from the Transracial Adoption Scale used in the first study. The use of identical variable names (i.e., adoptive identity, birth preoccupation, cultural socialization) indicates the factors that were parallel in each study. Study 2 also included a measure of body image related to Asian appearances, which was not examined in the first study.

The KAD study built on the SIBS study findings with several methodological improvements. First, the KAD study included separate measures of ethnic identity, adoptive identity, cultural socialization, and preparation for bias. In the SIBS study, racial discomfort was used as a proxy for ethnic identity, and it was assumed that lower levels of the former reflected higher levels of ethnic identity. Although it makes intuitive sense that high ethnic identity would be negatively related to feelings of shame and unease surrounding one's race, the construct of racial discomfort has yet to be psychometrically substantiated. Second, the measurement of body image and ED symptoms included items that specifically address body dissatisfaction regarding racially charged body and facial features. Third, the KAD sample included a younger cohort than the participants from the SIBS study. As such, the KAD sample allowed for analysis of more current

developmental processes that are in progress at the time of the study instead of being based primarily on retrospective accounts.

Hypotheses for Study 2

To further validate findings from Study 1, the purpose of the present study was to directly test how ethnic identity, adoptive identity, birth preoccupation, cultural socialization, and preparation for bias predicted body image (Asian appearance and body satisfaction) and ED symptom outcomes (ED total). I conducted a cross-sectional analysis to test how the five culture-specific factors directly predicted ED symptom variables, and the extent to which age of menarche moderated the relationship between culture-specific factors and body image and ED symptom outcomes. I identified the following variables as covariates: BMI, quality of parental environment (PEQ), and satisfaction with life (SWLS). Satisfaction with life was included as an alternative measure of well-being, which was a covariate used in Study 1. These covariates were selected based on the expectation that they would likely confound the relationship between culture-specific predictors and ED-related outcomes due to the expected correlation between the covariates and the dependent variables (Jaccard et al, 2006).

- 1) First, I expected that age of menarche would be negatively related to ED total, and positively related to Asian appearance and body satisfaction. The underlying expectation was that early menarche would be related to greater ED symptoms, and relatively later menarche would protect individuals from body discontent regarding weight and shape as well as Asian-relevant appearances.

- 2) Second, I hypothesized that birth preoccupation would be positively related to ED total scores, and negatively related to both Asian appearance and body satisfaction, as birth preoccupation is suggestive of lower levels of adjustment. I also expected that ethnic identity, adoptive identity, cultural socialization, and preparation for bias would be negatively related to ED total scores. I also hypothesized that these four positive culture-specific factors would be positively related to Asian appearance and body satisfaction. I expected that higher levels of positive culture-specific factors would help protect against body image problems and eating disordered tendencies.
- 3) Third, I hypothesized that the main effects between the hypothesized predictors and hypothesized moderator (ethnic identity, adoptive identity, birth preoccupation, cultural socialization, preparation for bias, and menarche), and the three body image and ED symptom outcomes (Asian appearance, body satisfaction, and ED total) would hold even after controlling for BMI, age, satisfaction with life, and quality of parental environment.
- 4) Fourth, I hypothesized that age of menarche would moderate the relationship between culture-specific factors and body image measures and ED symptoms. In accordance with the accentuation model (Caspi & Moffitt, 1991), I hypothesized that low levels of protective culture-specific factors (ethnic identity, adoptive identity, cultural socialization, and preparation for bias), and high levels of birth preoccupation,

hypothesized to be an adverse culture-specific factor, in combination with early menarche, would produce an enhancing interaction effect on ED symptoms. Specifically, I predicted that early menarche should be related to heightened ED symptoms for individuals who endorse low levels of the protective culture-specific factors, and high levels of birth preoccupation. Relatedly, I predicted that early menarche would be related to reduced body satisfaction and Asian appearance scores, for individuals who endorse low levels of protective culture-specific factors and high levels of birth preoccupation. I hypothesized that the moderation effects would hold even after controlling for BMI, age, satisfaction with life, and positive parental environment. (see Figures 3 – 8 for an illustration of hypothesized effects).

Figure 3

Hypothesized Moderation Effect of Age of Menarche on the Link between Birth

Preoccupation and ED Total (ED Tot)

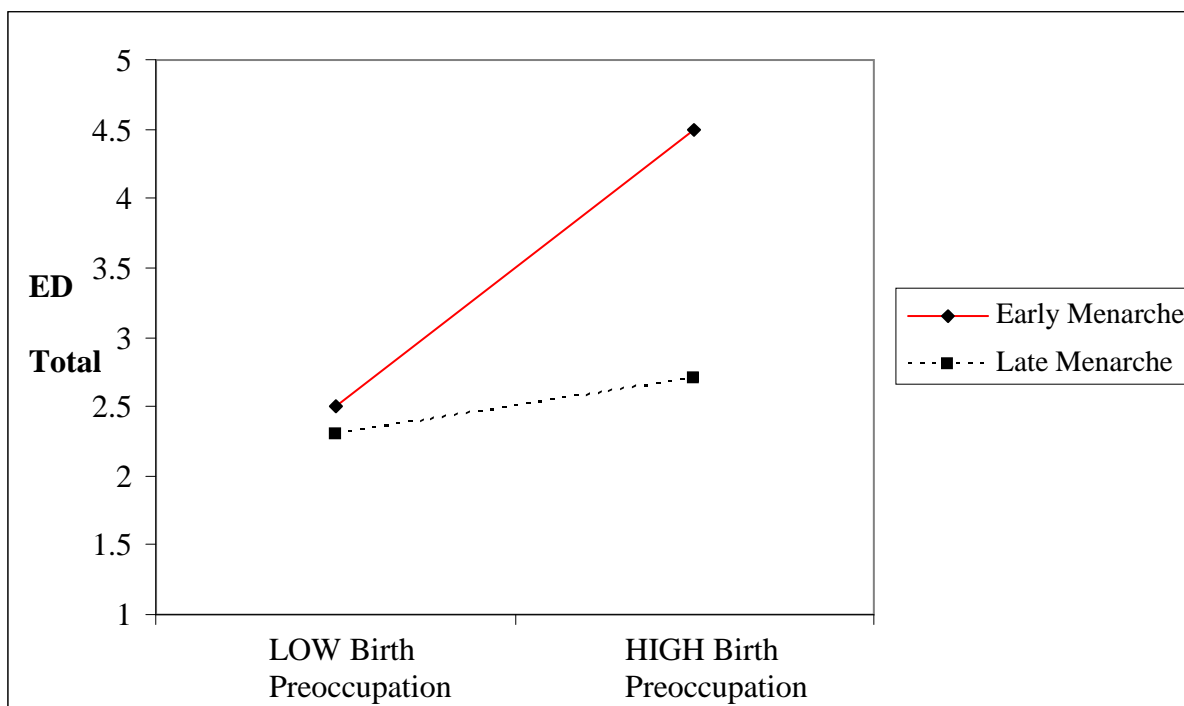


Figure 4

Hypothesized Moderation Effect of Age of Menarche on the Link between Birth

Preoccupation and Body Satisfaction (Body Sat)

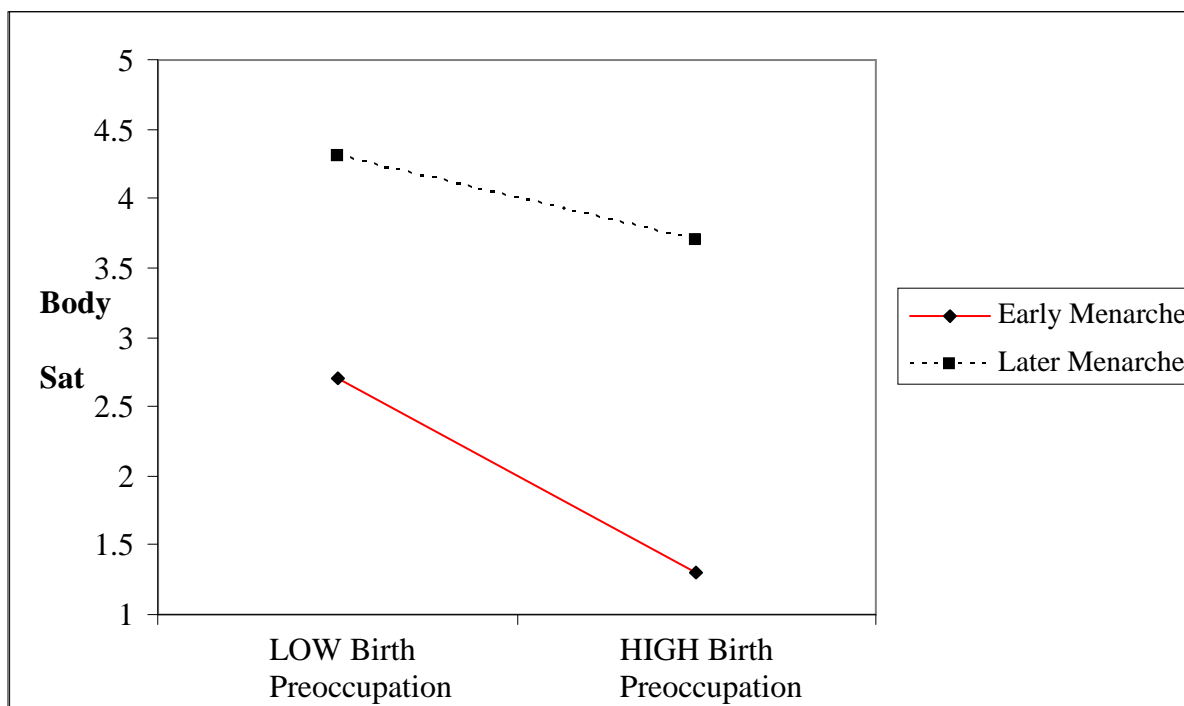


Figure 5

Hypothesized Moderation Effect of Age of Menarche on the Link between Birth

Preoccupation and Asian Appearance (ASIAN)

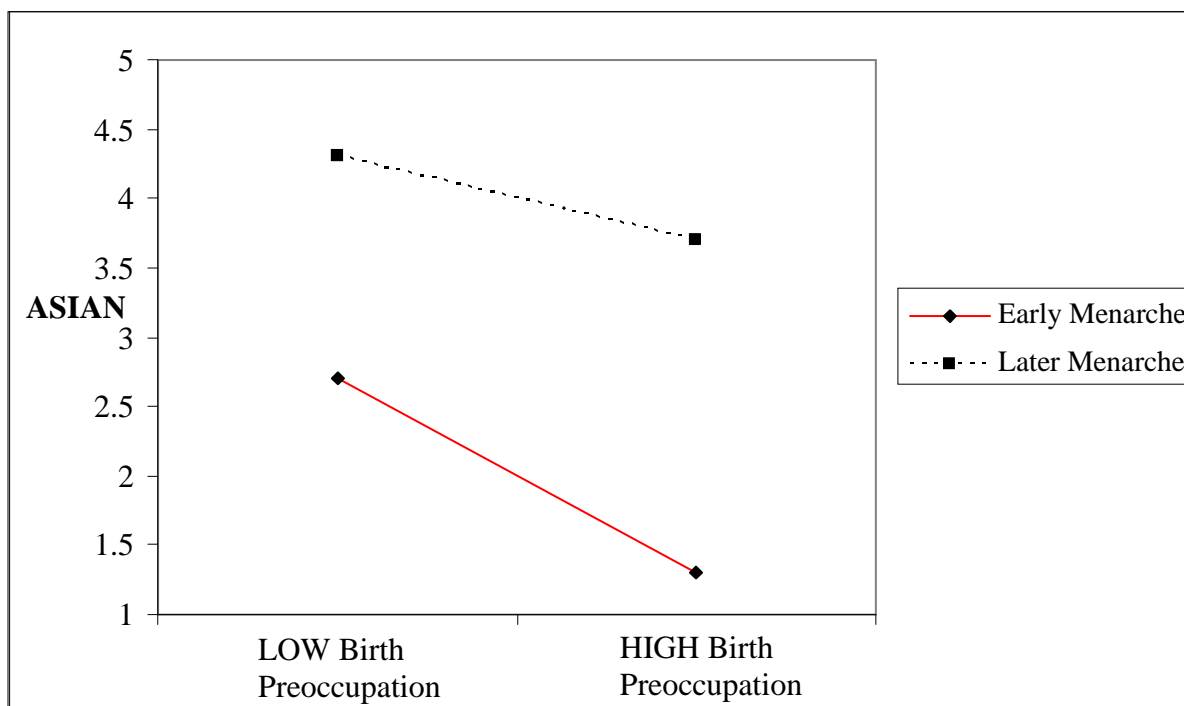


Figure 6

Hypothesized Moderation Effect of Age of Menarche on the Link between Protective Culture-Specific Factors and ED Total

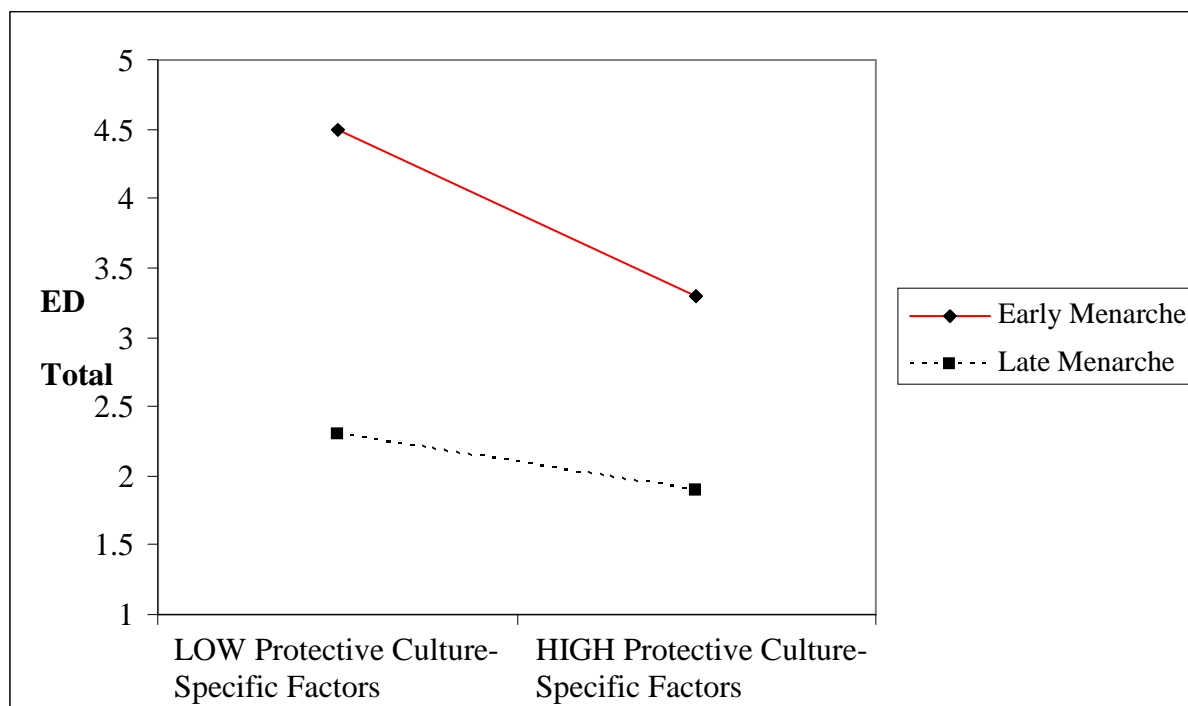


Figure 7

Hypothesized Moderation Effect of Age of Menarche on the Link between Protective Culture-Specific Factors and Body Satisfaction (Body Sat)

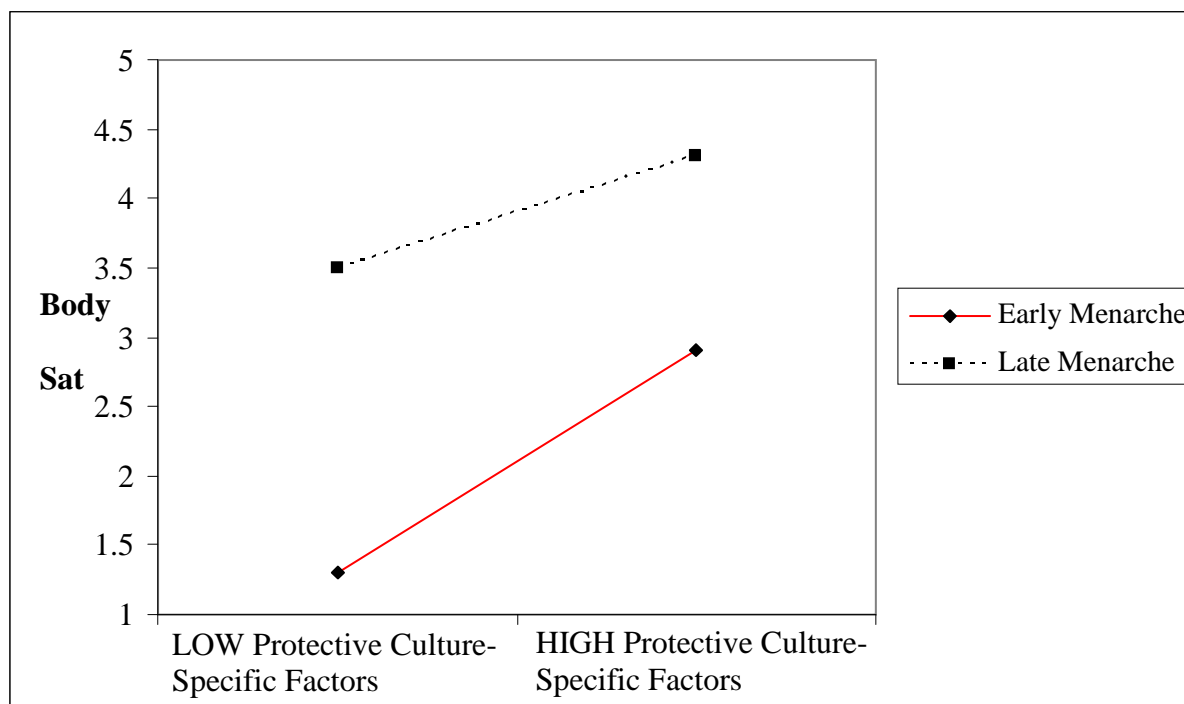
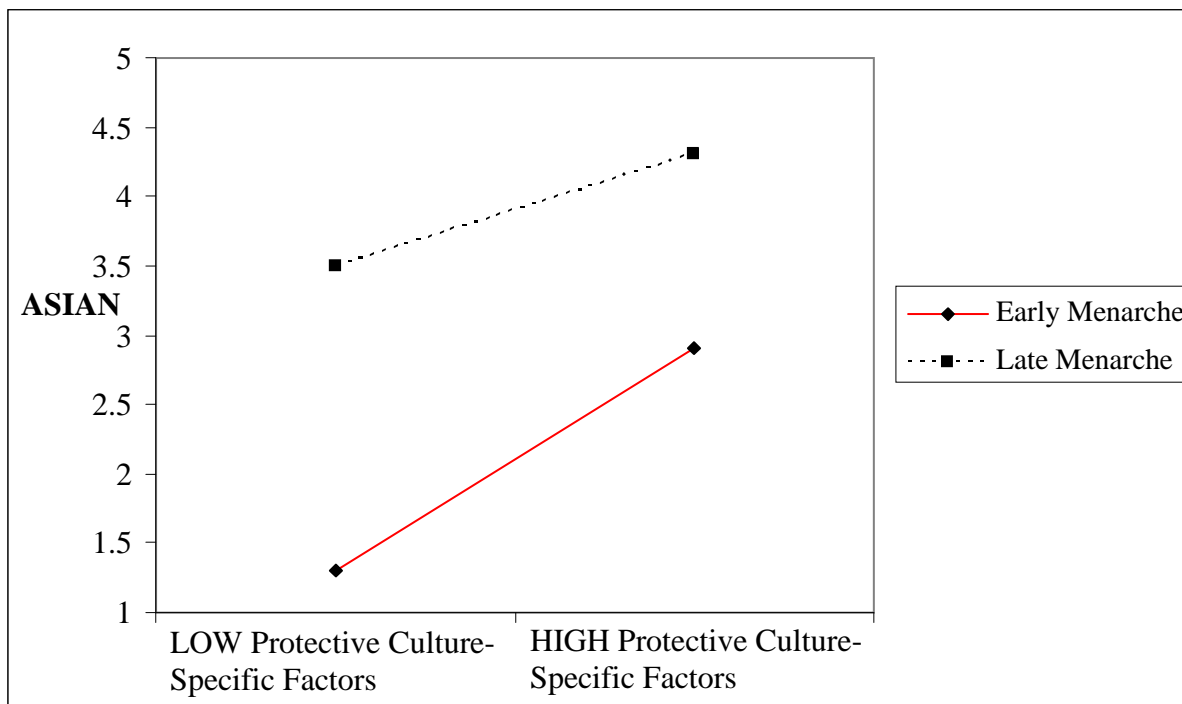


Figure 8

Hypothesized Moderation Effect of Age of Menarche on the Link between Protective Culture-Specific Factors and Asian Appearance (ASIAN)



Method for Study 2

Sample

The Korean adoptee sample was drawn from the ongoing Korean Adoption Study which is a part of the larger International Adoption Project at the University of Minnesota. The sample included 130 Korean American adopted female adolescents ranging from age 13 to 18 years-old, representing a sample that was relatively younger than the SIBS sample. The Korean adoptees and families were recruited from a registry of international, transracial adoptees and their families living predominantly in Minnesota. Parents and their Korean adopted child who met the study age requirements

were asked to complete a parent version and teen version of the survey, respectively. The present study only pertained to the adolescent girls, as girls are at relatively greater risk for body image and ED-related concerns than boys. Each individual family member who completed the survey packet received a Target gift card worth \$20.00. Survey packets included a brief demographic questionnaire, an ethnic identity measure (i.e., Multigroup Ethnic Identity Measure, MEIM), an adoptive identity measure (i.e., an adapted version of the MEIM), a cultural socialization measure (i.e., an adaptation of the Hughes and Chen (1997) measure reworded to obtain the child's perspective), questions assessing pubertal timing and development (i.e., Pubertal Development Scale, PDS), and items assessing eating disordered attitudes and behaviors and body image questions.

Measures

Ethnic Identity. (Multigroup Ethnic Identity Measure, MEIM; Phinney, 1992).

The MEIM is a 14-item self-report measure of ethnic identity. The scale items are rated on a 4-point scale from 1 (strongly disagree) to 4 (strongly agree) with a higher score reflecting a more positive ethnic identity. Example items include "I understand pretty well what being Korean means to me", "I have a lot of pride in Koreans and their accomplishments", and "I have a strong sense of belonging with other Koreans." One item from the original MEIM ("strong attachment to group") was not included in the computation of scale scores based on previous factor analytic research (Lee & Yoo, 2004). In addition to the original 14 items, I included three additional items that deal specifically with one's affinity for Koreans (e.g., "I don't like that I am Korean" and "Other Koreans embarrass me"). For the KAD female sample, the ethnic identity scale had a mean score of 2.71 (SD = .50; n = 128) and an alpha coefficient of .88 (14 items).

Adoptive Identity. A measure of adoptive identity was developed for this study by adapting the above described MEIM scale. I substituted the use of “Korean” with “adoption status” or “adoptee” to make the item relevant to one’s adoptive identity. Sample items include “I feel good about being an adoptee”, “I know how to relate to other adoptees”, and “I have a clear sense of being adopted and what it means for me.” For the KAD female sample, the adoptive identity scale had a mean score of 3.12 (SD = .43; n = 130) and an alpha coefficient of .82 (13 items).

Cultural Socialization and Preparation for Bias. Hughes and Chen (1997) originally created a measure of cultural socialization to measure parental socialization of racial and cultural issues to children within African American families. The measure contains 20 items, and in this study the phrasing of each item was modified to reflect the cultural socialization experiences relevant to a Korean adoptive home. The measure is comprised of three dimensions: Cultural Socialization, which is comprised of items pertaining to the extrinsic ways in which parents teach children about Korean culture and history (e.g., “Encouraged you to read books about Koreans and Asians in general”), Preparation for Bias subscale measured the extent to which parents are perceived to help equip their child mentally and emotionally for prospective instances of racism and discrimination (e.g., “Talked to you about unfair treatment that occurs due to race”), and Promotion of Mistrust (e.g., “Done or said things to you to keep you from trusting kids of other races/ethnicities”). In the teen version, items were also rephrased to assess the child’s perspective of parental cultural socialization. Each item uses a 5-point rating scale that ranges from Never to Very Often. This scale was first developed using parent responses and is most often administered to parents who report on their perceptions of the

quality of cultural socialization they provide. In the present study, I obtained information about parental cultural socialization from the teens' perspectives, using only two of the subscales: cultural socialization and preparation for bias. For the KAD female sample, the cultural socialization subscale had a mean score of 2.11 (SD = .86; n = 128) and an alpha coefficient of .86 (9 items). The preparation for bias subscale had a mean score of 1.59 (SD = .59; n = 127) and an alpha coefficient of .82 (7 items).

Birth Preoccupation. This brief questionnaire consists of 6 items that measure the frequency to which respondents have thought about their birth origins. The scale items are rated on a 4-point scale from 1 (not at all) to 4 (a lot) with a higher score reflecting greater preoccupation about one's birth origins. Example items include "How frequently have you thought about your birthparents", "How frequently have you imagined what it would have been like to have grown up in Korea", and "How frequently have you wondered what your birthparents look like?" For the KAD female sample, the birth preoccupation scale had a mean score of 2.62 (SD = .79; n = 129) and an alpha coefficient of .89 (6 items).

BMI (kg/m²). BMI was calculated for each participant, based on self-reported weight and height values provided by participants on a general information sheet. The purpose of obtaining BMI information was to determine which girls are underweight, normal weight, and overweight. Research indicates that self-reported weight and height are highly correlated with measured weight and height (Palta et al, 1982). The mean BMI for this sample was 21.34 (SD = 3.06).

Satisfaction with Life Scale (SWLS; Diener, et al., 1985). The SWLS is a 5-item self-report measure of subjective well-being. The scale items are rated on a 7-point scale

from 1 (strongly disagree) to 7 (strongly agree) with a higher score reflecting greater life satisfaction. Sample items is “I am satisfied with my life.” For the sample of female Asian adoptees, the alpha reliability of the SWLS was .87.

Parental Environment Questionnaire (PEQ) is an abbreviated version of the PEQ used in Study 1. This scale is comprised on 37-items that measure the quality of the parental environment, from the perspective of both parents and child. The scale items are rated on a 4-point scale from 1 (definitely true) to 4 (definitely false) with a higher score reflecting the perception of a more positive parental environment. This study also focused only on the child-reports of the home environment, indicating separate evaluations of mother and father. Example items include “I talk about my concerns and my experiences with my parent”, “My parent comforts me when I am discouraged or have had a disappointment”, and “I want to be like my parent in a number of ways”. The alpha reliability of the PEQ scale used in this study on Korean adopted girls was .94.

Pubertal Development and Pubertal Timing. The Pubertal Development Scale (PDS; Peterson, Crockett, Richards, & Boxer, 1988) is the most widely used method of pubertal staging by self-or parent-report. Alpha coefficients range from .68 to .83 across a longitudinal study. Correlation of a physical exam with the PDS in 11-, 12-, and 13-year-old girls was between .61 and .67. PDS was used to assess pubertal development in the areas of height spurts, body hair growth, skin changes, breast development, and initiation of menses. Girls rated their development in these areas on a four-point scale: (1) development has not yet begun; (2) development has barely started; (3) development is definitely underway; and (4) development seems completed. Menstruation was rated dichotomously as absent or present. Following prior convention, a PDS score of 2.5 was

used to identify those who entered puberty (Petersen et al., 1988). The early-, on-time, and late-maturing groups were conceptualized a priori to be approximately 30%, 40%, and 30%, respectively, according to their relative distribution in the sample (Ge et al., 2001). Girls who had their first period before age 12.5 were classified as early maturers (those who had their first period between age 12.5 and 13.5 were on-time maturers, and those who had their first period after age 13.5 were late maturers. I reported menarche group differences on all study variables; however, age of menarche was treated as a continuous variable for key analyses. Although I obtained information on pubertal development, I only analyzed age of menarche because a majority of the sample had already achieved menarche by the time of the study. Moreover, age of menarche was determined to be appropriate due to evidence that suggests that age of menarche is a relatively accurate and reliable source of information, particularly the closer the time period between age of menarche and when age of menarche is recalled (Koo & Rohan, 1997). For this sample, forty-two percent of respondents achieved menarche prior to age 12; forty percent arrived at menarche at age 12; twenty-eight percent arrived at menarche at age 13; and twelve percent of respondents reported their age of menarche as being after age 13.

Body Image and Eating Disordered Symptoms. The items comprising the body image measure were selected from Mendelson, Mendelson, and White's (2001) Body Esteem Scale and are also based on Palmqvist and Santavirta's (2005) study examining body image and peer influences for adolescents. I also created additional items that tap into adolescents' teens' evaluation of racially charged physical features not directly related to weight. In the present study 16 items comprise our measure of body image.

These items assess body dissatisfaction (e.g., “I am satisfied with my body”), satisfaction with racial features (e.g., “I don’t like the shape of my eyes”), internalization of White attractiveness (e.g., “I wish I had physical features more like Whites”), and beliefs about one’s heterosociability (e.g., “I am wanted by the opposite sex”). There are 8 items that comprise the measure of eating disorders. These items were selected from the Eating Disorders Inventory-2 (EDI-2; Garner, 1990) that tap into binge eating tendencies (e.g., “I have a hard time controlling my eating”), restrained eating (e.g., “I avoid eating when I am hungry”), and compensatory behaviors (e.g., “I exercise very hard after eating to get rid of calories”). These items were reworded from the original EDI-2 in order to fit the reading and comprehension level of teens.

Factor Analysis of Body Image and Eating Disordered Symptoms Scales. To identify the factor structure of the 16 scale items comprising the body image scale, a common factor analysis with principal axis factoring and direct oblimin rotation was conducted on the female sample of the KAD study. This analysis revealed a factor solution of two factors which offered the most parsimonious solution both conceptually and statistically. Factor loadings less than .30, and two items that loaded as a separate factor, but which did not contribute to the main two factors were eliminated, leaving 14 items. A parallel analysis corroborated the two factor solution. This two-factor solution accounted for 40.56% of the variance in the data (see Table A for factor loadings).

The first factor (AA: *Asian Appearance*) had factor loadings that ranged from .35 to .88. This subscale had a mean score of 3.99 (SD = .76; n = 128), and an alpha coefficient of .86 (8 items). Asian appearance consists of items pertaining to how satisfied respondents feel about their unique Asian looks (“I am comfortable with my

appearances as an Asian”). The factor loadings for the second factor (BS: *Body Satisfaction*) ranged from .55 to .84. The mean score for body satisfaction was 3.27 (SD= .88; n= 130) and had an alpha coefficient of .82 (6 items). Body satisfaction items consist of attitudes towards one’s general body image (“I am pretty happy with the way I look”). (see Table 5 for item descriptions).

I also factor analyzed the 8 scale items that comprised the eating disordered symptom scale (ED total), using a common factor analysis with principal axis factoring and direct oblimin rotation on the female sample of the KAD study. This analysis revealed a single factor solution, which was further validated by a parallel analysis. An item pertaining to vomiting was omitted because there was zero variance for this item, leaving 7 items remaining. This one-factor solution accounted for 39.42% of the variance of the data. The factor loadings ranged from .30 to .70. The ED total had a mean score of 11.48 (SD= 3.80; n=128), and an alpha coefficient of .73 (7 items). This factor is comprised of eating disordered behaviors and attitudes (“I spend a lot of time wishing I were thinner”).

Table 8

Factor Loadings of EFA of the Body Image and Eating Disorders Scales

	Eating Disorders Total	Asian Appearance	Body Satisfaction
Wish I were thinner	.70		
On a diet much of the time	.66		
Hard to control eating	.63		
Have eaten lots of food without control	.58		
Avoid eating when hungry	.47		
Exercise very hard to rid calories	.40		
Others pressure me to eat	.30		
Wish have features like White		.88	
Do not like Asian looks		.77	
Comfortable with Asian appearance		-.75	
Happy with Asian looks		-.74	
Do not like eye shape		.72	
Wish looked more like White friends		.69	
Glad I look different than White friends		-.54	
Do not like skin tone		.35	
Satisfied with weight			.84
Satisfied with body			.75
Often think look better if lost weight			-.69
Pretty happy about the way I look			.65
Compare my body to ones see on TV			-.62
Look at self in mirror and wish look better			-.55

Results of Study 2

Data Inspection

Before computing any statistics, the data were screened visually in various graphic outputs (e.g., scatter-plots) for anomalies. I also examined the statistical computation of z-scores to detect potential outliers. Standardized scores subtract the mean from each case, to provide a revised sample mean of zero, which eases the detection of data that lie significantly above and below the mean value. No abnormality or outliers were identified using these methods.

Preliminary Analyses

Mean group differences for pubertal timing and BMI. Table 6 provides descriptive information on the body image and ED outcome variables, culture-specific predictors, and covariates. The table also provides information on group differences on the outcome and predictor variables for BMI (Underweight, Average Weight, Overweight) and age of menarche categories (On-time/Later onset and Early onset). Consistent with the first hypothesis, age of menarche and BMI group differences were found for ED total and body satisfaction. Specifically, individuals who reported early menarche indicated significantly greater ED symptoms versus later menarche counterparts. The overweight BMI group (≥ 25) reported significantly more ED symptoms than those in the underweight (BMI < 18) and average (BMI of 18-25) groups. Individuals who were underweight BMI reported a significantly later age of menarche than counterparts with higher BMI. Similarly, those who reported earlier age of menarche had significantly higher BMI.

Table 9

Descriptive Statistics of Independent and Dependent Variables and Covariates for Different Categories of BMI and Age of Menarche

	Mean (SD)	N	BMI				Menarche		
			Underweight 11-13	Normal 97-101	Overweight 12-13	p-value	Ontime/Later 80-84	Early 40-42	p-value
N									
ED Total	1.64 (.54)	128	1.26	1.68	1.84	<.05	1.56	1.78	<.05
Asian									
Appearance	3.99 (.76)	128	4.00	3.99	4.06	ns	3.94	4.17	ns
Body									
Satisfaction	3.27 (.88)	130	4.08	3.24	2.67	<.001	3.40	3.06	<.05
Adoptive									
Identity	3.12 (.43)	130	3.14	3.09	3.27	ns	3.09	3.21	ns
Ethnic									
Identity	2.71 (.50)	128	2.71	2.72	2.66	ns	2.68	2.81	ns
Birth									
Preoccupation	2.62 (.79)	129	2.67	2.67	2.44	ns	2.59	2.74	ns
Cultural									
Socialization	2.11 (.76)	128	2.18	2.09	2.09	ns	2.10	2.18	ns
Preparation									
for Bias	1.59 (.59)	127	1.67	1.60	1.36	ns	1.55	1.71	ns
Positive									
Parent	3.14 (.52)	130	3.34	3.10	3.19	ns	3.13	3.18	ns
Satisfaction									
With Life	5.63 (1.02)	126	5.53	5.62	5.67	ns	5.60	5.70	ns
Age	15.29 (1.77)	130	14.69	15.31	16.31	ns	15.48	14.81	<.05
Age of									
Menarche	12.00 (1.33)	122	13.09	11.87	12.00	<.05	12.74	10.60	<.001
BMI	21.34 (3.06)	127	16.86	21.14	27.42	<.001	20.88	22.15	<.05

Numbers represent mean values of Variables.

Correlations. The three body image and ED symptom scales (Asian appearance, body satisfaction, and ED total) were correlated with the five culture-specific predictors (ethnic identity, adoptive identity, birth preoccupation, cultural socialization, and preparation for bias) to examine the extent to which the predictors and outcomes were related (Table 7). Consistent with the second hypothesis, Asian appearance was significantly positively related to ethnic identity, adoptive identity, cultural socialization, positive parental environment, and satisfaction with life. Body satisfaction was significantly positively related to adoptive identity, positive parental environment, and satisfaction with life; and significantly negatively related to birth preoccupation. ED total was only significantly related to birth preoccupation in the expected positive direction, but was not significantly related to the other culture-specific predictors. Preparation for bias was unrelated to any of the outcome variables, which is inconsistent with hypothesized results. Age of menarche was not significantly correlated with outcome measures, but was negatively correlated with ethnic identity and BMI, and positively related to age. Higher BMI was related to higher ED total scores and reduced body satisfaction. BMI was also positively related to adoptive identity and age, and negatively related to preparation for bias.

Measures of positive adjustment, positive parental environment and satisfaction with life, were related to body image and ED symptom outcomes in the expected directions. Specifically, positive parental environment and satisfaction with life were significantly negatively related to ED total and significantly positively related to Asian appearance and body satisfaction. Positive parental environment and satisfaction with life were also significantly positively related to adoptive identity, but unrelated to the other

culture-specific predictors. Positive parental environment and satisfaction with life were also positively correlated with each other.

Table 10

Correlations between Culture-Specific Factors and ED and Body Image Subscales

	ED Total	Asian Appear- ance	Bod Satisfac- tion	Ethnic Identity	Adoptive Identity	Birth Preoccu- pation	Cultural Social- ization	Prepar- ation for Bias	Positive Parent	Satisfac- tion with Life	Age	Menarche	BMI
ED Total	1												
Asian Appearance	-.20*	1											
Body Satisfaction	-.66**	.33**	1										
Ethnic Identity	.00	.50**	.14	1									
Adopt Identity	-.13	.58**	.21*	.65**	1								
Birth Preoccupation	.27**	.17	-.29**	.40**	.31**	1							
Cultural Socialization	-.05	.20*	.15	.63**	.60**	.25**	1						
Preparation for Bias	.09	.05	.10	.38**	.32**	.18	.60**	1					
Positive Parent	-.22*	.21*	.26**	.08	.36**	.03	.17	.10	1				
Satisfaction with Life	-.24**	.43**	.34**	.14	.44**	.04	.13	-.03	.41**	1			
Age	.08	-.07	-.13	-.10	.03	-.10	.03	-.11	-.04	-.01	1		
Menarche	-.15	-.18	.10	-.26**	-.15	-.08	-.15	-.09	-.10	-.10	.32**	1	
BMI	.26**	.18	-.36**	-.02	.21*	.05	-.04	-.20*	.00	.09	.23*	-.22*	1

* $p < .05$; ** $p < .01$; $n = 110$, listwise

Hierarchical Multiple Regression Analyses Testing Main Effects of Culture-Specific Factors on Body Image and ED Symptoms and Age of Menarche as a Moderator

I first tested for main effects using the five culture-specific variables (ethnic identity, adoptive identity, cultural socialization, birth preoccupation, and preparation for bias) as predictors of body image and ED symptom outcomes (Asian appearance, body satisfaction, and ED total). I included the following variables as covariates: age, BMI, satisfaction with life (SWLS), quality of parental environment (PEQ), due to the significant correlations with these variables and the predictor and outcome variables (Jaccard et al., 2006).

I standardized raw scale scores in order to reduce the collinearity between the main effect and the interactions terms, and by performing hierarchical regression analyses individually for each culture-specific predictor (Cronbach, 1987). The standardized independent variables were entered into the regression equation in four successive steps. Hierarchical regression analyses were used to test hypothesized main and interaction effects. I used Aiken and West's (1991) guidelines to test for moderator effects to examine whether age of menarche would moderate the relationship between each of the five culture-specific predictors and each of the three dependent variables. Effect size and squared semipartial correlations were examined to determine the magnitude and unique contribution of each first-order and interaction effect. First, the covariates of age and BMI were entered in Step 1, and satisfaction with life and parental environment were entered in Step 2. These groups of covariates were entered into separate models in accordance to Jaccard et al.'s (2006) recommendation that variables that belong to broad categories, such as demographic or social factors, should not be combined into a single

regression equation. Next, the predictor (culture-specific scales) and moderator (age of menarche) were entered in Step 3. Finally, in Step 4 the interaction term was entered for each predictor variable (culture-specific scale x age of menarche). Issues of multicollinearity were minimized by centering scale scores for the predictor and moderator variables and by performing hierarchical regression analyses individually for each culture-specific predictor (Cronbach, 1987). Significant incremental R^2 in the final step would support the hypothesis that menarche moderates the link between the culture-specific factors and ED-related outcomes. I specified a listwise deletion to treat missing data, under the assumption that this method leads to unbiased parameter estimates. Tables 8.1-8.3 provide information based on hierarchical regression analyses, including the significance of each step in the set of analyses for each predictor variable.

Asian Appearance. The covariates together accounted for 21.6% of the variance in Asian appearance, $F(4, 105) = 7.23$, with satisfaction with life (SWLS) significantly contributing to Asian appearance, ($\beta = .22, p < .05$). The inclusion of the culture-specific variables in Model 3 substantially increased the amount of variance in Asian appearance to 48.4%, $F(10, 99) = 9.27$. Specifically, adoptive identity, ($\beta = .33, p < .05$) and ethnic identity, ($\beta = .47, p < .001$) were significantly associated with Asian appearance, above and beyond the covariates. Tests of multicollinearity revealed that adoptive identity, ethnic identity, and cultural socialization neither exceeded a variance-inflation factor (VIF) of 4, nor exceeded correlations of .70 with each other, indicating that multicollinearity was not an issue. Cultural socialization was found to significantly predict Asian appearance, ($\beta = -.27, p < .05$); however, the negative sign of the B value of cultural socialization ($B = -19$), in contrast to the positive sign in the zero-order

correlation between cultural socialization and Asian appearance ($r = .20$), suggests a suppression effect may be occurring. It appears that the inclusion of cultural socialization in the model may be suppressing the error variance in adoptive identity and ethnic identity that is uniquely correlated with cultural socialization, thereby improving the strength of adoptive identity and ethnic identity as predictors of Asian appearance (MacKinnon, Krull, & Lockwood, 2000). The beta coefficient of the interaction between age of menarche and adoptive identity was also found to be significant, ($\beta = -.22, p < .05$), however the incremental R^2 in Model 4 was not significant, indicating that the moderator effect is not significant. Contrary to study hypothesis, age of menarche, and the interaction effects between culture-specific predictors and age of menarche were not significant.

Table 11

Summary of Regression Analyses Testing Ethnic Identity, Adoptive Identity, Birth Preoccupation, Cultural Socialization, and Discrimination on Asian Appearances

Variable	B	SE	β	R2	F	sr^2
<i>Dependent variable: Asian Appearance</i>						
STEP 1				.05	2.58	
(Constant)	3.66	.69				
Age	-.05	.04	-.11			.01
BMI	.05	.02	.21*			.04
STEP 2				.22**	7.23**	
(Constant)	2.01	.76				
Age	-.04	.04	-.10			.01
BMI	.04	.02	.17			.03
Satisfaction with Life	.27	.07	.39**			.13
Positive Parent	.07	.13	.05			.00
STEP 3				.48**	9.27**	
(Constant)	2.89	.75				
Age	-.02	.03	-.05			.00

Variable	B	SE	β	<i>R</i> ²	<i>F</i>	<i>sr</i> ²
BMI	.02	.02	.09			.01
Satisfaction with Life	.15	.06	.22*			.03
Positive Parent	.01	.11	.01			.00
Menarche	-.00	.06	-.00			.00
Adoptive Identity	.28	.09	.37**			.05
Ethnic Identity	.33	.09	.44**			.08
Birth Preoccupation	-.05	.06	-.07			.00
Cultural Socialization	-.21	.08	-.29*			.03
Preparation for Bias	-.03	.07	-.03			.00
STEP 4				.51	6.49**	
(Constant)	2.63	.78				
Age	-.02	.03	-.05			.00
BMI	.03	.02	.12			.01
Satisfaction with Life	.15	.06	.22*			.03
Positive Parent	.05	.11	.03			.00
Menarche	.08	.08	.11			.01
Adoptive Identity (AI)	.25	.10	.33*			.03
Ethnic Identity (EI)	.35	.09	.47**			.08
Birth Preoccupation (BP)	-.04	.06	-.06			.00
Cultural Socialization (CS)	-.19	.08	-.27*			.03
Preparation for Bias (PB)	-.03	.07	-.04			.00
AI x Menarche	-.15	.07	-.22*			.02
EI x Menarche	.04	.11	.05			.00
BP x Menarche	.01	.07	.01			.00
CS x Menarche	.10	.11	.11			.00
PB x Menarche	-.06	.07	-.08			.00

* $p < .05$; ** $p < .01$ $n = 110$, listwise

Body Satisfaction. The covariates together accounted for 28.5% of the variance in body satisfaction, $F(4, 105) = 10.48$, with BMI and satisfaction with life significantly contributing to the outcome at all four steps (see Table 8.2 for beta values). The inclusion of the culture-specific variables and age of menarche in Model 3 increased the amount of variance in body satisfaction to 44.4%, $F(10, 99) = 7.89$. Specifically, birth preoccupation,

($\beta = -.36, p < .001$) and age of menarche, ($\beta = .22, p < .05$) were significantly associated with body satisfaction. The beta coefficient of the interaction between age of menarche and preparation for bias was significant, ($\beta = -.18, p < .05$), however the incremental R^2 in Model 4 was not significant, indicating that the moderator effect is not significant. Contrary to study hypothesis, the interaction effects between culture-specific predictors and age of menarche were not significant.

Table 12

Summary of Regression Analyses Testing Ethnic Identity, Adoptive Identity, Birth Preoccupation, Cultural Socialization, and Discrimination on Body Satisfaction

Variable	B	SE	β	R^2	F	sr^2
<i>Dependent variable: Body Satisfaction</i>						
STEP 1				.13**	8.17**	
(Constant)	5.79	.82				
Age	-.03	.05	-.05			.00
BMI	-.10	.03	-.35**			.12
STEP 2				.29**	10.48**	
(Constant)	3.66	.90				
Age	-.02	.04	-.03			.00
BMI	-.11	.02	-.38**			.14
Satisfaction with Life	.28	.08	.33**			.09
Positive Parent	.20	.15	.12			.01
STEP 3				.44**	7.89**	
(Constant)	4.67	.97				
Age	-.06	.04	-.12			.01
BMI	-.10	.03	-.35**			.09
Satisfaction with Life	.22	.08	.26**			.04
Positive Parent	.15	.14	.09			.01
Menarche	.12	.08	.13			.01
Adoptive Identity	.17	.12	.19			.01
Ethnic Identity	.13	.11	.14			.01
Birth Preoccupation	-.35	.07	-.40**			.13
Cultural Socialization	.03	.11	.03			.00
Preparation for Bias	-.03	.09	-.03			.00

Variable	B	SE	β	R^2	F	sr^2
STEP 4				.48	5.77**	
(Constant)	4.50	1.00				
Age	-.04	.04	-.13			.01
BMI	-.10	.03	-.33**			.07
Satisfaction with Life	.22	.08	.26**			.04
Positive Parent	.18	.15	.11			.01
Menarche	.22	.10	.25*			.03
Adoptive Identity (AI)	.15	.12	.16			.01
Ethnic Identity (EI)	.17	.11	.19			.01
Birth Preoccupation (BP)	-.36	.07	-.40**			.13
Cultural Socialization (CS)	.06	.11	.06			.00
Preparation for Bias (PB)	-.07	.09	-.07			.00
AI x Menarche	-.14	.09	-.17			.01
EI x Menarche	.04	.14	.04			.00
BP x Menarche	-.02	.09	-.03			.00
CS x Menarche	.21	.13	.19			.01
PB x Menarche	-.18	.09	-.19*			.02

* $p < .05$; ** $p < .01$ $n = 110$, listwise

Eating Disorders Total. The covariates cumulatively accounted for 15.3% of the variance in ED total, $F(4, 105) = 4.75$, with BMI significantly contributing to the outcome at all four steps ($\beta = .27, p < .05$). The inclusion of the culture-specific variables and age of menarche increased the amount of variance in ED total to 30.1%, $F(10, 99) = 4.27$. Specifically, birth preoccupation, ($\beta = .30, p < .01$), and preparation for bias, ($\beta = .15, p < .05$), were significantly associated with ED total. However, the increase in significance of the regression coefficient between preparation for bias and ED total from the insignificant zero-order correlation between these two variables, suggests that a suppressor effect may more appropriately explain the significant contribution of preparation for bias. In other words, the inclusion of cultural socialization in the model may be increasing the predictive validity of preparation for bias on ED total by

suppressing the prediction error in preparation for bias, thereby rendering the significance of preparation for bias uninterpretable. Contrary to study hypothesis, age of menarche and the interaction effects between culture-specific predictors and age of menarche were not significant.

Table 13

Summary of Regression Analyses Testing Ethnic Identity, Adoptive Identity, Birth Preoccupation, Cultural Socialization, and Discrimination on ED Total

Variable	B	SE	β	R2	F	sr ²
<i>Dependent variable: ED Total</i>						
STEP 1				.07*	3.79*	
(Constant)	.57	.53				
Age	.01	.03	.03			.00
BMI	.05	.02	.25*			.06
STEP 2				.15**	4.75**	
(Constant)	1.64	.62				
Age	.00	.03	.01			.00
BMI	.05	.02	.27**			.07
Satisfaction with Life	-.11	.05	-.21*			.04
Positive Parent	-.14	.10	-.14			.02
STEP 3				.30**	4.27**	
(Constant)	.70	.68				
Age	.04	.03	.13			.01
BMI	.05	.02	.28**			.06
Satisfaction with Life	-.07	.05	-.13			.01
Positive Parent	-.12	.10	-.11			.01
Menarche	-.09	.06	-.15			.02
Adoptive Identity	-.13	.08	-.22			.02
Ethnic Identity	.01	.08	.01			.00
Birth Preoccupation	.17	.05	.31**			.08
Cultural Socialization	-.07	.08	-.12			.01
Preparation for Bias	.14	.07	.24*			.03
STEP 4				.32	2.97**	
(Constant)	.71	.72				
Age	.04	.03	.13			.01
BMI	.05	.02	.27*			.04

Variable	B	SE	β	R^2	F	sr^2
Satisfaction with Life	-.04	.06	-.08			.00
Positive Parent	-.14	.11	-.14			.01
Menarche	-.10	.07	-.19			.02
Adoptive Identity (AI)	-.13	.09	-.22			.01
Ethnic Identity (EI)	.00	.08	.00			.00
Birth Preoccupation (BP)	.16	.05	.30**			.07
Cultural Socialization (CS)	-.08	.08	-.13			.01
Preparation for Bias (PB)	.15	.07	.26*			.04
AI x Menarche	.08	.07	.14			.01
EI x Menarche	-.04	.10	-.06			.00
BP x Menarche	-.06	.07	-.10			.01
CS x Menarche	-.02	.10	-.02			.00
PB x Menarche	.05	.06	.08			.00

* $p < .05$; ** $p < .01$ $n = 110$, listwise

Summary of Study 2

In Study 2, I examined main and interaction effects of culture-specific variables and age of menarche on body image and ED symptom outcomes, on a second sample comparable to the sample utilized in the first study. The purpose of this study was to examine the extent to which culture-specific variables predicted body image and ED symptom outcomes, and whether age of menarche moderated the relationships between culture-specific factors and body image and ED symptom outcomes.

The first hypothesis that age of menarche would be positively related to Asian appearance and body satisfaction, and negatively related to ED total, was only confirmed with the outcome of body satisfaction. I found a positive relation between age of menarche and body satisfaction.

Second, I hypothesized that ethnic identity, adoptive identity, cultural socialization, and preparation for bias would be positively related to body satisfaction and

Asian appearance, and negatively related to ED total, based on the hypothesized protective nature of these culture-specific factors. Birth preoccupation was hypothesized to be positively related to ED total, and negatively related to body satisfaction and Asian appearance, as birth preoccupation is reflective of maladaptation. I found that adoptive identity, ethnic identity, and cultural socialization were positively related to Asian appearance. Adoptive identity was also found to be positively related to body satisfaction. Birth preoccupation was positively related to ED total and negatively related to body satisfaction, although unrelated to Asian appearance. Inconsistent with expectations, preparation for bias was not significantly correlated with any outcome variables.

The third hypothesis predicted that there would be significant main effects between the culture-specific factors and body image and ED symptom outcomes, even after controlling for the confounding role of covariates. I found partial evidence for the main effects hypothesis for birth preoccupation, adoptive identity, and ethnic identity. First, birth preoccupation predicted ED total, and negatively predicted body satisfaction. Second, adoptive identity and ethnic identity predicted Asian appearance; and third, age of menarche predicted body satisfaction. Finally, the significant findings regarding cultural socialization and preparation for bias were better explained by suppressor effects, and were thus uninterpretable. The significant main effects held even after controlling for age, BMI, satisfaction with life, and parental environment.

Results also suggest that some of the covariates - satisfaction with life and BMI – may be stronger predictors than age of menarche for certain outcomes. Specifically, BMI was found to directly predict body satisfaction and ED total, with lower BMI predicting higher body satisfaction and lower ED total scores. Higher satisfaction with life, another

covariate, was found to predict higher levels of satisfaction with Asian appearance and higher body satisfaction.

Overall, both studies revealed that the direct effects of the culture-specific variables surpassed the strength of pubertal timing on body image and ED symptom outcomes on two samples of adopted Korean American adolescent girls. Study 2 replicated findings from the first study that suggested negative culture-specific factors may increase risk for these ED-related outcomes. Consistent across both studies, birth preoccupation was found to contribute to ED symptoms and body dissatisfaction. In both studies early menarche was correlated with weight preoccupation and body dissatisfaction, although significant main effects were only found in the second study. Furthermore, findings from both studies suggest that the covariate variables that measure positive adjustment and BMI may serve as stronger potential moderators than age of menarche. Furthermore, the positive relationship between BMI and ED-related symptoms in the SIBS study was replicated in the KAD study. This positive correlation is consistent with findings on White samples, but inconsistent with results based on Asian samples. Thus, the positive correlation between BMI and ED symptoms in this dissertation corroborates the notion that there may be within group differences between Asian non-adoptees and Asian adoptees with regard to the nature and expression of body image and ED-related concerns.

There were also results novel to Study 2 regarding ethnic identity and adoptive identity. I found that both higher adoptive identity and ethnic identity contributed to higher satisfaction with Asian appearances. These findings make intuitive sense,

suggesting that a positive affiliation with one's ethnic identity and adoptive status may be related to positive feelings about one's physical Asian looks.

GENERAL DISCUSSION

The primary goal of this dissertation was to investigate the relationship between culture-specific factors, pubertal timing, and body image and ED symptoms in two samples of adopted Korean American adolescent girls. I drew upon an adaptation of the accentuation model (Caspi & Moffitt, 1991), which posits that early menarche may accentuate behavioral problems among girls predisposed to behavioral problems earlier in childhood. In this study, I was interested in testing the extent to which early menarche accentuated negative outcomes related to body dissatisfaction and ED symptoms, when combined with culture-specific risk factors.

This present investigation contributes to the growing literature on body image and ED research in multiple ways. First, it is one of few studies to examine body image and ED symptoms that controls for the confounding role of adjustment-related variables, in an effort to properly evaluate the strength of relationships between independent and dependent variables. Second, this study addressed the role of biological variables (i.e., pubertal timing) in body image and ED symptom outcomes among an Asian American sample. Third, I included measures that tap into the racial, ethnic, and adoptive experiences that help shape the multi-faceted identity of transracial adoptees. Fourth, this dissertation represents one of few of its kind to examine body satisfaction related to racially-charged physical features.

The primary set of hypotheses was that age of menarche would predict body image problems and ED symptoms, and that it would moderate main effect relationships between culture-specific factors and body image and ED-related outcomes. Specifically, early menarche was hypothesized to heighten body dissatisfaction and ED symptoms for

those endorsing lower levels of protective culture-specific factors, and elevated levels of adverse culture-specific factors. Although I found partial support for the direct relation between early menarche and body dissatisfaction and a desire for thinness, pubertal timing did not moderate the relationship between culture-specific factors and ED-related outcomes.

It is noteworthy that I found partial support for the hypothesis that pubertal timing would be related to weight preoccupation and body satisfaction, across both studies, although a main effect, after controlling for covariates, was only found between early menarche and body dissatisfaction. Interestingly, both weight preoccupation and body dissatisfaction were also positively related to BMI. Taken together, these findings support previous research that suggests that the weight gain associated with pubertal development may contribute to increases in ED-related outcomes associated with early menarche. That is, girls who achieve menarche earlier than peers are likely heavier than their pre-pubertal peers, which may lead to body dissatisfaction and a drive for thinness that stems from the internalization of the thin ideal (Graber et al., 2004).

Study results, however, failed to replicate an adaptation of the accentuation model (Caspi & Moffitt, 1991), as early menarche was not found to moderate the relationship between culture-specific factors and ED-related outcomes. One reason for the lack of replication of the accentuation model may be related to the fact that this study used adverse culture-specific indicators as a proxy for psychological vulnerability instead of measures of behavioral problems, which would have been more consistent with how psychological vulnerability was conceptualized in Caspi and Moffitt's (1991) model. A second reason may be related to the limitations of generalizing hypotheses regarding

early menarche to non-White populations, as most of the research suggesting early menarche leads to adjustment difficulties, has focused primarily on White samples. In other words, early menarche may not necessarily be a risk factor for all Asian Americans, which is an explanation that is consistent with Siegel et al.'s (1999) work that revealed no association between perceived early pubertal timing and body image ratings for Asian Americans in their study. Third, the lack of replication of Caspi and Moffitt's model may be related to the fact that the accentuation model was developed using a White sample, which corroborates the assertion that models of risk cannot be assumed to be the same in different racial/ethnic groups (Franko & Striegel-Moore, 2002). A fourth potential reason for the lack of significant effects using pubertal timing may be that age of menarche in the two samples was within a normative range that precluded detection of more severe levels of problems. Finally, another explanation for the insignificant findings is that age of menarche may not be an accurate proxy for pubertal timing.

The appropriate measurement of and operational distinction among pubertal development, pubertal timing, and pubertal status continues to be a persistent challenge for developmental researchers. Research examining the role of puberty in the development of ED-related problems has tended to use an array of different methods to measure puberty, which makes study findings difficult to interpret and generalize. Dorn et al. (2006) reported a number of methodological inconsistencies in how researchers operationalize pubertal development. Self-reported age of menarche is often used as a convenient way to assess puberty; however, many experts consider the use of age of menarche to be flawed because it marks the last stage of pubertal development (Dorn et al., 2006). Use of an inaccurate proxy can lead to inconclusive research findings; the lack

of significant findings in this dissertation may be minimizing the role of puberty in developmental processes for Korean adoptees. Considering these methodological criticisms, it is important for future studies to assess markers of pubertal development that precede menarche.

In this dissertation, I found that culture-specific factors demonstrated greater power than pubertal timing in contributing to body image concerns and ED symptom outcomes. These unprecedented findings provide preliminary evidence that the culture-specific factors inherent to the transracial adoption paradox may be more relevant than pubertal timing to body image and ED-related outcomes for transracial adoptees. These results are also meaningful in the implication that the racial, ethnic, and adoptive experiences of transracial adoptees may be critical to the post-adoptive adjustment of these individuals.

Overall, the culture-specific variables posited to be protective in nature were hypothesized to be negatively related to body image problems and ED symptoms; whereas culture-specific variables posited to be reflective of maladaptation were hypothesized to be positively related to body image problems and ED symptoms. Both studies confirmed my expectations regarding the relationship between certain culture-specific factors and body image and ED symptom outcomes. Across both studies, birth preoccupation was found to contribute significantly to body image and ED symptom outcomes. Specifically, higher levels of birth preoccupation significantly predicted heightened weight preoccupation and binge eating in the SIBS sample, and lower levels of body satisfaction and higher ED total scores in the KAD sample. These results suggest

that unresolved feelings about one's birth origins may serve as a risk factor for developing body dissatisfaction and ED-related symptoms.

Birth preoccupation is a construct unique to adopted individuals, and has not been formally examined and connected to psychological outcomes in previous studies. Birth preoccupation, as measured in this study, refers to a more intense desire to find out about birth parents than a healthy curiosity that is natural for an adopted child to experience. Birth preoccupation is also operationalized as being associated with feelings of dissatisfaction surrounding the lack of knowledge about one's birth origins (e.g., "It bothers me I may have siblings I do not know").

One interpretation for the strength of birth preoccupation is that the lack of self-knowledge surrounding one's birth origins may reduce one's sense of control. This perceived lack of control during a time when many other physiological and intrapsychic changes are taking place, may propel one to become vulnerable to external pressures surrounding thin-ideal expectations. The perceived lack of control may also hinder the adoptive child's ability to resolve developmentally appropriate challenges in the formation of her identity, and increase her vulnerability to eating disordered coping mechanisms. Moreover, the perceived lack of control may complicate the already challenging task of having to negotiate the transracial adoption paradox into her self-concept. This postulation parallels the theory that binge eating may be used as a route of escape from confronting identity problems (Schmidt et al., 1997).

A second possible explanation for the significant findings regarding birth preoccupation is that an intense longing to find out about birth parents, and the distress that is presumably associated with this preoccupation, may be related to personality

factors such as neuroticism. Neuroticism has been shown to predict ED-related outcomes over and beyond the effects of low-self-esteem (Cervera et al., 2003). The lack of closure related to not knowing one's family origins may be more distressing to those with higher levels of neuroticism than those with lower levels of neuroticism. Although I controlled for the potential confounding effects of well-being and satisfaction with life, this dissertation did not covary the potential intervening effects of specific personality factors. Thus, neuroticism may potentially mediate the relationship between birth preoccupation and body dissatisfaction and ED symptoms, although examination of this pathway was outside the scope of this study.

A third interpretation for the significant relationship between birth preoccupation and body dissatisfaction and ED symptoms is that an adoptive child who feels body discontent may engage in appearance preoccupations about her birth parents. Wondering about the physical features of one's birth mother or father, for instance, may be akin to body checking or other related compulsive behaviors reflective of self-consciousness about one's physical appearances.

Study findings highlight the importance of further examining birth preoccupation as a general potential risk factor for adopted individuals, as well as the importance of further understanding the link between birth preoccupation and body discontent and eating disordered outcomes. The association between unresolved feelings surrounding birth origins and adverse body image and ED-related outcomes, suggests that birth preoccupation may deleteriously contribute to other psychological outcomes as well. Moreover, knowledge of the risks associated with birth preoccupation can be used to help

teach adoptive parents the potential importance of communication with their child about unresolved feelings surrounding her biological and birth history.

In addition to birth preoccupation, I found that greater discomfort with one's race (i.e., higher racial discomfort) predicted increases in weight preoccupation and binge eating in the SIBS study. In the KAD study, higher ethnic identity and adoptive identity predicted greater satisfaction with Asian appearances. The findings regarding racial discomfort, ethnic identity, and adoptive identity, however, were not replicated across both studies, which render interpretation only preliminary until further evidence can corroborate results.

Preliminary findings suggest that feelings of shame surrounding one's racial background may contribute to increases in binge eating behaviors, and an increased desire to be thinner. The significant relationships between racial discomfort and ED symptoms provide indirect support for the theoretical postulation that teasing remarks about one's racial appearances may have an adverse impact on body image and ED-related outcomes for women of color (Hall, 1995; Mok, 1998a). It is important to clarify that in the SIBS study, racial discomfort was used as a proxy for ethnic identity, but is not equivalent to the construct of ethnic identity measured in the KAD study.

The KAD study findings suggest that ethnic identity and adoptive identity may help protect against adverse outcomes related to body image problems for adopted Korean American adolescent girls. Based on findings, adopted Korean girls who experience more positive feelings about their ethnic minority status may feel more positively about their physical features that racially set them apart from the White majority. Ethnic identity's protective effect on body image and ED symptom outcomes is

consistent with previous findings that suggest ethnic identity protects certain racial/ethnic minorities from a multitude of negative mental health outcomes (Yoo & Lee, 2008).

KAD results provide additional empirical support for initial studies that have also suggested that ethnic identity may protect Korean adoptees from negative outcomes (Song & Lee, 2009). For instance, Basow et al. (2008) found that high ethnic identity predicted psychological well-being for the adult Korean adoptees in their study, which is consistent with ethnic identity's putative protective function. The finding from this dissertation, that ethnic identity helped shield against body image concerns about racial appearances for female Korean adoptees, furthermore replicates Basow et al.'s (2008) work.

Adoptive identity's equally protective role in this study strengthens the empirical bases of theories that posit that adoptive identity is related to positive psychological outcomes (Grotevant, 1997). Moreover, the putative protective role of adoptive identity against racially-charged body dissatisfaction is an unprecedented finding. The significant relationship between higher adoptive identity and higher satisfaction with Asian appearances is particularly meaningful, because this connection lends evidence to the theoretical postulation that adoptive status, and views about one's race and racial appearances are intricately interconnected for transracially adopted individuals (Lee, 2003a). As Grotevant (1997) suggested, to achieve an integrated self-concept, it is necessary to explore all aspects and components of one's identity and the different groups to which one belongs, which for this sample includes one's identity as an adopted individual. Furthermore, my findings support Basow et al.'s (2008) study that demonstrated that a component of adoptive identity they termed "adjustment to adoption"

predicted psychological well-being, even after controlling for the effects of ethnic identity. The results from this dissertation extend previous work by demonstrating that the interwoven aspects of a transracial adoptee's self-concept, ethnic identity and adoptive identity are relevant to higher racial and body image.

Low levels of ethnic identity and adoptive identity may serve a parallel function to the etiological role that problems with personal identity formation are posited to have in the development of ED-related problems (Heatherton & Baumeister, 1991; Wheeler et al., 2001). Higher ethnic identity presumes that individuals are more satisfied with and have more pride in their ethnic background. Hence, it would follow that those with more positive feelings about their ethnic background would feel more positively about their racial appearances that set them apart from the White majority, in comparison to adoptees with lower ethnic identity. The implications of ethnic identity development in overcoming the challenges associated with the transracial adoption paradox may also explain the relationship between low ethnic identity and dissatisfaction with Asian appearances. In other words, individuals with low ethnic identity likely experience greater inconsistencies between their self-perception as being no different than that of a White American, versus others' perceptions of them as a racial/ethnic minority. Such discrepancies between self and other perceptions are posited to be related to personal identity problems, which in turn may contribute to racially-charged body dissatisfaction and potentially other ED-related concerns.

The findings pertaining to the culture-specific factors demonstrate the need for researchers to look beyond ethnicity as merely a demographic variable and to examine culture-specific factors, as they relate to body image and eating disordered outcomes for

racial/ethnic minorities. It is important to look beyond group differences in body image and EDs research in order to improve our understanding of the mechanisms and processes by which culture serves as risk and protection for non-White groups. The use of culture-specific factors, instead of treating ethnicity as a demographic variable, is an important distinction from previous studies that have solely focused on ethnic-group comparisons in understanding cultural differences in body image and ED-related outcomes.

Furthermore, the significance of culture-specific factors unique to transracial adoptees demonstrates the importance of increasing our empirical understanding of the post-adoptive adjustment of these individuals. Relatively little is known about the racial, ethnic, and adoptive experiences of these adoptees, and the specific ways in which they impact post-adoptive adjustment. It is important to note that it would be expected that the culture-specific factors found to predict body dissatisfaction and ED symptoms would hold for other Asian transracial adoptees; however, further research is necessary to replicate these findings among both international and domestic transracial adoptees.

As is common to most research studies, there were unexpected findings that warrant further explanation. First, the hypotheses regarding the protective function of cultural socialization and preparation for bias against body dissatisfaction and ED symptoms were not consistent across both studies. Cultural socialization predicted lower engagement in compensatory behaviors in the SIBS study, however, there were no significant results in the KAD study. Instead, in the second study, suppressor effects suggest that a separate, unmeasured factor that is shared between cultural socialization and preparation for bias may be driving the significant relations that were found between

these culture-specific factors and Asian appearance and ED total scores, respectively. For instance, a construct such as parental involvement that may be related to both cultural socialization and preparation for bias, may contribute to satisfaction with Asian appearances and ED symptomatology. In other words, a high degree of parental involvement may be related to lower satisfaction with Asian appearances and higher ED total scores. Parental over-involvement, particularly if perceived by children as overly intrusive, may be related to family enmeshment, which has been found to be related to ED symptoms (Dare et al., 1994). It will be important for future studies to identify and measure the extraneous shared variance between cultural socialization and preparation for bias that may confound ED-related outcomes.

A second unexpected finding concerns the power of BMI and measures of adjustment that were used as covariates. The main effects between culture-specific factors and outcome variables remained significant even after controlling for BMI, age, measures of positive adjustment, and quality of parental environment. Some of these covariates were also found to directly predict body image and ED symptom outcomes. Specifically, heavier girls endorsed lower levels of body satisfaction, more ED symptoms, and greater weight preoccupation than girls with lower BMI. However, BMI was not significantly related to outcomes reflective of more severe eating pathology (i.e., binge eating and compensatory behaviors). The findings regarding BMI's positive correlations with body dissatisfaction and relatively less severe ED symptoms, suggest that non-clinical levels of ED-related concerns may share a linear relationship with body size. Although a comparison with a clinical group was outside the scope of this study, BMI

may share a different relationship with ED outcomes for individuals with diagnosable levels of EDs than it does for non-clinical samples.

Also noteworthy regarding the correlation between BMI and ED-related outcomes is that the positive relation more closely resembles the trend among White female samples than the negative relation the literature reports between BMI and body dissatisfaction among Asian American girls (Robinson et al, 1996). Based on this resemblance between two samples of Korean adoptees and White female samples, it appears that on the one hand, the expression of correlates of EDs for Asian adoptees may be more similar with White women than Asian women. On the other hand, Asian adoptees appear to also be vulnerable to ED-related outcomes that may be unique to persons of color (e.g., reduced satisfaction with Asian appearances). The implication of these findings is that Asian adoptees may be constantly faced with having to negotiate their existence in dual worlds, in attempts to resolve the transracial adoption paradox (Lee, 2003a). The transracial adoption paradox, which posits that transracial adoptees may often experience contradictory cultural experiences as they straddle their White and birth cultures, may contribute to psychological outcomes that can significantly impact their post-adoptive experiences (Lee, 2003a; Song & Lee, 2009). Asian adoptees may have qualitatively different intrapsychic experiences than both White and Asian American girls, which may impact body image and ED-related outcomes in unique ways.

Satisfaction with life in the KAD study, and positive parental environment in the SIBS study, were other covariates found to predict ED-related outcomes. Specifically, those who reported being more satisfied with their current lives were least likely to report weight and shape related body dissatisfaction, and discontent with Asian features.

Similarly, individuals who reported a positive parental environment engaged in less binge eating than those who experienced a less positive parental environment. It makes intuitive sense that a positive outlook on life and a positive home environment would be related to positive impressions of one's physical appearances, although the causal direction of the relationship between positive adjustment and decreased risk for body dissatisfaction and ED symptoms is unclear. In other words, it is difficult to determine whether individuals feel good about their bodies because they are well-adjusted, or that they report being content because they are happy with their looks. The high correlation of satisfaction with life with self-esteem (Diener et al., 1985; Crocker et al., 1994) may also help explain why certain covariates were protective against body image problems and ED symptoms.

The significant role of the perceived quality of one's parental environment is noteworthy, in light of past research that has indicated that family functioning is etiologically implicated with the development of EDs (Dare et al., 1994; Schmidt et al., 1997). Preliminary research findings have also suggested that the over-protective nature of the parents of Asian girls may contribute to increases in ED symptoms among Asian girls, although the study examined non-adopted Asians (Haudek et al., 1999). Among adopted individuals, perception of parental care may be even more critical to the development of body dissatisfaction and ED symptoms, as some adoptees may be apt to readily gauge the quality of attention provided by their parents. Some adopted individuals may be more sensitive to interpersonal cues elicited by parents, the perception of negative cues potentially leading to feelings of insecurity about their non-biological status. Certain adopted individuals may be more attuned to cues of non-acceptance, the detection of which may lead to an unstable self-image and other forms of maladjustment such as

eating disordered tendencies. It can also be argued that satisfaction with life may mediate the relationship between positive home environment and body satisfaction, although this particular investigation was outside the scope of this dissertation.

There was also a noteworthy negative correlation between well-being and birth preoccupation in the SIBS study, which was contrary to expectations. One possible explanation for the discrepant correlations may be that well-being and the process of questioning one's birth origins may not share a linear relationship. Arguably, individuals who are further along in the process of questioning and searching for their birth origins may feel relatively resolved in their desire for knowledge about their birth history, and may endorse higher levels of well-being than those who have only started the process of questioning. Further research is necessary in order to arrive at tenable interpretations of the negative relation between well-being and birth preoccupation.

Both the SIBS and KAD studies confirmed some of the expected results regarding the risk and protective role of certain culture-specific factors, but there were more significant findings in the KAD study. One reason for more significant findings in the second study may be due to improvements in the measurement of culture-specific factors, and the inclusion of items assessing body satisfaction with racially charged features. Additionally, some of the discrepant findings between the two studies may be due in part to cohort effects. Although the two samples consist of Korean adoptees raised by White parents residing in Minnesota, there may be other factors that may render these two groups different. For instance, the KAD sample was comprised of younger participants, which may have contributed to the additional findings regarding ethnic identity and adoptive identity. Due to the developmental nature of the formation of these identities,

ethnic identity and adoptive identity may be more salient in earlier versus later adolescence.

Both studies demonstrated that the power of the culture-specific variables exceeded the strength of pubertal timing, as indicated by the lack of moderator effects of age of menarche on the relation between culture-specific factors and body image and ED symptoms. Taken together, these studies also underscore the importance of identifying within-group differences to help illuminate the mechanisms and processes by which individual differences exist in body image and ED-related outcomes. Moreover, these studies highlight the importance of understanding the role that culture-specific factors play in providing risk and protection for racial/ethnic minority groups. Study findings also provide further evidence that the racial, ethnic, and adoptive experiences of international, transracial adoptees are relevant to the post-adoptive psychological adjustment of these individuals.

Study findings offer multiple implications for practitioners dealing with adopted individuals who may be grappling with ED-related problems. First, study findings suggest the relevance of exploring culture-specific factors in relation to body image and eating problems for certain transracial adoptees. Second, study results suggest that counseling individuals to come to terms with unresolved feelings surrounding one's birthparents and birth origins may help reduce vulnerability to ED-related outcomes. Finally, this dissertation also suggests that individuals who are unhappy with their Asian appearances may benefit from exploring and developing their adoptive identity and ethnic identity, which have been demonstrated to serve a protective function against racially-charged body dissatisfaction.

Limitations

I attempted to make improvements in my dissertation based on my review of the extant literature. Nonetheless, several methodological limitations should be taken into consideration when interpreting results from this dissertation. First, the lack of consistent independent and dependent variables in both studies may have prevented a straightforward analysis of replicated findings. There may have been more significant findings in the SIBS study if I was able to employ a measure of ethnic identity, which offered a more precise measurement than racial discomfort, which was used in the first study. Relatedly, incorporating a measure in the SIBS study that assessed satisfaction with racial appearances may have allowed for additional significant findings from the SIBS sample.

Second, in light of the theoretical limitations to using age of menarche as a proxy for pubertal timing, a prospective design that followed a younger sample, to enable the use of markers of Adrenarche, may have offered significant moderating effects of pubertal timing.

Third, testing the moderating role of variables alternate to pubertal timing may have offered significant interaction effects. The covariates used in this dissertation may have provided more potent interaction effects than pubertal timing, and may have offered meaningful theoretical and practical applications. For instance, testing the potential moderating role of BMI may have offered additional insight into interaction effects with the culture-specific variables on body image and ED-related outcomes. The potential finding that those with higher BMI and lower levels of protective culture-specific variables are at highest risk for ED-related problems, would add to our empirical

understanding of how ED risk and protection may be unique for Asian American adoptees.

Fourth, this study was reliant on self-reports and not on direct observations, which may have been able to yield more valid results, although as already mentioned, my aim was to improve results by incorporating the direct perspectives of the adoptees. Moreover, particularly with regard to child reports of parental environment and socialization practices, the adolescent's perspective offers important information that often influences the perception of one's parents (Neiderhiser, Pike, Hetherington, & Reiss, 1998). Furthermore, there is substantial support for the reliability and predictive utility of adolescent ratings of certain experiences such as the perception of one's relationship with parents (Metzler, Biglan, Ary, & Li, 1998). Similarly, our outcome measures were aimed at measuring the individual's perception of her body image, which is arguably more meaningful than objective measures of physical appearances.

Considerations for Future Study

Based on study findings, certain culture-specific factors appear to be protective, whereas other culture-specific factors appear to increase one's risk for body image and ED-related problems. I was able to replicate certain findings in both studies, however it is important that these results be further corroborated by additional empirical evidence. There are a number of options for future directions based on my results.

First, it would be meaningful for prospective studies to examine the extent to which ethnic identity and adoptive identity may help protect transracial adoptees from other adverse outcomes. Such studies would help build a body of literature on the protective nature of certain culture-specific factors. Conversely, it would be meaningful

to test the adverse effects of culture-specific risk factors on outcome variables in addition to body image and ED-related outcomes, in order to replicate findings. For instance, birth preoccupation may be related to other mental health outcomes such as depression or substance use.

Second, between-group designs among adopted individuals would be useful to extend current findings. For instance, future studies would benefit to examine group differences between same-race adoptees and transracial adoptees on main effects between birth preoccupation and body image and ED-related outcomes. This comparison would help determine the extent to which birth preoccupation is a risk factor for one adoptee group over another. For instance, it is unclear whether individuals for whom their adoption status is not as visibly apparent (i.e., same-race adoptees) would experience birth preoccupation to the same extent as transracial adoptees. Additionally, it would be meaningful to examine the extent to which there may be differences in birth preoccupation and adoptive identity between adoptees who have ready access to their birth records and birthparents (e.g., open adoption), versus those for whom such information is unavailable. The findings from this dissertation are only applicable to Korean adoptees living in mid-Western U.S., and not representative of all international, transracial adoptees.

Third, considering the significance of many of the covariates in predicting body image and ED-related problems, future studies may benefit from examining alternative main and interaction effects that may predict ED-related problems. For instance, birth preoccupation may mediate the relationship between parental environment and ED outcomes. Specifically, the perception of lower quality of parental environment may

contribute to elevated body discontent and ED symptoms for transracial adoptees, through the mediated role of birth preoccupation. Additionally, it would also be meaningful to test the potential mediating effects of personality factors, such as neuroticism or perfectionism, on the relationship between culture-specific factors and body image and ED symptom outcomes.

Overall, this dissertation is one of the first studies to examine body image and ED-related problems using a within-group design that incorporated developmental and culture-specific factors. My study also marks one of the first to examine body image and ED symptoms among a community sample of international, transracial adoptees. Relatedly, this study is also one of few to incorporate a measure of body satisfaction pertinent to racially charged features. Results from the two studies highlight the importance of looking beyond between-group differences in approaching body image and ED research from a cultural perspective, as well as the importance of incorporating measures of racially-charged body satisfaction.

Regardless of the angle from which future studies analyze the relationship between culture-specific factors and ED-related outcomes and other adverse psychological consequences, it is important that researchers continue to investigate the processes and mechanisms by which body image and ED-related concerns differ for racial/ethnic minorities. Cultural studies that test current models of risk on racial/ethnic populations are important to properly modify theories that do not generalize to non-White individuals. To make sense of the discrepant findings in the body image and ED literature on racial/ethnic minorities, it is important to continue to identify culture-specific experiences that may be contributing to certain trends in prevalence rates and

idiosyncratic eating disordered symptom development. Additionally, it is important that researchers continue to study the post-adoptive adjustment of adoptees from the direct perspective of the adoptees themselves, and to uncover how racial, ethnic, and adoptive experiences impact mental health outcomes.

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