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SOMATIC COMPLAINTS AND CHINESE-AMERICAN ADOLESCENTS: EXAMINING THE ROLE OF PARENT-CHILD RELATIONSHIPS

A Dissertation

by

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ABSTRACT

Mental health needs of Asian-American youth have been documented as substantial and increasing, but limited research has identified explanatory mechanisms or possible targets of intervention for reducing mental health symptoms. The present study contributed to the limited existing research on self-regulatory abilities as mechanisms that may explain the linkage between Chinese-American parenting styles and adolescent somatization.

A community sample of Chinese-American parent-adolescent dyads (N= 104) residing in the greater Houston, TX area were recruited to complete a battery of questionnaires containing measures of adolescent somatization, self-regulatory abilities, and parental psychological control. Correlational and regression analyses were conducted to test hypothesized relationships and models. Parent-reported emotional and cognitive self-regulatory control variables were found to mediate the relationship between utilization of aspects of both parent and adolescent-reported parental psychological control and parent-reported adolescent somatization. Additionally, lower parent-adolescent Asian values agreement level was found to predict higher parent-reported somatic complaint occurrence. Results suggest that multiple aspects of self-regulation serve as mediating mechanisms by which parenting styles may influence adolescent somatic complaint occurrence. Findings have implications for understanding of pathways to somatization (and mental health outcomes overall) in the Asian-American youth population.

DEDICATION

With much hope, this dissertation is dedicated to future generations of Chinese-American adolescents and their parents who will continue to navigate through the complex world of intergenerational acculturation gaps, communication barriers, and simply, growing up. Their efforts, struggles, and triumphs will reflect the very human aspect of continued Asian-American adolescent mental and emotional health research. As practitioners and researchers, may we continue to remember the intricate lives and celebrate the noteworthy strengths of the children and families we aim to serve.

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The culmination of years of preparation and research into a single project is impossible to achieve without much help from a network of valued supporters and encouragers, advice-givers and wisdom-bearers, strength-providers and character-shapers. I am fortunate to have all of these in my life.

Above all, thanks to a God and Savior who provides a daily supply of strength, peace, and hope for every life endeavor.

To a family who has continually provided a home when my mind grows tired, spirit anxious, or heart disappointed,

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To my advisor and mentor, committee members and teachers[2] who, day after day, give of yourselves precious experience, knowledge, and patience,

Thank you. Your gifts and sacrifices reach farther than you know.

[1] Project director: Jeffrey Liew, Ph.D and co-team members: Peggy Chang, Bonny Chang, and Brenda Gamez
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CHAPTER I

INTRODUCTION AND LITERATURE REVIEW

Closer examination of the current state of mental health in the Asian-American population is an increasingly needed and daunting task. With a current population of approximately 12 million, Asian-Americans represent one of the fastest growing minority ethnic groups in the United States, and an increasing recognition of culturally specific mental health needs has become apparent (C. B. Gee, 2004; J. Lee, Lei, & Sue, 2001). In these efforts, it is important to note that though many Asian ethnic groups share similar collectivistic traditions, heterogeneity within the Asian-American population group exists. Although different Asian ethnic groups (i.e. Chinese, Korean, and Vietnamese) are often grouped together in empirical study (Russell, Crockett, & Chao, 2010), this practice often obscures important differences within Asian ethnic groups (Cunanan, Guerrero, & Minamoto, 2006). For this reason, specific studies cited will list specific ethnic groups tested and examined, when the information is available.

Generally, the Asian-American population has been characterized in literature as the "model minority" because of documented trends like outperforming other ethnic groups in standardized test scores and high school GPA (Mau, 1995), having lower drop-out rates (Peng & Wright, 1994), and higher enrollment in elite universities (Siu, 1996). As the "model minority," Asian-Americans are often perceived to experience fewer, if any, social and psychological problems in their adjustment in the U.S. (e.g. Sue & Morishma, 1982; Uba, 1994). More recent literature has cited a particularly detrimental effect of this perception as a lack of attention to psychological and social adjustment (Qin, 2008).

This detrimental effect may place Asian-American youth at-risk. Increased psychological problems (Chang, 2002; S. Okazaki, 2002) and lower levels of psychological services utilization (Garland, 2005; C. B. Gee, 2004) have been found specifically for Asian-American adolescent populations. Though it might be thought that Asian-Americans utilize less services because they have less psychological problems, multiple studies have also documented significantly higher levels of isolation, depression, and anxiousness in Asian-American students, when compared to same-age Caucasian adolescents (Lorenzo, Frost, & Reinherz, 2000; S. Okazaki, 1997).

Intergenerational disconnect and lack of agreement in cultural values also often play a role in stress levels and psychological well-being for Asian-American children and adolescents (Chen, 1991). Discrepancies in values agreement have been documented to lead to family conflict (Tsai-Chae & Nagata, 2008), and family conflict has been empirically linked to internalizing symptoms in Asian-American youth (Greenberger & Chen, 1996).

Notably, Asian-American youth are more likely to experience mental health symptoms in the form of somatic complaints, compared to European-Americans (Akutsu, 1997; E. Lee, 1997a; Sue & Sue, 1974; Tseng, 1975; Uba, 1994). Often mysterious and debilitating, somatic complaints are physical, bodily symptoms that occur for no adequate medical reason (Waller & Scheidt, 2006). Though various factors have been hypothesized to contribute to this phenomenon, current research studies examining the higher occurrence among the Chinese-American population are limited and often outdated. Generally, a commonly cited explanatory factor is Asian-Americans' tendencies to suppress or repress emotions and show more emotional restraint (E. M. Kao, Nagata, & Peterson, 1997), which,

from a psychodynamic standpoint, may result in the presentation of somatic complaints as a manifestation of suppressed psychosocial distress (Cheung, 1982; Kawanishi, 1992).

Research (discussed below) shows that the parent-child relationship affects the development of the child's emotion regulatory skills (Riley, San Juan, Klinkner, & Ramminger, 2008). More limited research has also linked emotion regulation difficulties to children's somatic complaints, with researchers finding that in a sample of school-age children with a mean age of 9.11, parent-reported child emotion regulation difficulties predicted children's somatic symptoms (Gilleland, Suveg, Jacob, & Thomassin, 2009). Thus, it may be hypothesized that parent-child relationship factors also predict the occurrence of somatic complaints. Youth emotion regulation and self-regulatory skills have been empirically linked to dimensions of parenting. Overall, literature has shown a positive parent-child relationship significantly enhances self-regulatory skills development, especially those with high warmth and control (Bynum & Brody, 2005; A. Karreman, van Aken, van Tuijl, & Dekovic, 2009; Kochanska, Murray, & Harlan, 2000; Schoppe-Sullivan, Weldon, Cook, Davis, & Buckley, 2009). Researchers suggest that positive parenting may make it easier for children to focus and engage in more directed self-regulation (A. Karreman, van Tuijl, Van Aken, & Dekovic, 2008; Schoppe-Sullivan et al., 2009).

Though high warmth paired with high control leads to positive effects, one form of control, parental psychological control, has been found to produce generally negative effects (Barber & Harmon, 2002). Parental control is a critical facet of parenting across ethnicities and cultures; however Asian values and culture have designated different connotations for the notion of psychological parental control, relative to European American parents. This form of parenting is common and often highly regarded in traditional Asian families (Chao,

1994, 2001). Because of this difference in value and culture, psychological parental control may be hypothesized to be a prominent influence on Asian-American teens' social emotional adjustment, emotion regulatory skills, and somatic complaints occurrence.

Asian-American Adolescent Mental Health

Past studies have revealed lower levels of psychological functioning for Asian-American youth across genders. For example, Asian-American adolescent boys reported lowest levels of psychological functioning among Black, Latino, and Asian-American high school students, as measured by self-reported depression and self-esteem (Way & Chen, 2000; Way & Pahl, 2001). Other findings indicate that Asian-American adolescents reported significantly higher scores on social stress and mental distress and lower scores on amount of emotional resources than European-American peers (H. Choi, Meininger, & Roberts, 2006). Further, the Centers for Disease Control and Prevention's "10 Leading Causes of Death" provide a startling reminder of the risks of mental health difficulties. The 2005 compilation revealed that among females, ages 15-24 years old, Asian Americans and Pacific Islanders (AAPIs) have the highest rate of suicide deaths (14.1% of all deaths), compared to Whites (9.3%), Blacks (3.3%), and Hispanics (7.4%), while AAPI males in the same age group hold the second ranking for suicide deaths (12.7%), as compared to Whites (17.5%), Blacks (6.7%), and Hispanics (10.0%) (CDC, 2008). Overall, both research literature and national statistics show evidence of mental health risk for Asian-American adolescents.

Research within the Asian-American Population

In studies of culture and cultural groups, one difficulty has always been how broadly or narrowly ethnic groups should be classified (Foster & Martinez, 1995). Though many Asian-American ethnic groups share common collectivistic ideals and values, a common inclusion or classification as "Asian-American" does not ensure common understanding of

culture in all instances (Sodowsky, Lai, & Plake, 1991). In fact, marked differences have been documented within ethnicity groups regarding variables such as generational status, level of racial-ethnic identity and/or acculturation, socioeconomic background, reason for immigration, and specific country of origin (Cunanan et al., 2006; S. Okazaki, 1998; Phinney & Landin, 1998).

Between group differences among specific Asian-American ethnicity groups are documented in regard to level of adherence to common Asian-American cultural values (B. S. Kim, Yang, P.H., Atkinson, D.R., Wolfe, M.M., Hong, S., 2001). Also, specifically for Asian-Americans, generational status differences have been found to be especially prominent in empirical study (Costigan, Bardina, Cauce, Kim, & Latendresse, 2006). For example, first generation Asian-American immigrants have been found to score lower on acculturation measures, endorse more traditional cultural values and fewer European-American beliefs when compared with later generations (Costigan et al., 2006; Dion, 1996). Overall, though differences are found between *and* within specific Asian-American ethnicity and generational groups, specific behavioral patterns are recognized more clearly with more narrowly construed comparison groups. In a study examining maternal control and reciprocity, Costigan et al. (2006) found that more group differences in behavioral ratings existed when Chinese-Americans were compared with European Americans than when Asian-American were compared with European-Americans.

Another point of consideration in the examination of culturally specific variables is the degree to which measures used have the same meaning across cultures. Ideally, an instrument should measure the same constructs within and across cultures; however, because psychopathology is often linked to cultural patterns of behavior (Weisz et al., 1989),

complete construct validity across cultures is often unachieved. Additionally, cultural factors have been found to affect parents' perceptions of their children's behavior and problems, indicating that several challenges exist in obtainment of fully accurate reporting of behavior and symptoms. First, measures should identify clinically relevant behavior present across cultures that represent pathology. Secondly, measures should be sensitive to cultural differences in recognition of behavior problems (Jung & Stinnett, 2005; Weisz, Sigman, Weiss, & Mosk, 1993). These issues are especially relevant in the present study, as measures were administered to a sample group with varying acculturation levels, generational status, and length of residence in the United States. When available, construct validity within and across Asian-American samples will be examined and reported for measures used.

Effects of Being the Model Minority

Asian-Americans are often portrayed as and continually discussed as the model minority (e.g. G.Kao, 1995; Sue & Okazaki, 1990) for academic achievement, high incomes, stable families, and low crime rates (Wong & Halgin, 2006). Research studies have shown Asian-American students to academically outperform students from other ethnic groups (Mau, 1995), have lower high school drop-out rates (Peng & Wright, 1994), and have disproportionately high enrollment rates in elite universities (Siu, 1996). Many of these effects exist even after controlling for social economic status (G. Kao, 1995).

This model minority stereotype may contribute to significantly less use of mental health and psychological services, as common perceptions of Asian-Americans' academic prowess (Mau, 1995) and generally positive school behavior and adjustment (Sung, 1987) make for less visible signs of mental and emotional maladjustment (Qin, 2008; Wong & Halgin, 2006). Specifically, researchers have documented that because Asian-American

students are perceived as quiet and hard-working, identification of and self acknowledgement of mental health needs may be more limited (Garland, 2005; C. B. Gee, 2004). Teachers and counselors alike have often been found to believe that Asian American students experience limited, if any, psychological or social difficulties (G. C. Gee, Spencer, Chen, & Takeuchi, 2007; Qin, 2008; Takeuchi et al., 2007; Uba, 1994).

Still, both Asian-American young adult boys and girls have been found to experience higher levels of depressive symptoms, compared to other ethnicity groups (CDC, 2008; Prevention, 2001; Way & Chen, 2000; Way & Pahl, 2001). When compared to White college students, Asian-American college students have consistently reported higher levels of emotional distress and emotional and social adjustment difficulties since the 1970s (see Abe & Zane, 1990, for a review). Similar findings have also been documented in younger teenage samples when Asian-American students are compared with other ethnic minority groups. For example, when ethnic differences in psychiatric diagnoses were examined in an adolescent sample, Asian females were found to be more frequently diagnosed with depression than Caucasian females in the same age group (L. S. Kim & Chun, 1993).

Parent-Child Relationships and Values Agreement

Asian-American adolescents and their parents often struggle with an acculturation gap in terms of values agreement. Empirical literature has cited this gap as "the parent-child differences in generational status" and note that it expands to both behaviors and traditional values (Graves, 1967; Tsai-Chae & Nagata, 2008). Differences between traditional Asian and American culture pose unique challenges for Asian-American parent-child relationships, especially for parents who adhere closely to traditional values and adolescents who have conformed more fully to American culture (M. K. Ho, 1992; E. Lee, 1997a).

This generation gap of values and traditions has proven to be difficult for many immigrant Asian families, as evidenced by sample groups of Asian-American youth who indicated moderate family conflict due to acculturation difficulties in development of the Asian-American Family Conflicts Scale (R. M. Lee, Choe, Kim, & Ngo, 2000). Specifically, the most serious trials often experienced by Asian-American children include perceptions of unrealistic parental expectations in terms of academic/career achievements, parental over-involvement, parents' tendency to exclude them in decision-making processes, and parents' negative attitudes towards their behaviors and lifestyles (E. Lee, 1997b; Stevensen & Lee, 1990; Uba, 1994; Way & Chen, 2000). Overall, cultural balance and parent-child communication difficulties are cited by Asian-American young adult focus groups as common occurrences (S. Lee et al., 2009). In a comparison study of European versus Asian American children who grew up in the same neighborhood, Asian-American children reported more difficulties discussing problems with their parents than their European American counterparts (Rhee, Chang, & Rhee, 2003).

In multiple studies, low values agreement between parents and children has predicted intergenerational family conflict (Y. Choi, He, & Harachi, 2008; Costigan & Dokis, 2006; Greenberger & Chen, 1996). For example, Costigan & Dokis (2006) found that father-child difference in levels of Chinese values was associated with higher levels of conflict intensity and depression in children. Tsai-Chae & Nagata (2008) found that a values gap between parent and child predicted family conflict over the influence of behavioral acculturation.

Thus, a values agreement gap likely contributes to family conflict in Asian-American families, and family conflict has been documented to predict psychological distress and manifestation as internalizing symptoms (Chen, 1991; Greenberger & Chen, 1996).

Consistent with this line of reasoning, researchers found that among a sample of college-age students, Asian-Americans reported more symptoms of depressed mood associated with conflict with parents and lack of parental warmth and understanding, compared with European Americans (Greenberger & Chen, 1996). Based on these findings, it is logical to hypothesize that the link between values discrepancies, intergenerational conflict, and internalizing symptoms may be extended to include occurrence of somatic complaints in Asian-Americans as well. This correlation will be examined in the present study.

Internalizing Symptoms

Mental and emotional health problems among Asian-American youth often present as internalizing symptoms. Asian-Americans, along with other ethnic minority groups, have been documented in numerous studies to report higher occurrences of internalizing disorders, in comparison to European-Americans (e.g. Kennard, Mahtani, Hughes, Patel, & Emslie, 2006). Specifically, research suggests that Asian Americans may be at heightened risk for anxiety, depression, and low self-esteem, compared to White Americans using self-reported measures of distress (S. Okazaki, 1997; S. Okazaki, 2002; Twenge & Crocker, 2002). Additionally, Asian-American adolescents have been found to have significantly more interpersonal problems, view themselves more negatively, and be more dissatisfied with social support than Caucasian American adolescents (Lorenzo et al., 2000). These risks, coupled with a documented lack of coping skills to deal with frustration and emotional problems (Ying et al., 2001), make for substantial cause for concern regarding Asian-American youth and internalizing problems.

Somatic Complaints

Generally, somatization encompasses a constellation of clinical and behavioral features that communicate distress but are unaccounted for by medical or pathologic findings and is common among children and adolescents (Garralda, 2010). Somatic complaints may occur in various forms and is considered an internalizing symptom. "Presenting somatization" refers to physical complaints in relation with affective and anxiety disorders, and "hypochondriacal somatization" to misinterpretation of normal and medically harmful physical sensations. When physical sensations cannot be accounted for by any known medical cause, they may be more accurately termed "functional somatization." (Witthoft & Hiller, 2010). The present study will examine the phenomenon of somatization as any physical distress without adequate medical explanation and also utilize the term "somatic complaints" to refer to these symptoms. Overall, somatic complaints are often indicative of internalizing problems and other psychosocial problems and serve as a means of coping via the body as an expression of emotional maladjustment (Kawanishi, 1992). Common somatic complaints have been documented to include picky eating (Sanders, Kapphahn, & Steiner, 1998), recurrent headaches and abdominal pain (Hagekull & Bohlin, 2004).

Models for Somatic Complaints Occurrence

Cognitive-behavioral models. Cognitive-behavioral models for somatization conceptualize somatic symptoms as interpretations of bodily sensations in a catastrophic manner, which then increase arousal and misinterpretation of the sensation as harmful or malignant (Deary, 2007; Kirmayer & Taillefer, 1997). In other words, somatic complaints result from negative, amplified perceptions of bodily sensations. The cognitive-behavioral perspective deems four main factors as perpetuating somatic complaint occurrence: cognitive

factors, physiological processes, behavioral processes, and social factors (Deary, 2007). Predisposing factors such as negative early childhood experiences and trauma (Shorter, 1992), overprotective parental behaviors, and highly neurotic personality types (Kirmayer, Robbins, & Paris, 1994; Lahey, 2009) are also documented in explanations of the cognitive-behavioral somatic model (Deary, 2007; Witthoft & Hiller, 2010).

From a classical conditioning viewpoint, somatic symptoms may also be seen as the result of bodily learning in response to certain triggers that become associated with neutral stimuli (Van Den Bergh, Stegen, & Van de Woestijne, 1997). This reasoning lends to the logic that even in the absence of a medically malignant trigger, somatic complaints might be provoked by various conditioned stimuli, learned from experience. For example, olfactory stimuli (that may have become associated with distress through experience) have been empirically linked to medically unexplained symptoms (Van Den Bergh, Devriese, Winters, Veulemans, & Nemery, 2001).

Psychobiological models. Rather than maintaining that somatic complaints manifest purely through cognitive and behavioral means, psychobiological models posit that most somatic symptoms are not physiologically unfounded (Rief & Barsky, 2005). Rief and Barsky (2005) hypothesized a model for somatic symptoms with two main factors: 1) an increase in bodily signals due to frequent stress, deficits in physical conditioning, or an overactive hypothalamic-pituitary-adrenal axis, and 2) a deficient filtering and signaling system that amplifies rather than inhibits or effectively selects signals for processing. Authors suggest that these factors lead to increased awareness and sensitivity to bodily sensations. Other biological hypotheses for somatic symptoms include unidentified

malfunction of the immune system due to an imbalance between the sympathetic and parasympathetic systems (Thayer & Brosschot, 2005).

The emotion-regulatory model. A general consensus that both biological and psychological factors contribute to somatic complaint occurrence is commonly supported (Kellner, 1990). Along with other forms of psychopathology, somatic complaints have often been linked to emotional dysregulation. Emotion regulation, generally referred to as the monitoring, evaluating, and modifying of expressive behavior and response to accomplish desired goals, serves as a crucial tool for children's day-to-day functioning and development (Gross, 1999; Saarni, 1984; Thompson, 1994). Some researchers have posited that somatic complaint occurrence is linked intricately with emotion regulatory deficits; specifically, longitudinal data with children has shown headache and stomach complaints to be empirically correlated with early negative emotionality (Hagekull & Bohlin, 2004; Waller & Scheidt, 2006). Other findings have shown that poor emotional awareness predicted child-reported somatic complaints and that parent reports of children's emotion regulation difficulties predicted mother-reported child somatic symptoms (Gilleland et al., 2009).

The Emotion-Regulatory Model and Asian-Americans

The experience and regulation of emotion often hinges on cultural roles and perspectives (Ekman, 1971; Markus & Kitayama, 1994; Mesquita, 2001). The Asian-American culture is one that has come under close scrutiny in this empirical examination, as Eastern and Western cultures contain varying cultural rules for and influences on emotion expression and experience. For example, Asians tend to utilize less emotional terminology in communication, as compared to European-Americans (Frymier, Klopft, & Ishii, 1990). Overall, Asian-Americans have been described as tending to resolve individual mental and

emotional health symptoms within the family, usually by suppression of negative thoughts and cognitive willpower (Sue & Morishma, 1982). Unfortunately, emotion suppression has also been empirically associated with higher levels of depressive symptoms and lower levels of life satisfaction (Gross & John, 2003). The distinct ways in which Asian-Americans process and regulate emotion logically contribute to distinctions in affective symptoms, such as somatic complaints. Currently, it is suggested that somatization and somatic complaints are indeed more prevalent among Asian and Asian-American cultures (Akutsu, 1997; Chun, Enomoto, & Sue, 1996; Uba, 1994).

Research literature examining the current state of somatic complaints occurrence among Asian-Americans is limited, as most studies on the topic are outdated and cover prior generations in Asian-American immigration and acculturation. Still, literature does provide useful insight into the values and emotional functioning of intergenerational Asian-American families today. Since Asian-American culture has been found to be heavily rooted in collective traditions (Armstrong & Swartzman, 2001; Uba, 1994; Yeh, Inman, Kim, & Okubo, 2006), family and group thinking are critical, and individuals tend to conform to cultural expectations, thought, and even emotional experiences. Generally, distressing emotions are often seen by Asian culture as direct sources of pathology in the body (Tabora & Flaskerud, 1994). This view on mental and emotional stress is particularly conducive to the occurrence of somatic complaints (Root, 1985). In fact, because Eastern culture contends that the mind and body are so interconnected, physical experiences of distress are normalized by the pervasive assumption of a highly holistic model of well-being (Chun et al., 1996).

Essentially, due to tendencies to internalize stress and a widespread view of intimate mind-body links, Asian-Americans may trend towards expressing affective symptoms

through physical complaints. For example, in a factor analysis of the responses to the Zung Self-Rating Depression Scale, Chinese individuals were found to express depression through more somatic symptoms (Marsella, Kinzie, & Gordon, 1973). Similarly, Vietnamese-Americans were found to present with physical symptoms of depression, such as bodily pains and a poor appetite (Kinzie et al., 1982). Suggested causes include Asian-Americans' frequent association of mental illness with organic sources and/or that for this particular culture, medical, rather than mental health, services are seen as a more appropriate form of treatment (Bond, 1991; Root, 1985; Sue & Morishma, 1982). Therefore, it is still unclear whether elevated somatization findings among Asian-Americans are mainly due to actual occurrence or a tendency to report most mental health issues as physical symptoms. Most likely, both factors contribute.

Parental Psychological Control

Important parenting factors that influence children's developmental outcomes include parenting styles (Maccoby & Martin, 1983), with the two main components often being level of warmth and control (Grolnick & Gurland, 2002). Parental control is usually categorized into two general types: behavioral and psychological control (Barber, Olsen, & Shagle, 1994). Parental behavioral control is generally viewed as using rewards and punishments to influence a child's behavior, and moderate levels of this type of control have been found to be linked to children's positive emotional and behavioral adjustment (Barber, Stolz, & Olsen, 2005). In contrast, parental psychological control is defined as a means of influencing a child, utilizing aspects of the parent-child relationship, to direct the child towards specific goals or outcomes and has been suggested to be intrusive to the child's emotional development (Barber, 1996). For example, parents may use psychological control by expressing disappointment or emphasizing their sacrifices for their child when they

disapprove of their child's actions or withdrawing warmth in response to the child's undesired behaviors. Forms of this type of control have been identified by Barber and Harmon (2002) as guilt induction, love withdrawal, instilling anxiety, and invalidation of the child's perspective.

Parental psychological control has been generally found to produce various negative influences on children's social emotional functioning across cultures (Barber & Harmon, 2002). These negative influences include adolescents' low self-esteem and social competence and both internalizing and externalizing problems (Barber, 1996; Barber & Harmon, 2002; Conger, Conger, & Scaramella, 1997; Laible & Carlo, 2004), even more so than behavioral control (Manzeske & Stright, 2009). For example, when sampling a group of preadolescent girls and their mothers, it was found that parental psychological control exacerbates the risk for depression among preadolescent girls who experience low positive emotion (Feng et al., 2009). Additionally, high levels of high maternal, particularly psychological, control, have been related to lower levels of young adults' emotion regulatory abilities (Manzeske & Stright, 2009). Even across ethnicity groups, high psychological parental control has been empirically linked to poorer emotion regulation capabilities in young adults (Manzeske & Stright, 2009; Moilanen, 2007), which may likely result in somatic symptoms (Gilleland et al., 2009).

Influence on Adolescents

Adolescence is a particularly formative period when parents' control has heavy impacts on young adults. Research suggests that high parental psychological control often prevents a child's full and effective identity formation and individuation from the parent (Barber & Harmon, 2002; Luyckx, Soenens, Vansteenskiste, Goossens, & Berzonsky, 2007).

As children transition into adolescence, they begin to take more responsibility and develop more capability for regulating their own emotions (Morris, Silk, Steinberg, Myers, & Robinson, 2007). For optimal emotional health outcomes, parents' guidance, feedback, and control should adjust to and fit the level of emotional development of the child. It has been well-established that parents' controlling behavior with their children do influence and often predict children's and adolescent's emotion dysregulation (McDowell, Kim, O'Neil, & Parke, 2002; Moilanen, 2007; Strayer & Roberts, 2004). For example, in a sample of fourth grade children (50% European-American, 40% Latino, and 10% African-American, Asian-American or Other) and their parents, mothers' controlling behaviors were found to predict their daughters' anger and sadness responses, with higher control leading to higher levels of anger and sadness (McDowell et al., 2002). Similarly, high levels of parental psychological control have been linked to higher levels of depressive symptoms and negative emotionality in adolescents (Barber, 1996; Barber & Harmon, 2002; Laible & Carlo, 2004). Overall, limited research has examined the effects of Asian-American parents' psychological control on adolescents' emotion regulation outcomes.

In Asian-American Culture

In general, parental control differs substantially in meaning between Asian versus European American perceptions. Namely, Chinese-American cultures views high parental control as a form of filial piety and a positive, caring aspect of parenting (Bond & Hwang, 1986; Chao, 1994), while European American cultures may view high parental control as more negative or excessive (Chao & Aque, 2009; Rohner & Pettengill, 1985). In a study comparing Asian immigrant youth to European American youth, it was found that European Americans reported more feelings of anger associated with their parents' use of parental

control compared with Asian Americans (Chao & Aque, 2009). Further, parental control that is seen as excessive and overbearing has been linked to anxiety and depression for European-American children (Stark, Humphrey, Crook, & Lewis, 1990).

In contrast, Asian immigrant parents in the U.S. often regard parental control as needed responsibilities, and even the Chinese character used to represent this control, *guan*, means both "to govern" as well as "to love" (D. Y. Ho, 1996). For immigrant Chinese-American parents, *guan* includes not only monitoring a youth's whereabouts, but also considering whether youth can act responsibly and understand the consequences of their behaviors (Padmawidjaja & Chao, 2010). In Chinese culture, governance, control and love are complementary aspects of parental care. This unique combination of parenting does include more use of control, as compared to European American samples (Padmawidjaja & Chao, 2010); however, this is traditionally seen as a responsible and effective style of parenting.

Based on these cultural differences, the way Asian-American adolescents interpret and respond to parental control may also differ from European American youth. Research has shown that greater discrepancies between adolescents' and parents' perceived parental control predict greater mental health symptoms in Chinese American adolescents, and is partially mediated by family conflict. Essentially, greater discrepancy contributes to greater parent-child conflict, which lends to more depressive symptoms in adolescents (Juang, Syed, & Takagi, 2007). In a sample of Chinese participants, it was found that higher perceived parental control was associated with adolescents' perceptions of less parental warmth (Lau, Lew, Hau, Cheung, & T., 1990). Thus, though Asian culture may view parental control as a relatively more positive aspect of parental concern (Chao, 1994), it is still associated with

less warmth and affection for Chinese samples. It may be that Asian parents exhibit less warmth than European American parents overall as a result of these cultural expectations. In a cross-cultural sample of adolescents, Asian-American youth were found to report lower mean levels of parental warmth when compared to European-Americans (Chung, Chen, Greenberger, & Huckhausen, 2009). Similarly, a college-age Asian-American sample reported less parental warmth and acceptance than European American peers in a study examining perceived family relations (Greenberger & Chen, 1996).

As a group, current literature results regarding ethnic differences in parental outcomes are mixed, with some studies suggesting that parental psychological control has differential impacts for European and Asian American teens (Chao & Aque, 2009; Lamborn, Dornbusch, & Steinberg, 1996; Rudy & Halgunseth, 2005) and others finding no significant differences (Hasebe, Nucci, & Nucci, 2004; Mantzicopoulous & Oh-Hwang, 1998). Overall, Asian-American adolescents did report higher levels of parental control, both behavioral and psychological, than European-American teens (Chao & Aque, 2009; Padmawidjaja & Chao, 2010). Further, according to some adolescent and parent reports, psychological control was endorsed to a greater extent than behavioral control (Padmawidjaja & Chao, 2010).

Self-Regulatory Control

As a critical component of effective behavioral functioning, well-developed self-regulatory control is a desired outcome in youth, as low self-regulation and control predicts both externalizing and internalizing symptoms (de Ridder, Lensvelt-Mulders, Finkenauer, Stok, & Baumeister, 2012; Gross, 1999). The construct is a key point of interest in the present study, as it is empirically linked specifically to both somatization and parental psychological control. The emotion regulatory model of somatization posits that a lack of

effective emotional control abilities is a substantial contributor to negative emotionality and somatic complaint occurrence (Gilleland et al., 2009; Hagekull & Bohlin, 2004), and the literature on parental psychological control suggests that use of high parental psychological control may lead to emotion regulatory difficulties (Manzeske & Stright, 2009; Moilanen, 2007).

Though *emotion* regulation is specifically cited in these relationships, it is unclear whether other components of self-regulatory control (i.e. cognitive or behavioral) are also implicated. In general, self-regulatory control has been linked to and operationalized as a wide range of capabilities, including emotion regulation, cognitive control and behavioral impulse inhibition (Baumeister, Bratslavsky, Muraven, & Tice, 1998). Recent research work examining self-regulation suggest that both emotional and cognitive processes are utilized in successfully regulating thoughts, feelings, and behaviors (Blair & Diamond, 2008; Gray, 2004) and that neurologically, related regions within the anterior cingulate cortex govern both emotional and cognitive responses (Davis, Bruce, & Gunnar, 2002; Lewis & Toddy, 2007). Thus, it is likely that *multiple* components of self-regulation may be linked to both parental psychological control and somatization occurrence. Given this perspective, this study will examine multiple components of self regulatory control in relation to these constructs.

CHAPTER II

THE PRESENT STUDY

Taken together, research literature has provided firm grounding for examination of mental health, the parent-child relationship, and manifestation of emotional distress among Asian-American children and adolescents. Currently, very limited research has examined the relations between presentation of somatic complaints, parental psychological control, and mental health symptoms; the present exploratory study examines these relationships for a Chinese-American adolescent sample. Further, it considers the role of differing self regulatory components in this hypothesized link.

Hypotheses

Since research shows that the parent-child relationship affects the development of the child's regulatory skills (Riley et al., 2008) and that self-regulation difficulties are linked to children's somatic complaints (Gilleland et al., 2009), it may be hypothesized that certain parent-child relationship factors predicts the occurrence of somatic complaints. Additionally, as studies show that low parent-child values agreement predicts family conflict (Y. Choi et al., 2008; Costigan & Dokis, 2006; Greenberger & Chen, 1996), which contributes to internalizing symptomatology (Chen, 1991; Greenberger & Chen, 1996), it may be hypothesized that a lower values agreement may predict higher internalizing symptoms in adolescents, including in the form of somatization.

Specifically, in a Chinese-American adolescent sample, the following hypotheses are tested.

- Both higher parent (PR) and adolescent-reported (AR) parental psychological control will predict higher occurrences of both PR and AR somatic complaints. See Figure 1.

- Lower agreement of Asian Values, as calculated by the difference between parent and adolescent values reports, will predict a higher level of emotional distress as manifested in parent and adolescent-reported somatic complaints. See Figure 1.
- Both higher PR and AR parental psychological control will predict higher occurrences of parent-reported emotional self-control and executive functioning (cognitive self-control) as well as adolescent-reported behavioral self-control. See Figure 1.
- Parent-reported emotional self-control and executive functioning (cognitive self-control) as well as AR behavioral self-control will mediate the hypothesized relationship between PR and AR parental psychological control and parent and adolescent-reported somatic complaints. See Figure 2.

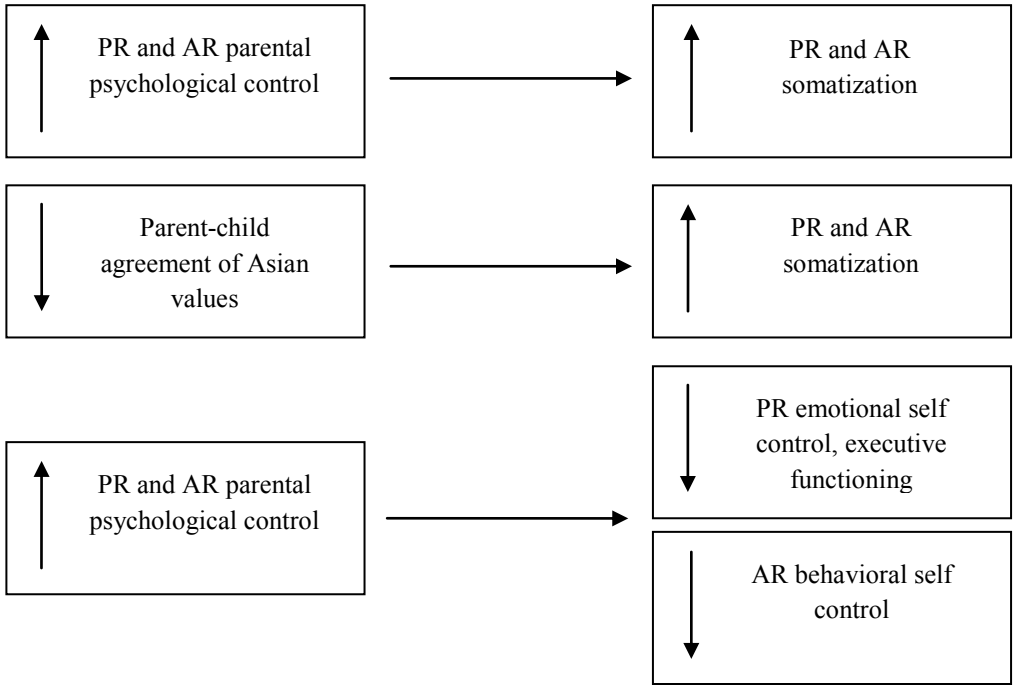

Figure 1. Hypothesized links. This figure shows the hypothesized correlational relationships between key study constructs. PR = parent-reported, AR = adolescent-reported.

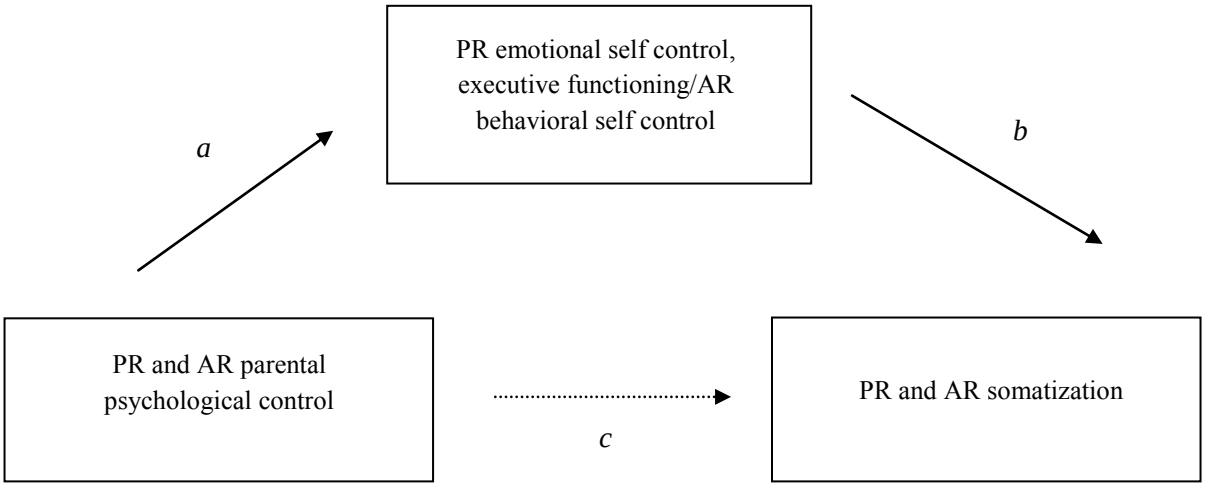

Figure 2. Hypothesized models. Self-regulatory control variables as mediators for the relationship between parent and adolescent-reported parental psychological control and parent and adolescent-reported somatization. PR = parent-reported, AR = adolescent-reported.

Methods

Participants

Chinese-American adolescents and at least one parent from the greater Houston, Texas area completed questionnaire and survey batteries. This study was part of a larger study that examined the academic and psychosocial adjustment of Chinese-American adolescents. Inclusion criteria for participation in the study included the following: adolescents must be 14-18 years of age and have spoken fluency of English, and families must identify as being Chinese-American and reside in the greater Houston, TX area. There were 117 parental consents obtained for the study, and 108 parent-child dyads completed the entire survey battery. The present study utilized $N = 104$ parent-child dyads (four dyads who identified their ethnicity as "Vietnamese-American" or "Other" were excluded). Eight parents completed questionnaires for two sibling adolescent children. Participants were recruited from community centers, churches, and heritage language schools in the greater

Houston area with services that cater to the Chinese-American community. Local center leaders, administrators, and school personnel distributed informational and consent forms. Researchers also recruited participants in person by traveling to Houston on the weekends for onsite recruitment. Efforts were made to recruit participants from sites that were geographically distributed, and recruited participants report residences across the greater Houston area. Parent-child dyads voluntarily consented to complete the survey batteries online.

Participants were 59.6% female (40.4% male). Participants were relatively equally distributed in their ages across the eligible age range (14-18 years of age), with 20.2% being 14, 19.2% being 15, 23.1% being 16, 21.2% being 17, and 16.3% being 18 (mean = 15.94; SD = 1.37). The length of time that adolescents and parents resided in the United States ranged from 6 to 18 years (mean = 14.68; SD = 2.71) and from 4 to 59 years (mean = 22.47; SD = 9.38), respectively. Families' annual household incomes were moderate to high, with 8.2% of parent's annual household incomes falling below $25,000, 13.4% in the $25,000-$50,000 range, 9.3% in the $50,000-$75,000 range, 15.5% in the $75,000-$100,000 and 53.6% in the above $100,000 range. It is also important to note that the sample is comprised largely (83.7%) of adolescents who were born in the U.S. or Canada and of parents (89.6%) who note China or Taiwan as their birthplace. Thus, results of the present study should be interpreted in the context of a sample strongly characterized by family dynamics of first generation Chinese-American parents and second generation Chinese-American children.

Of the 104 parent-child dyads, not every participant reported complete data for every variable. Statistical analyses were conducted to examine level of missing data for variables examined. Across variables tested, Ns ranged from 96 to 104. Percentages of data complete

for study variables ranged from 91.8% to 100.0%. Given the small number of participants with partial data, the power to statistically detect even moderate effects of attrition are low; however, a visual examination of the data revealed no apparent differences between the participants with complete and partial data on relevant variables.

Measures

Measures used were given as part of a larger battery of questionnaires completed by adolescents and their parents. For this study, primary measures consisted of adolescent somatization, adolescent self-regulatory control, parental psychological control, and parent-child Asian values agreement. Both adolescent and parent reported responses were obtained for all constructs, though parents and adolescents reported differing aspects of self-regulatory control.

Adolescent-reported somatization. The adolescent-reported measure of somatization was assessed using the Hopkins Symptoms Checklist (HSCL). The HSCL is a 5 dimension self-report measure used to assess symptoms commonly observed among outpatient populations. The entire measure consists of 58 questions categorized under dimensions of somatization, obsessive-compulsive, interpersonal sensitivity, anxiety and depression. For the purpose of this study, participants reported on their somatic complaints (on a 4-point Likert scale that ranged from 1 = Not at all to 4 = Extremely) using items from the somatization dimension of the HSCL. Examples of items in the somatization dimension include "Faintness, dizziness, or weakness," and "Headaches."

The internal consistency, test-retest, and interrater alpha coefficients for the somatization dimension have all been found to be acceptable at 0.87, 0.82, and 0.73, respectively. Construct validity was confirmed by factor analysis using a matching

procedure with patient ratings by psychiatrists, resulting in high agreement (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974). Concurrent and predictive validity have also been found to be sound (Derogatis, 2000). A second study also found the HSCL dimensions distress levels reported by patients matched those suggested by clinical practice and external criteria (Rickels, Lipman, Garcia, & Fisher, 1972). In the present study, reliability coefficients were found to be 0.93 and 0.83 for the full and somatization scales, respectively.

Parent-reported somatization. To examine parent-reported measures of somatization, a subscale of the Behavior Assessment System for Children, Second Edition (BASC-2) parent rating scale (PRS) form from the system was used. The BASC-2 is used to assess behavioral and social emotional functioning of children and young adults ages 2-25. The PRS is made up of adaptive skills and problem behaviors scales measurements. Items are given in the form of a 4-point Likert scale and provide results within broad domains of Externalizing and Internalizing Problems, and Adaptive Skills. Examples of items that load onto the Somatic Complaints subscale, used in the present study, include statements such as, "has stomach problems" and "has headaches."

Internal consistency alpha coefficients of all subscales have been found to be in the acceptable range for the PRS. For the Behavioral Symptoms Index and Adaptive skills, the alpha coefficients exceed 0.90 for the Externalizing and Internalizing Problems and are in the middle 0.80s to 0.90s. Median values for individual scales at the adolescent level range from 0.83 to 0.86. Construct validity for subscales was estimated with factor analyses, and moderate to high loadings on correlations were found (Tan, 2007). Strong validity studies reported by measure authors show concurrent validity with various child symptom behavior rating scales, such as the Achenbach System of Empirically Based Assessment (ASEBA)

Child Behavior Checklist. Moderate to high correlations between scales of similar constructs were found. In the current sample, an acceptable coefficient alpha of 0.78 was found with subscale T-scores for the full measure.

Regarding cross-cultural use, Jung and Stinnett (2005) found that, when using the BASC SRP and PRS, significant differences were found in the profiles of different ethnicity groups but that the measure is sensitive to detecting symptomatology across cultures. Specifically, in comparison of Korean, Korean-American, and American children, Korean children were perceived by their parents as more controlled, less self-reliant, and internalizing, compared to American children, while Korean-American children were rated as displaying more adjustment difficulties. In discussion of results, authors noted the importance of considering cultural influences, explaining that though the Korean group was rated as having a lower sense of self-reliance, sense of adequacy, and higher levels of depressed mood, these symptoms may not be as problematic when viewed through the lens of adherence to traditional cultural expectations. Additionally, authors documented that Korean American children rated themselves higher on scales of anxiety, atypicality, and social stress, when compared to the other groups and posit that these differences are due to adjustment difficulties from loss of cultural heritage and ethnic identity. In summary, there is evidence to suggest that the BASC is sensitive to cross-cultural symptomatology but BASC profiles and scores need to be interpreted and viewed through informed consideration of cultural factors.

Parent-reported emotional self-control. Across self-regulatory variables, emphasis was placed on assessing the adolescents' abilities to regulate (inhibit or activate) affect or behaviors for goal directed purposes. To assess adolescent emotional control and regulation,

parent-rated items (on a 4-point Likert scale) from the emotional self-control subscale of the BASC-2 PRS were utilized. This subscale measures "the ability to regulate one's affect and emotions in response to environmental changes" and was created to evaluate a subset of self-regulation (Reynolds, 2004). The Emotional Self-Control scale items include statements such as, "changes moods quickly" and "is easily upset."

Parent-reported executive functioning (cognitive self-control). Like emotional self control, executive functioning was assessed with parent ratings on the BASC-2-PRS. The subscale measures "the ability to control behavior by planning, anticipating, inhibiting, or maintaining goal-directed activity, and by reacting appropriately to environmental feedback in a purposeful, meaningful way" (Reynolds, 2004). The variable was utilized to examine a parent-reported aspect of self regulation without an explicit affective component. Executive functioning item examples include statements such as, "has poor self-control," and "organizes chores or other tasks well."

Adolescent-reported behavioral self-control. Adolescents rated their self regulatory behavioral control (on a 5-point Likert scale) using items from two subscales (inhibitory control and activation control) of the EATQ-R (short form), an instrument used for measuring children's temperament. The total scale includes subscales of activation control (5 items), affiliation (5 items), attention (6 items), fear (6 items), frustration (7 items), high intensity pleasure/surgency (6 items), inhibitory control (5 items), pleasure sensitivity (5 items), perceptual sensitivity (4 items), shyness (4 items), aggression (6 items), and aggressive mood (6 items). Trait scores are computed by totaling item scores after reverse scoring the relevant items.

The EATQ-R has evidenced acceptable psychometric properties. Internal consistency score coefficients were found to be modest but sufficient for most scales, with coefficient alphas ranging from 0.61 to 0.74. Test-retest and principle components analysis reflect moderate to good item scales, with coefficient alphas ranging from 0.55 to 0.85. Additionally, subscales have been shown to correlate with a number of corresponding personality and psychopathology measures, such as Gray's (1991) BIS/BAS dimensions and Kagan's (1994) construct of behavioral inhibition. Specifically regarding the current construct of interest (self-regulation), effortful-control based traits were found to be negatively related to internalizing symptomatology (Muris & Meesters, 2009).

In the present study, both the inhibitory control scale (measuring the capacity to plan and to suppress inappropriate responses) and activation control scale (measuring the capacity to perform an action when there is a strong tendency to avoid it), were utilized to measure two aspects of regulatory abilities. The inhibitory control subscale contains items like "The more I try to stop myself from doing something I shouldn't, the more likely I am to do it" (a reverse-scored item), while the activation control subscale contains statements like, "If I have a hard assignment to do, I get started right away." Because the subscale scores were moderately correlated ($r = 0.36$), the two subscale items were combined to form a single composite measure of adolescent-reported self-regulatory abilities and named "behavioral self-control" for the behavioral nature of selected test items (e.g. "I finish my homework before the due date").

Reliability of the composite scale scores (consisting of inhibitory and activation control) was determined by examining Cronbach's alpha and item-total scale correlations. Four unsatisfactory items (with item-total correlations <0.4) were removed from the

composite scale. The resulting 6-item subscale scores of behavioral control used for data analysis in the present study produced a reliability coefficient alpha of 0.78. The composite subscale variable score, as determined by item analysis, was used in data analysis. It is important to note that though both inhibitory and activation regulatory components are included, the composite utilizes more items from the activation subscale (4) as compared to the inhibitory subscale (2).

Parent and adolescent-reported parental psychological control. Parental psychological control was assessed with the Psychological Control Measure (PCM). PCM items were adapted from the work of Barber (1996) to measure level of parental psychological control. Items are presented on a 5-point Likert scale, ranging from 1 = Never to 5 = Always. Examples of items include "I bring up my child's past mistakes when criticizing him/her," and "I tell my child that he/she should be ashamed when he/she misbehaves." Items were shown to be comparable across U.S., Russian, and Chinese cultures (Robinson, Mandleco, Olsen, & Hart, 2001). The measure produces subcategories of psychological control, as well as overall parent and child report scales. Subscales consist of Personal Attack on Child, Erratic Emotional Behavior, Guilt Induction, and Love Withdrawal. The Personal Attack subscale (2 items) assesses when family members attack the worth of or place of family to another member; the Erratic Emotional Behavior subscale (3 items) the vacillation between caring and attacking expressions; the Guilt Induction subscale (4 items) the use of "guilt trip" strategies; and the Love Withdrawal subscale (2 items) the threat of withdrawing love if expectations are not met. Parents rated for both self and spouses, while adolescents reported on both parents separately. Overall scores as well as subscale scores were utilized for the current study to examine if and which specific

components of parental psychological control affect study outcomes. Highly correlated coefficient alphas of 0.91 were found for both the adolescent and parent report parental psychological control overall scale scores for the present sample, evidencing strong internal consistency of sample scores for this measure. Similarly, adolescent and parent reported subscale scores reliability coefficients ranged from 0.74 to 0.87, indicating that strong internal consistency holds across all subscale scores.

Parent and adolescent report of Asian values. Parent and adolescent-rated parent values were assessed using the Asian Values Scale (AVS). The AVS is designed to assess the rater's level of adherence to Asian cultural values. Examples of items include items like, "One should not deviate from familial and social norms," and "Educational failure does not bring shame to the family," and "Parental love should be implicitly understood and not openly expressed." Items are given on a Likert scale with a 7 point rating from 1 = strongly disagree to 7 = strongly agree, and 18 of the 36 total items are reverse scored. The results provide a total score for determining adherence to Asian values and cover six factors of Asian cultural dimensions: collectivism, conformity to norms, emotional self-control, family recognition through achievement, filial piety, and humility.

For the AVS, content validity was examined by researchers using methods recommended by Crocker and Algina (1986) such as reviewing literature, nationwide survey, and focus discussion groups and by selecting only values for which first generation Asian Americans indicated significantly greater agreement than European Americans. The AVS has been shown to produce reliable scores with coefficient alphas of 0.81 and 0.82 in two different studies. Also, test-retest assessments with two weeks period between tests produced a coefficient alpha of 0.83. Independent samples t-tests and exploratory factor analyses were

run to determine item content and factors, and additional confirmatory factor analysis supports measure of Asian values rather than behavioral acculturation (B. S. Kim, Atkinson, & Yang, 1999). For the present sample, reliable scores for both the child and parent reports were obtained, with reliability coefficient alphas of 0.81 and 0.70, respectively. The agreement difference variable between parent and adolescent was created by subtracting the overall adolescent values score from the parent score.

Procedures

Asian-American adolescents and their parents were recruited to the study through self, school, and church referrals and focused recruitment by project researchers. Consent was obtained from 117 parents consenting for both theirs and their child's participation in the study; consent was also sought from the adolescents themselves. As a token of appreciation for families' time and effort, a $30.00 gift card to an online retailer specializing in books and other products was given to families who completed surveys. Survey results were scored and coded by the data collection team for analysis.

For this study, hypothesized models were tested and analyzed using Predictive Analysis Software (PASW) (SPSS, 2009) and MPLUS Computer Software (Muthen & Muthen, 2008). Descriptive and correlational analyses were conducted with PASW, while mediation analyses and examination of indirect effects were conducted with the MPLUS program. All variables in the model are observed variables.

Results

Preliminary Analyses

Descriptives. Preliminary analyses included tests of skewness and kurtosis. Non-demographic study variables ranged from -0.08 to 1.09 in skewness and from -0.82 to 1.26 in kurtosis, levels that meet criteria for multivariate normality as set forth by Curran, West, and

Finch (1996). Descriptive statistics were also examined by gender, as results indicate significant differences for select variables of interest (See Table 1).

Table 1 Descriptive data for study variables

	Total Sample	Adolescent Males (N = 42)	Adolescent Females (N = 62)
	M (SD)	*M (SD)*	*M (SD)*
PR somatization (N = 97)	50.81 (8.16)	48.36 (7.62)	52.51 (8.09)
AR somatization (N = 104)	1.48 (0.46)	1.46 (0.47)	1.50 (0.44)
PR emotional self control (N = 97)	51.20 (8.20)	50.77 (7.56)	51.54 (8.60)
PR executive functioning (N = 97)	53.88 (6.98)	53.64 (6.90)	54.12 (7.06)
AR behavioral control (N = 104)	3.23 (0.72)	3.06 (0.69)	3.34 (0.72)
PR parental psychological control (N = 97)	1.93 (0.55)	1.92 (0.65)	1.93 (0.47)
PR personal attack	2.05 (0.68)	2.09 (0.69)	2.00 (0.67)
PR erratic emotional behavior	1.98 (0.63)	1.94 (0.69)	1.97 (0.60)
PR guilt induction	1.95 (0.70)	1.92 (0.74)	1.67 (0.68)
PR love withdrawal	1.68 (0.69)	1.72 (0.77)	1.66 (0.63)
AR parental psychological control (N = 104)	2.53 (0.79)	2.60 (0.88)	2.48 (0.73)
AR personal attack	2.71 (0.95)	2.71 (1.03)	2.71 (0.90)
AR erratic emotional behavior	2.30 (0.89)	2.22 (0.79)	2.36 (0.96)
AR guilt induction	2.72 (0.96)	2.93 (1.10)	2.59 (0.83)
AR love withdrawal	2.28 (1.13)	2.41 (1.18)	2.20 (1.09)

Table 1 Continued

	Total Sample	Adolescent Males (N = 42)	Adolescent Females (N = 62)
	M (SD)	*M (SD)*	*M (SD)*
PR Asian values (N = 97)	4.33 (0.46)	4.17 (0.40)	4.43 (0.48)
AR Asian values (N = 104)	4.29 (0.52)	4.31 (0.50)	4.28 (0.54)
Asian values parent-child agreement (N = 97)	0.00 (1.29)	-0.42 (1.31)	0.27 (1.21)

Note: PR = parent-reported, AR = adolescent-reported

Data were also examined for significant mean differences between demographic variables of child gender, age, and acculturation (as measured by parents' mean years of residence in the United States) and analysis variables. Preliminary analyses were run to examine if demographic variables related significantly to study variables to determine need for inclusion of covariate variables in further analysis. One-way analysis of variance (ANOVA) analysis was run for all study variables with gender, and a significant effect was found for parent-reported somatization ($F(1, 96) = 6.89$, $p = 0.01$) by gender. Gender means indicate that on average, parents reported female adolescents to have significantly higher somatization occurrence (see Table 1). As acculturation and adolescent age are coded as continuous variables, correlational analyses were also conducted between acculturation, age and study variables to investigate relationships between demographic and study variables. No significant correlations were found between demographic and variables of interest, though directional trends were noted suggesting that parents rated younger children as having more difficulty with emotional self control and that less acculturated parents tended towards

higher use of parental psychological control. In further analyses, gender, age, and acculturation data were taken into account as covariates; these 3 covariates were entered for all partial correlations reported in Tables 2 and 3. In correlational analyses, though both bivariate and partial correlations are reported in the correlation matrix, the partial correlations controlling for gender, age, and acculturation, were examined for significance.

Correlational Analyses

Parental psychological control and somatic complaints. Higher child and adolescent parental psychological control was hypothesized to predict higher occurrences of parent and adolescent somatic complaints. Both parent and child reports of parental psychological control were examined with the Psychological Control Measure. First, four separate correlation analyses using overall parent and adolescent-reported parental psychological control scores were tested under this hypothesis, controlling for acculturation, age, and gender. One link was found to be significant: parent-reported parental psychological control predicting parent-reported adolescent somatic complaints ($r = 0.39$, $p < 0.001$), suggesting that a higher level of parental psychological control predicts higher occurrence of parent-reported somatic complaints.

Upon further examination of parental psychological control subscale categories, all parent-reported subcategories were found to correlate significantly at the $p \leq 0.05$ level with parent-reported somatization. Partial correlations range from $r = 0.20$ to 0.41 and suggest that all aspects of measured parent-perceived psychological control predict parents' reports of their child's somatic complaints. Regarding adolescent-reported parental psychological control, though the overall score was not significantly correlated with the outcome variable of somatization, one adolescent-reported subscale did display a significant correlation with parent-reported somatization: erratic emotional behavior ($r = 0.29$, $p < 0.01$). This result

evidences that adolescents' perceptions of their parents' inconsistent affective behavior towards them predict parent-reported somatic complaints. Correlations and partial correlations for parental psychological control subcategories with somatization and self-regulatory outcome variables are given in Table 3.

Agreement of Asian values and somatic complaints. A lower level of agreement between parent and adolescent regarding Asian values, as measured by the Asian Values Scale, was hypothesized to predict a higher level of internalizing symptomatology, as manifested in somatic complaints. Two links (agreement value to both parent and child reported somatization) were examined, according to hypotheses. A significant correlation was found between values agreement differences and parent-reported somatic complaints ($r = 0.20$, $p \leq 0.05$), indicating that a higher discrepancy between the parent and adolescent in cultural values predicts higher occurrence of somatic complaints, after controlling for covariates.

Parental psychological control and emotional, cognitive, and behavioral self-control. Higher parental psychological control was also hypothesized to predict adolescents' lower emotional and self-regulatory control. As with previous examinations, both parent and child reported variables were examined for both constructs, resulting in six links examined, controlling for gender, age, and acculturation. Overall scores for parent and adolescent-reported parental psychological control were utilized first. Of these links, two significant correlations were found between overall parent-reported psychological control and regulatory variables. First, parent-reported use of parental psychological control significantly predicted low parent-reported emotional self control in adolescents ($r = 0.42$, $p \leq 0.001$). Second, parent-reported parental psychological control also significantly predicted parent-reported

low executive functioning (cognitive control) ($r = 0.52$, $p \leq 0.001$), with a higher level of parent-reported use of parental psychological control predicting higher symptomatology, or poorer level of executive functioning.

Parental psychological subcategories scores were examined next. As suggested by the significant correlation of the overall parent-reported parental psychological control score with parent-reported emotional self control, all parent-reported parental psychological control subcategories correlated significantly at the $p < 0.01$ level with parent-reported emotional self control; correlation coefficients ranged from $r = 0.25$ to 0.46. The same was also found for all parent-reported parental psychological control subcategories with parent-reported executive functioning, with correlation coefficients ranging from $r = 0.33$ to 0.46. In contrast, parent-reported control subcategories were unrelated with adolescent-reported behavioral self-control.

Adolescent-reported parental psychological subcategories were similarly examined. Most adolescent-reported subcategories were unrelated to parent reported emotional self control, with the exception of adolescent-reported erratic emotional behavior ($r = .20$) and adolescent-reported love withdrawal ($r = .21$). Both were significantly correlated with parent-reported executive functioning at the $p \leq 0.05$ level. Additionally, adolescent-reported love withdrawal was also significantly correlated with adolescent-reported behavioral self-control ($r = 0.20$, $p = 0.05$). These correlations indicate that though the overall adolescent-reported psychological parental control score was not correlated with any emotional and self-regulatory variables (parent or adolescent-reported), specific aspects of adolescent-perceived parental control (i.e. erratic emotional behavior and love withdrawal) still impact regulatory abilities, by both parent and adolescent report.

Table 2 Bivariate and partial correlations between study variables

	1	2	3	4	5	6	7	8	9	10
1. PR somatization	--	.14	**.36**	**.46**	.18	**.36**	.11	.17	-.16	**.25**
2. AR somatization	.13	--	.04	.05	.01	-.05	.12	-.04	-.08	.07
3. PR emotional self-control	**.35**	.03	--	**.78**	.02	**.40**	.10	.11	-.06	.12
4. PR executive functioning	**.46**	.04	**.78**	--	-.13	**.50**	.19	.19	-.08	.21
5. AR behavioral self-control	.12	.05	-.01	-.04	--	.07	.03	.07	.09	-.01
6. PR parental psychological control	**.39**	-.04	**.42**	**.52**	.09	--	**.32**	**.21**	-.05	**.20**
7. AR parental psychological control	.13	.09	.09	.18	-.01	**.36**	--	.03	.03	.05
8. PR Asian values	.09	-.07	.08	.18	.09	**.25**	.04	--	.13	**.68**
9. AR Asian values	-.17	-.17	-.07	-.08	.14	-.03	-.07	.13	--	**-.63**
10. Asian Values Scale parent-child	**.20**	.07	.12	.20	-.09	**.21**	.08	**.67**	**-.64**	--

Note: Bivariate correlations are provided *above* the diagonal; PR = parent-reported, AR = adolescent-reported; Control variables for all partial correlations are child gender, child age in years, and parent residence in U.S. (yrs); $df = 95$; Bold figures represent correlations significant at $p \leq .05$.

Table 3 Bivariate and partial correlations between parental psychological control subscales and somatization and self-regulatory variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. PR somatization	--	.14	**.36**	**.46**	.18	.17	**.40**	**.30**	**.25**	.05	**.30**	-.08	.13
2. AR somatization	.13	--	.04	.05	.01	-.09	-.04	-.08	.09	.09	.15	.06	.12
3. PR emotional self-control	**.35**	.03	--	**.78**	.02	**.25**	**.45**	**.29**	**.29**	.07	.15	.00	.12
4. PR executive functioning	**.46**	.04	**.78**	--	-.13	**.32**	**.45**	**.41**	**.43**	.17	**.21**	.07	**.21**
5. AR behavioral self-control	.12	.05	-.01	-.04	--	.04	.04	.10	.03	-.06	-.04	.03	.16
6. PR personal attack	**.20**	-.09	**.25**	**.33**	.06	--	**.55**	**.51**	**.42**	**.49**	**.31**	**.26**	**.30**
7. PR erratic emotional behavior	**.41**	-.03	**.46**	**.46**	.04	**.56**	--	**.62**	**.45**	.17	**.23**	.11	.14
8. PR guilt induction	**.32**	-.06	**.32**	**.44**	.13	**.52**	**.61**	--	**.52**	**.20**	.16	.15	**.23**
9. PR love withdrawal	**.27**	.09	**.30**	**.43**	.04	**.42**	**.46**	**.54**	--	**.28**	.19	.19	**.33**
10. AR personal attack	.05	.03	.06	.16	-.06	**.50**	.18	**.23**	**.28**	--	**.56**	**.56**	**.52**
11. AR erratic emotional behavior	**.29**	.17	.14	**.20**	-.06	**.32**	**.24**	.18	**.20**	**.60**	--	**.47**	**.53**
12. AR guilt induction	-.03	.03	.00	.07	.07	**.26**	.13	**.20**	.18	**.54**	**.52**	--	**.60**
13. AR love withdrawal	.15	.06	.12	**.21**	**.20**	**.30**	.16	**.26**	**.33**	**.49**	**.58**	**.57**	--

Note: Bivariate correlations are provided *above* the diagonal; PR = parent-reported, AR = adolescent-reported; Control variables for all partial correlations are child gender, child age in years, and parent residence in U.S. (yrs); $df = 95$; Bold figures represent correlations significant at $p \leq .05$

Regression Analyses

Emotional self-control as a mediator. Examination of correlational analyses results guided rater variable selection for mediation analyses. Links showing significant partial correlations were further examined with regression, according to hypothesized models. As no latent variables were utilized, mediation analyses based on Baron and Kenney's (1986) steps were conducted using MPLUS Computer Software to test the proposed mediation models. Missing data was handled within the Mplus program using full information maximum likelihood (FIML).

Per the hypothesized model, parent-reported emotional self control was examined as a mediator for the link between parent-reported parental psychological control and parent-reported adolescent somatization. Child gender was entered as a covariate. To conduct the mediation test, separate model paths were identified and tested as well as overall model fit (See Figure 2). First, path *a*, the link between parent-reported psychological parental control and parent-reported emotional self control was found to be significant ($\beta = 0.63$, $p < 0.001$). Emotional self control, in turn, correlated with somatization, and this represented path *b* ($\beta = 0.73$, $p < 0.001$). Finally, path c^1, the predictive ability of parental psychological control on somatization in the mediation model, was examined. The path ($\beta = 0.25$) was found to be significant at the $p < 0.05$ level, suggesting possibility of partial mediation. This suggests that both psychological control and emotional self-control independently predict the occurrence of somatic complaints.

Because partial mediation was hypothesized, indirect effects were examined. To directly calculate whether parental psychological control has an indirect effect on somatization, indirect effects were examined with MPLUS software and yielded the

following result for the indirect path: $\beta = 0.46$, $p < 0.001$. Results indicate that the indirect path is significant, further suggesting that, based on parent reports, the relationship between parent-reported parental psychological control and parent-reported adolescent somatization is mediated by parent-reported adolescent emotional self-control.

Executive functioning (cognitive self-control) as a mediator. Parent-reported executive functioning was also examined as a possible mediator for the relationship between parent-reported parental psychological control and parent-reported somatization (See Figure 2). Paths *a* ($\beta = 0.77$, $p < 0.001$) and *b* ($\beta = 0.78$, $p < 0.001$) were found to be significant, with gender as a covariate. Path c^1, the relationship between parent-reported psychological control and parent-reported somatization after controlling for parent-reported executive functioning, was tested according to the hypothesized model for a mediation effect. The c^1 path was found to be not statistically significant ($\beta = 0.11$, $p > 0.05$), suggesting that executive functioning fully mediates the hypothesized relationship.

Again, indirect effects were tested using MPLUS software. The specific indirect path between parent-reported parental psychological control and parent-reported somatization yielded a standardized result of $\beta = 0.60$, $p < 0.001$. Results indicate that the indirect path is significant, further suggesting that, based on parent reports, the relationship between parent-reported parental psychological control and parent-reported adolescent somatization is mediated by parent-reported executive functioning abilities.

Because the child-reported parental psychological control variable of erratic emotional behavior also significantly predicted both parent-reported somatization and parent-reported executive functioning, parent-reported executive functioning was also tested as a mediator for the adolescent-reported erratic emotional behavior and parent-reported

somatization link. As with the parent-reported parental psychological control model, paths *a* ($\beta = 0.13$, $p = 0.05$) and *b* ($\beta = 0.86$, $p < 0.001$) were tested and found to be significant with gender as a covariate. The c^1 was similarly examined and found to be not statistically significant ($\beta = 0.07$, $p > 0.05$), evidencing a full mediation relationship for this adolescent-reported aspect of parental psychological control.

Tests of indirect effects were utilized in MPLUS to examine indirect effects for the adolescent-reported erratic emotional behavior model with the following results: $\beta = 0.12$. Significance for an indirect effect was found at the $p < 0.05$ level, suggesting that adolescent-reported parental erratic emotional behavior has an indirect effect on parent-reported somatization, through the mediator of parent-reported executive functioning.

Discussion

Mental health needs of Asian-American youth have been documented as substantial and increasing, but limited research has identified explanatory mechanisms or possible targets of intervention for reducing mental health symptoms. The present study contributed to the limited existing research on self-regulatory abilities as mechanisms that may explain the linkage between Asian-American parenting styles and adolescent somatization. Results suggest that multiple aspects of self-regulation serve as mediating mechanisms by which parenting styles may influence adolescent somatic complaint occurrence. Findings have implications for understanding of pathways to somatization (and mental health outcomes overall) in the Asian-American youth population.

Parental Psychological Control, Self-Regulation, and Somatization

Study results provide support for an emotion regulatory model of somatization in a Chinese-American adolescent population. Lack of emotion regulation and emotion

awareness have been empirically linked to somatization (Gilleland et al., 2009), but previous studies have not examined multiple aspects of self-regulation (emotional, cognitive and behavioral control) as specific contributors to somatic symptoms. Study results indicate that both emotional and cognitive control mediated the relationship between parental psychological control and somatization, suggesting that the use of psychological control in parenting has influence upon more than only affective features of regulation. Rather, abilities like task organization, goal orientation, or maintaining goal-directed activity (part of cognitive control) were found to be predicted by parental psychological control.

Across analyses, emotional and cognitive (but not behavioral) aspects of self-regulatory control were found to show significant relationships with parental psychological control and somatization. Though shared method variance may partly account for the associations between measures (as discussed later), shared method variance would not fully explain the mediational findings. The results extend our knowledge of the complex relationships among perceptions of parental psychological control, emotional and cognitive self-regulation, and somatization. They suggest that difficulties with emotional and cognitive control compromise abilities to manage moods and thoughts associated with psychological distress more so than behavioral control (which may more greatly affect abilities to persevere and complete tasks); and further, that heightened psychological distress associated with poor regulation of moods and thoughts could manifest as somatic complaints. In retrospect, the differences in significance found between different self-regulatory components makes sense, as conceptual and empirical distinctions have been made between emotional and behavioral self control. For example, coping and self-soothing abilities have been found to be reliable indicators for emotional control, and planfulness and attentional control for behavioral self

control (Wills, Walker, Mendoza, & Ainette, 2006). From this perspective, the presence of negative emotions that has been linked to somatic complaint occurrence may indeed be better alleviated by emotion and cognitive control abilities.

Interestingly, cognitive control was the one component of self-regulatory control that mediated the relation between parental psychological control and somatization for *both* parent and child reported perceptions of parental psychological control. Perhaps cognitive control is especially relevant (especially when the adolescent perceives high parental psychological control as distressing) for coping in the forms of support-seeking, problem solving, and cognitive restructuring. This interpretation is consistent with the finding that limited use of these strategies is linked to occurrence of internalizing symptoms (Herman-Stahl, Stemmler, & Petersen, 1995; Nolen-Hoesksema & Morrow, 1993; Sandler, Tein, & West, 1994). Thus, it may be that a lack of or ineffective active coping affects somatization occurrence more so than the success or failure of down-regulating negative emotions, as is measured in part by emotional self-control.

Though all parent-reported aspects of higher parental psychological control predicted higher parent-reported adolescent somatization, adolescent reports paint a differing picture of the types of parental control perceptions that may be most damaging for regulatory and somatic outcomes. Specifically, two forms of adolescent-perceived parental psychological control were significantly linked to lower self-regulatory abilities for Chinese-American adolescents: erratic emotional behavior and love withdrawal by parents. In fact, love withdrawal also predicted both cognitive and behavioral aspects of regulation, as reported by parents and adolescents independently. Frequent mood changes by and low warmth from a parent (as viewed by the child) may be associated with dysregulation due to inconsistency in

provision of a secure base, as a child develops his/her self-regulatory abilities. Further, if a child possesses low self-regulation, parental psychological control may be employed more often in Chinese culture as an appropriate means of correcting and shaping by parents through utilization of *guan* (D. Y. Ho, 1996). In mainstream American culture, positive parenting and high warmth in a parent-child relationship may often serve as a compensatory factor for children with low self-control (A. Karreman et al., 2008; Schoppe-Sullivan et al., 2009); however, such a compensation may not be as culturally salient for Chinese-American parents who view psychological control (in the form of inconsistency in or withdrawal of approval and warmth) as a way to correct or shape their children's poor self-control .

This is one of the first known studies to empirically establish a link between parental psychological control and somatization in Chinese American adolescents and sheds light on part of the uncertainty surrounding contributors and processes of somatic complaint occurrence. Importantly, study results consider cultural context by examining traditional aspects of Chinese cultural parenting styles for a sample of largely post first-generation Chinese-American adolescents with first-generation immigrant parents. As both higher use of parental psychological control and Asian values disagreement contributed to higher somatic complaint occurrence, it would appear that efforts to minimize excessive parental psychological control and parent-child conflict over cultural values disagreement would be beneficial for the population examined in somatization prevention and/or intervention. Results help to establish the groundwork for additional probing questions regarding this little-examined sector of Asian-American mental health. For example, future research should consider if parental psychological control and values disagreement serve as unique or cumulative risk factors in development of internalizing problems, like somatization, and/or if

other aspects of parenting may compensate for the higher parental psychological control and higher somatization relationship.

Asian Values Agreement and Somatization

As hypothesized, lower agreement of parent-child Asian values predicted higher (parent-rated) somatization in adolescents and supports the rationale of values disagreement leading to internalizing problems for post first-generation Chinese-American youth. Current studies have examined interfamilial and intergenerational conflict as a potential contributor in this relationship with depressive symptoms as an outcome variable (Y. Choi et al., 2008; Costigan & Dokis, 2006), but limited to no research has examined and provided evidence for somatization as an outcome of values disagreement. As such, practitioners may look to values agreement as a target for intervening with somatic complaints in Chinese-American youth through psychoeducational programs and forums to openly dialogue about cultural values and acculturation between parents and their children.

Rater Reports, Perceptions, and the Importance of Differences

It is striking that the hypothesized mediation model was found to be significant according to variables that were mainly parent-reported, while only select aspects of adolescent-reported parental psychological control predicted regulatory and somatic outcomes. Several possible reasons may explain why the same relationship was not observed through adolescent reports.

First, reporter source effects may partially account for stronger relations within than across reporter measures. One possibility might be that parents of adolescents who report use of more parental psychological control may justify its use by perceptions that their children are less regulated. Another may be that perceived amplification of problems across outcomes (i.e. regulatory control difficulties and somatic complaints) was observed due to

overall parental stress. Research findings have shown that parents' self-rated levels of child and family stress may influence parents to exaggerate children's problematic behaviors across domains (De Los Reyes & Kazdin, 2005; Youngstram, Loeber, & Stouthamer-Loeber, 2000). A third perspective could be that certain personality characteristics or habitual tendencies contributing to parents' use of high control may also be correlated with a tendency to pay more attention to, or magnify, concerns, such as adolescents' physical complaints. Studies suggest that parent traits such as parental separation anxiety and maladaptive perfectionism are linked to both use of parental psychological control and adolescent well-being (Barber, 1996; Soenens, Vansteenskiste, Duriez, & Goossens, 2006). These are all issues to be explored in future research. Additionally, overall, parent-child rater discrepancy research has shown greater parental symptom reporting in relation to their children, with researchers positing that as observers, parents are more likely to attribute symptoms and behaviors (somatic in this case) to disposition rather than the environment, while children are more likely to do the opposite (De Los Reyes & Kazdin, 2005). This trend was observed in the present sample; the standardized scores mean difference indicated higher parent scores on somatization, on average. While these factors should be taken into consideration in interpretation of results, it is difficult to verify these issues with confidence, as differences in mediational findings across parent- and adolescent-reports may alternatively be associated with use of different measures in report of somatization.

Secondly, in regard to lack of significance obtained using adolescent-reported somatization measures, measure content may be at least partially implicated. Some recent literature has suggested that differing manifestations of somatic complaints are most cited by adolescents; specifically, that symptoms such as skin impurities, pimples, and cold hands are

more frequently reported by adolescents as somatic complaints than headaches or stomachaches (Barkmann, Braehler, Schulte-Markwort, & Richterich, 2011). The adolescent-report measure (HSCL) utilized in the present study, as well as many others commonly used to assess somatic complaint occurrence, do not include these specific symptoms. Future research should examine validity of such symptoms in being categorized as somatic complaints for adolescents. If adolescents indeed favor somatic symptoms not covered by current measures, instruments may not have been sensitive enough to assess relevant somatic problems. Also, self-reporting of somatic complaints has been shown to decrease with age in childhood and adolescence (Bartels, van de Aa, van Beijsterveldt, Middledorp, & Boomsma, 2011). It is unclear whether somatic complaint self-reports decrease in adolescence due to a decrease in occurrence or minimization of physical discomfort as adolescents attribute symptoms to normal development (e.g. skin irritations, pimples) or strive to become more resilient, independent, and "grown up."

Third, in regard to lack of significance for most modeled hypotheses employing adolescent-reported behavioral regulation measures, it should be noted that because the behavioral self-control composite was constructed based on items selected by item-total correlation and more heavily loaded with activation over inhibitory items, the lack of significance found with this particular variable and sample may or may not be consistent with the same analyses conducted with a construct that measures strictly behavioral inhibitory control. Future research examining self-regulatory control should further examine the differences in outcome between inhibition and activation components of self-regulation.

On the other hand, the lack of similar findings between parent-child reports is consistent with findings that parent-child reports on behavioral and emotional symptoms

have often been found to show low convergence (Achenbach, McConaughty, & Howell, 1987; De Los Reyes & Kazdin, 2005). This general phenomenon has also been found to hold true specifically for reporting of somatic complaints, with studies showing low to medium correlations in parent-child reports (Garber, van Slyke, & Walker, 1998; Sundblad, Saartok, & Engstroem, 2006; Taylor, Satzmari, Boyle, & Offord, 1996). These differences suggest that parent perceptions and child perceptions of study variables may in fact represent different constructs (i.e. parent-perceived somatization versus child-perceived somatization). It is important to note that *parent-perceived* psychological control correlates highly with *parent-perceived* regulatory difficulties and somatization. While cross-rater significance would provide greater confidence that tested variables are indeed measuring exactly the same constructs from both the parent's and the child's perspectives, the implications of parental perceptions themselves are also noteworthy. From same-source results, patterns in parental thinking and attributions may be indicated. For example, perhaps parents who acknowledge and value high psychological control also have a tendency to perceive and report more physical symptoms in their children as a form of care or knowledge of their child's life and needs; or, alternatively, the parents who are more willing and transparent about reporting their use of psychologically controlling parenting styles may also be those parents who are more willing and transparent about reporting their child's somatic symptoms.

Furthermore, lack of rater convergence also indicates that perceptions of differences, in themselves, may be a factor of empirical importance in multi-rater studies. For example, it has been suggested that family cohesion increases the degree of observed parent-child ratings agreement, while family conflict is associated with greater parent-child discrepancies (Andrews, Garrison, Jackson, Addy, & McKeown, 1993; Kolko & Kazdin, 1993). In the

current study, it may be that families who report lower values agreement also exhibit greater parent-child discrepancies in symptom reporting, hindering cross-rater agreement for these dyad reports. In other words, greater values conflict or disagreement between parent and child may suggest that parent and child are viewing constructs through differing cultural lenses; if so, this difference is likely reflected in study results.

Limitations

Given that this is one of the first systematic studies on parenting and child self-regulatory processes that may lead to adolescent somatic symptoms in mainly post-first generation Chinese-American youth, the study provided new findings with multiple issues and study limitations that could be addressed in future research. Although study results suggest that several aspects of self-regulation mediate the relationship between parental psychological control and child somatic symptoms, stronger evidence of mediation would require longitudinal data, as directional or causal conclusions cannot be confirmed from cross-sectional data. For example, it is difficult to determine whether high parent-reported psychological control contributes to development of low self regulatory control, as theorized, or if children with low parent-perceived self regulation require their parents' aid with regulation, often through the use of greater parent-perceived parental psychological control. Also, as mentioned above, it is difficult to determine what discrepancies across raters mean without additional sources of information such as ratings from teachers or observations from naturalistic or laboratory settings of study constructs. Further, results should be replicated in future studies to ensure that the current study sample was representative and findings could be generalized to Chinese-American or Asian-American populations in different regions of the United States, with differing immigrant-generational backgrounds and personal and financial resources. It is plausible that parent-child dyads who participated in this study were

those who possessed the time, resources, and online access to complete the web-based surveys. The modest sample size of N = 104 also limits statistical power to detect hypothesized effects. Finally, because multiple analyses were tested, the limitation of multiple comparisons exists, suggesting significant findings may be due to chance. The Bonferroni correction was not applied to address this limitation, as this was largely an exploratory study with a modest sample size. Thus, the level of statistical significance was set at $p < .05$ for each analysis to minimize the possibility of making an experiment-wise Type 2 error. Despite these limitations, it is noteworthy that several mediational findings were still found.

CHAPTER III

CONCLUSIONS

This study is one of the first to provide empirical evidence of a link between psychological parental control and specifically somatic complaints in a sample of Chinese-American adolescents. As such, results need to be replicated in future research. The empirical establishment of a link between psychologically controlling parenting and somatization is consistent with the large body of literature on parenting and child adjustment and has implications for mental health treatment and intervention with Chinese-American youth, a population that has traditionally underutilized mental health services.

Implications for Future Research and Practice

The mediation finding for emotional and cognitive self control for parental psychological control and somatic complaints in adolescents suggests an area of intervention for practitioners when working with Chinese-American adolescents who display symptoms of somatization, especially if parental psychological control is mentioned as a heavy component of parenting in the family. That multiple aspects of self-regulatory control were found to be of significance in this study suggests that though efforts are often made to specify components of self-regulation in research design (e.g. as emotion regulation, effortful control, attention), mental health practices should consider multiple aspects of self-regulation as critical to the reduction or prevention of somatic complaints. For example, targeting organizational, planning, and goals determination strategies may be just as helpful for alleviation of somatic symptoms as addressing strictly emotion awareness or emotion control elements in self-regulatory teaching. Teaching of active components of cognitive control or executive functioning, such as active support-seeking, problem-solving, and cognitive

restructuring, may be especially helpful in alleviating emotional or psychological distress that may be associated with somatic symptoms.

This study highlights the role of parental psychological control in Chinese-American adolescents' somatization, suggesting that even though parental psychological control is traditionally viewed as a common and accepted component of responsible parenting for Chinese parents (D. Y. Ho, 1996), negative impacts for Chinese-American youth (who are 1.5 or second generation immigrants) still exist. It may be that many Chinese-American adolescents are so embedded in Western and European-American culture (in which European-American youth often view high control negatively (Chao & Aque, 2009; Rohner & Pettengill, 1985)), that high parental psychological control often leads to confusion and conflict because of differences in generational values and perceptions. Recall that the present study indicates that both high parental psychological control and values disagreement between parent and child were associated with somatization occurrence. Thus, internalizing symptoms may not occur strictly from the use of parental psychological control itself, but from disagreement by Chinese-American adolescents in its value. In future examination of this topic, it will be important to understand Chinese American youths' interpretation of parental psychological control in regard to adolescents' acceptance and value of high parental psychological control and how these interpretations relate to self-regulation and somatization. One way to accomplish this may be to compare Chinese-American youth samples with matched Chinese samples from Asia to distinguish effects of societal values and culture.

Parents in and practitioners who work with intergenerational immigrant Chinese-American families should note the possible negative outcomes of the use of high psychological control in parenting. Just as importantly, in synthesizing and applying these

and future study results, it will be important to take into account acceptance of cultural practices and customs, as related to parenting and family dynamics. Parent training and intervention should be implemented based on a well-informed concept of goodness-of-it and avoid a "one size fits all" mentality. Above all, efforts should be made to strengthen parent-child perception of warmth and cohesion for benefit of both child self-regulatory and somatic outcomes.

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