Graduate School Form 30
(Revised 08/14)

PURDUE UNIVERSITY
GRADUATE SCHOOL
Thesis/Dissertation Acceptance

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Entitled
Role Conflict, Uncertainty in Illness and Illness-related Communication Avoidance: College Students Facing Familial Chronic Illness

For the degree of Doctor of Philosophy

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Head of the Department Graduate Program Date

ROLE CONFLICT, UNCERTAINTY IN ILLNESS, AND ILLNESS-RELATED COMMUNICATION AVOIDANCE: COLLEGE STUDENTS FACING FAMILIAL CHRONIC ILLNESS

A Dissertation

Submitted to the Faculty

of

Purdue University

by

Meghana Suchak

In Partial Fulfillment of the

Requirements for the Degree

of

Doctor of Philosophy

December 2014

Purdue University

West Lafayette, Indiana

ACKNOWLEDGEMENTS

I have been prepping to write this page of acknowledgments for a long time. I would like to start by thanking my professors and supervisors in India, Australia, and U.S. who taught me psychology and then counseling psychology. My love affair with this field has sustained me for over twenty-one years and has enabled me to be the person that I am today. So thank you.

A special thank you to my committee chair, Dr. Heather Servaty-Seib for being my pillar of strength and helping me articulate my thinking every time I bungled up.

To my draft readers/friends, Sara, Sarah, and Rachel. Thank you for your time, patience, and edits. To my friend Punya, thank you for listening patiently whilst I talked through my findings.

To my parents, my sisters, and nieces, thank you for your love, support, and words of encouragement, especially in times when I thought I would never finish this dissertation or this degree.

Finally, to Goofie, thank you for sitting by me endlessly as I read article after article waiting for inspiration to strike!

TABLE OF CONTENTS

Page

Page

LIST OF TABLES

Table Page

Table Page

LIST OF FIGURES

Figure Page

ABSTRACT

Suchak, Meghana. Ph.D., Purdue University, December 2014. Role conflict, uncertainty in illness and illness-related communication avoidance: College students facing familial chronic illness. Major Professor: Heather Servaty-Seib.

The focus of the current study was on examining possible differences in college students' adjustment based on residency status (i.e., international Asian vs. domestic students) and illness status (i.e., having a family member with a chronic illness vs. not having a family member with a chronic illness). The study also examined the associations between overall college student adjustment, and the family and illness-related factors of role conflict, uncertainty in illness, and illness-related communication avoidance for students with a chronically ill family member. The literature review drew from the fields of college student development, family studies, communication, and nursing. Data were collected from 232 students (85 international Asian and 147 domestic) from two Midwestern public universities. A MANCOVA and a hierarchical regression were performed to address four research questions and test three associated hypotheses. Results indicated that international Asian students scored lower than their domestic peers on the college student adjustment domains of social adjustment and institutional attachment. Students who had a family member with a chronic illness scored lower on the college student adjustment domain of personal-emotional adjustment than students who

did not have a family member with a chronic illness. Finally, there was a negativeassociation between role conflict and overall college adjustment regardless of residency or illness status. Recommendations are discussed for counseling psychologists working in a variety of settings across college campuses.

CHAPTER I. INTRODUCTION

Overview of the Problem

College student adjustment is a multidimensional phenomenon that reflects the unique nature of the college student experience. College student adjustment is related to important outcomes such as academic success (Norvilitis & Reid, 2012; Stoever, 2001) and college retention (Credé & Niehorster, 2012). Empirical literature indicates that normative transition issues and events (e.g., poor health outcomes, financial problems, academic issues, loneliness, etc.) can influence college student adjustment (Chang, 1996; Frazier & Schauben, 1994; Misra & Castillo, 2004; Mattanah, Ayers, Brand, Brooks, Quimby, & McNary, 2010). Researchers have also found negative associations between multiple constructs indicative of college student adjustment (e.g., grade point averages, psychological well-being, social support, attachment, etc.) and non-normative events including death losses (Servaty-Seib & Hamilton, 2006), traumatic stress (Banyard & Cantor, 2004), and childhood sexual abuse (Jackson, Calhoun, Amick, Maddever, & Habif, 1990). A non-normative event that has been understudied so far is college student adjustment in times of a chronic illness in the family. From here on, I refer to this non-normative experience as *familial chronic illness*.

The Center for Disease Control and Prevention (CDC, 2009) defined chronic diseases as "non-communicable illnesses that are prolonged in duration, do not resolve spontaneously and are rarely cured completely" (p. 2). The health consequences of chronic diseases are extensive, and people with chronic diseases account for 81% of hospital admissions (Partnership for Solutions, 2004). According to the CDC, chronic diseases used to be more common among older adults. However, it is becoming increasingly clear that chronic illnesses affect people of all ages, leading the CDC (2012) to recognize chronic diseases as a leading health concern in the United States (U.S.). According to the CDC, the most commonly diagnosed chronic conditions in the U.S. are heart disease (including stroke), cancer, diabetes, and arthritis, with nearly 133 million Americans diagnosed with at least one of these conditions.

Similarly, the World Health Organization (WHO, 2012) indicated that in 2008 63% of global deaths (i.e., 36 million of 57 million) were due to chronic diseases such as cardiovascular diseases, diabetes, cancer, and chronic respiratory diseases. Approximately 80% (i.e., 28 million) of these deaths occurred in the middle-income countries, such as China, India, Indonesia, Philippines, Thailand, and low-income countries, such as Nepal, Bangladesh, Tajikistan (WHO, 2012).

Although there are no statistics on how many college students experience a familial chronic illness, Smyth, et al. (2008) do indicate that the prevalence rate of adverse life events (such as death of a loved one) for a college student population is between 55.8% to 84.5%. The statistics from the CDC, WHO, and the prevalence rates given by Smyth et al. make a case that both domestic college students and international

Asian students are likely to have an experience of a family member going through a chronic illness during their college years.

From Arnett's (2000; 2004; 2008) emerging adulthood perspective, the pursuit of a college degree is an important transitional milestone in an individual's life. The transition often starts with physical relocation from the parental home followed by an increase in social and legal freedoms, diminished parental supervision, exploration of sexuality, and development of new romantic and peer bonds (Mattanah, Lopez, & Govern, 2011). While in college, students often have to navigate their way around a new social environment, orient themselves to their college institution, become productive members of the university community, and learn to take over some of the roles and responsibilities (e.g., finances) that had previously been left to parents (Credé & Niehorster, 2012). These normative transitions for college students may get interrupted, exaggerated, or even made more difficult to navigate when a family member faces a chronic illness (Schmidt & Welsh, 2010).

In contrast to the information available about how traditional families (i.e., related adults and children who live with the ill family member) function during a familial chronic illness, there is sparse literature on how college students face such an experience. College students are unique family members as they may developmentally be in the emerging adulthood phase while in college (Arnett, 2000; Tanner, Arnett, & Leis, 2009). Herein, they are separating from the family but are still emotionally and financially dependent on them (Arnett, 2000). Moreover, they may be physically separated by distance from the rest of the family.

The phase of emerging adulthood (ages 18-29 years) is filled with normative uncertainty (Arnett, 2004); and, when a student is faced with a chronic illness of a family member, the uncertainty of the illness may add to the student's normative uncertainty. Furthermore, college students regularly use communication avoidance in their interactions with their family members (Guerrero & Afifi, 1995). In the face of a familial illness, this communication avoidance may turn into illness-related communication avoidance. Lastly, college students' roles in their families are in the state of flux (Garcia Preto & Blacker, 2011). Therefore, they may experience a rather unique push-pull between continuing on in their educational pathways, and providing instrumental and/ emotional support for their families. This push-pull of home and school may be heightened for international Asian students facing a familial chronic illness in their home countries.

International Asian students are an increasing population within universities. A majority of these students come from countries such as China, India, and the Republic of Korea (Open Doors, 2012). A degree from an American university often raises international students' economic and social status in their home country (Mazzarol & Soutar, 2004). Therefore, the stakes are high for international Asian students to succeed academically. However, once these international Asian students come to the U.S., many often experience adjustment-related difficulties.

Many factors influence international students' college adjustment, but not all factors are well represented in the literature. Yoon and Portman (2004) have argued that previous studies have often concentrated on the effect of personal variables on adjustment, such as academic stressors (Misra & Costillo, 2004), social contact (Sandhu

& Asrabadi, 1994), and English proficiency (Hayes & Lin, 1994), while largely ignore the effects of environmental factors. One such environmental factor may be that of a familial chronic illness.

Empirical literature indicates that family functioning is negatively affected in times of a familial chronic illness (Hilton, Crawford, & Tarko, 2000; Patterson & Garwick, 1994; Steele, Tripp, Kotchick, Summers, & Forehand, 1997). Herein, many factors have been examined in association with family functioning, including those that relate to parental functioning and sibling functioning. I divided the empirically examined variables into two categories, which are *illness-related factors* (e.g., illness-related demands, Lewis, Hammond, & Woods 1993; phases of illness, Northouse, Katapodi, Schafenacker, & Weiss, 2012; uncertainty in illness, Gazendam-Donofrio, Hoekstra, van der Graaf, van de Wiel, Visser , Huizinga, & Hoekstra-Weebers, 2011) and *family-related factors* (e.g., family cohesiveness, Siminoff, Wilson-Genderson, & Baker, 2010; family adaptability; Majerovitz, 1995; illness-related communication avoidance; Donovan-Kichen & Caughlin, 2010; coping styles, Clarke, McCarthy, Downie, Ashley, & Anderson, 2009; role conflict, Christ, Siegel, & Sperber, 1994). All these studies have been done with family members who are physically close to the ill person. Out of all these empirically studied factors, I chose to hone in on those factors that had the most relevance to an adult college student population.

Empirical family literature from both Asian countries and U.S. indicates that despite cultural differences between Eastern and Western countries, the experience of a familial chronic illness might have some ubiquity when it comes to its effect on family functioning. In the current study, I chose to focus on the factors of role conflict (Christ,

Siegel, & Sperber, 1994; Kim & Given, 2008; Sales, 2003; Stephens, Franks, & Atienza, 1997), uncertainty in illness (Gazendam-Donofrio et al, 2011; Stewart & Mishel, 2000; Wonghongkul, Moore, Musil, Schneider, & Deimling, 2000) and illness-related communication avoidance (Donovan-Kichen & Caughlin, 2010; Zhang & Siminoff, 2003). Even though there may be distinct cultural differences in how these three variables may operate within Asian and domestic families, I tentatively speculated that these may be elements of the experience of familial illness that may be more similar than different across cultures for college student populations.

In addition, I chose these particular family and illness-related factors because these three variables are most connected to where college students are developmentally. When it comes to role conflict, college students (both international Asian and domestic students) are family members who are transitioning towards adulthood. However, they are not yet ready to take on all the responsibilities of adulthood (Arnett, 1994; Nelson, Badger, & Wu, 2004; Seiter & Nelson, 2011). When faced with a familial chronic illness, it may be challenging for college students to cope with the responsibilities of being a college student and being a family member at the same time. With regard to uncertainty in illness, the geographical distance and the unpredictability of the illness trajectory may increase these college students' own normative uncertainty. Finally, in terms of illness-related communication avoidance, research indicates that in times of a familial illness, adult family members (in both Asian families and domestic families) use illness-related communication avoidance in their interaction with each other to maintain status quo or lower distress levels connected to the illness (Caughlin, Mikuchi-Enyart, Middleton, Stone, & Brown, 2011; Ow & Katz, 1999). However, illness-related communication

avoidance also creates a situation where certain family members end up feeling left out and isolated from their families. In this case, college students may be the family members who are left out of the communication loop because of geographical distance. Moreover, college students themselves use communication avoidance (i.e., topic avoidance) in their day-to-day interaction with family members (Afifi & Afifi, 2009). They may use illness-related communication avoidance to maintain their own equanimity. However, by doing so, they may end up feeling isolated from their families. Therefore, I speculated that communication avoidance (whether family directed or self-directed) might be related to their college adjustment.

Importance of the Study

This study makes several unique contributions to the fields of psychology, thanatology (i.e., study of death and dying), and life-threatening illnesses. It also informs the practice for counseling psychologists while integrating empirical literature from different fields. In the following paragraphs, I articulate each of these contributions in turn.

The current study makes an important contribution in the field of psychology by filling a gap in the college adjustment literature. College student adjustment is a multi-dimensional psychological phenomenon that has been studied with a variety of normative and non-normative events. I added additional layers of complexity by examining college student adjustment in connection with familial chronic illness, an under-researched non-normative event, and residency status (i.e., domestic vs. international students).

Second, this study makes a contribution to the fields of thanatology and life-threatening illness because college students are an understudied population in both of

these fields. Researchers have often examined the psychological effects of the illness on family members who are either in the caregiving capacity (Blanchard, Albrecht, & Ruckdeschel, 1997; Mellon, 2002) or are proximally close to the family member facing the chronic illness (Compas et al., 1994; Davey & Davey, 2005; Davey, Tubbs, Kissil, & Niño, 2011). By examining the experience of familial illness for both international Asian and domestic students, and through my more specific focus on role conflict, uncertainty in illness, and illness-related communication avoidance, I take the first step toward exploring whether there are certain similarities in concern in times of a familial illness for college students, regardless of their residency status.

Third, the findings of this study inform the practice of counseling psychologists who work with students facing a familial chronic illness. Currently, few researchers have examined this population and, through this study I provided detailed empirical information related to the struggles of this population, allowing counseling psychologists to develop evidence-based, tailored interventions.

Finally, I examined literature from various fields (e.g., college student development, family studies, communication, and nursing) and created connections among the commonalities that emerged from these fields. For example, the fields of communication, family studies, and nursing all examine illness-related communication avoidance that occurred in times of a familial chronic illness. I reviewed the literature from these fields and integrated the information to see how it may be in effect for college students.

Statement of Purpose

There were three purposes of the current study. As there was little empirical and theoretical literature on college students facing a familial chronic disease, I first examined if there were possible differences that existed in college student adjustment with regard to residency status (i.e., international Asian vs. domestic). I then examined whether there were any differences in college adjustment between college students who had a chronically ill family member in contrast to those students who did not have a chronically ill family member, regardless of their residency status. Finally, I examined the associations between role conflict, uncertainty in illness, illness-related communication avoidance, and the overall college student adjustment for college students having a family member with a chronic illness, regardless of their residency status.

The findings of the current study could be utilized by counseling psychologists to gain a better understanding of the experiences of international Asian and domestic students who have a family member dealing with a chronic illness. The findings could also inform the creation of specific individual, group, psycheducational, and outreach interventions for international Asian students, domestic students, and for students who have a chronically ill family member.

Terminology and Concepts

In this study I use several terms to describe the experiences of college students in times of familial chronic illness. I define each of these terms below:

- *Family* is defined as “people who have a shared history and an implied shared future" (McGoldrick, Carter, & Garcia Preto, 2011, p. 1). In this study, I use the term family broadly to include family members from the extended family (i.e.,

grandparents, aunts, uncles, cousins) because Asians families typically consider these family members to be a part of the immediate family (e.g., Das & Kemp, 1997; Lee & Manning, 2001).

- *College student* refers to young adults aged 18-29 who are enrolled in an undergraduate or a graduate program at a university.
- I use Baker and Siryk's (1999) definition of *college student adjustment* as "how well a student is adapting to their college experience" (p. 4). Baker and Siryk (1999) view college student adjustment as a multifaceted phenomenon requiring adjustment to several demands that can be grouped into academic adjustment, social adjustment, personal-emotional adjustment, and institutional attachment.
- *Chronic diseases* are defined as "non-communicable illnesses that are prolonged in duration, do not resolve spontaneously, and are rarely cured completely" (CDC, 2009, p. 2).
- I use Kahn, Wolfe, Quinn, Snoek, and Rosenthal's (1964) definition of *role conflict*, described as the "simultaneous occurrence of two (or more) sets of pressures such that compliance with one would make more difficult compliance with other" (p. 16).
- I use Mishel's (1997) definition of *uncertainty in illness,* described as "a cognitive state created when a person cannot adequately structure or categorize an event because of a lack of sufficient cues" (p. 4).
- My definition of *illness-related communication avoidance* is adapted from Mallinger, Griggs, and Shields (2006). Illness-related communication avoidance

is when individuals perceive that they cannot openly discuss the details of a familial chronic illness with their family members.

Relevance to Counseling Psychology

This study fits well with the roles and themes espoused by counseling psychology. More specifically, my study connected most with the preventative and remedial roles (Gelso & Fretz, 2001). My topic of focus also fits in with Gelso and Fretz's (2001) unifying themes i.e., focus on person-environment interactions and concern for individual interest (Meara & Myers, 1999). Additionally, it contributes to the issue of internationalization, which is an emerging issue in the field counseling psychology. I also adhered to the scientist-practitioner model while developing my study; herein, research and practice came together to collaboratively inform each other. Moreover the findings can inform the work of counseling psychologists involved in a variety of roles across university campuses as clinicians, researchers, and administrators (Gelso & Fretz, 2001).

My focus on the experience of students who face familial chronic illness connects well with the preventative and remedial roles played by counseling psychologists. Herein, the findings of the present study may be used to forestall the development of problems or remediate the situation. For example, if my findings suggest associations between uncertainty in illness, illness-related communication avoidance, role conflict, and college student adjustment, counseling psychologists could use this information to inform the development and implementation of psychoeducational workshops for students experiencing chronic illness in their families (i.e. preventative role). In addition, the findings from the present study may provide useful guidance to clinicians working with

students who have presented in counseling due to a familial chronic illness situation. For example, if my findings indicate a negative relationship between uncertainty in illness and college student adjustment then counseling psychologists could collaborate with students to gain more information about the illness to lower their uncertainty (i.e., remedial role).

The current study connects most with the person-environment and concern for personal interests themes within counseling psychology. Meara and Myers (1999) indicated that counseling psychologists conceptualize clients through a developmental framework taking life transitions into account and viewing distress and crisis as opportunities for growth. My focus in this study is on how the environmental event of a familial chronic illness is experienced by college students who are in a rather distinctive developmental phase of life and adjusting to a unique environment (i.e., college or university campus). By studying this event in its broader developmental framework, my study starts to identify factors that play a role in the wellbeing of these students.

In the last decade, counseling psychology has been increasing its focus on internationalizing research and practice (Leung & Tsoi-Hoshmand, 2007). This study adds to this focus by examining the unique concerns of Asian international students who may be dealing with a familial chronic illness. If this study reveals differences between domestic and international Asian students, then the findings will indicate the need for counseling psychologists to use more tailored and culturally sensitive interventions in their clinical work with the international Asian student population. Furthermore, counseling psychologists may be able utilize these findings in their outreach work with international Asian students.

Finally, the scientist-practitioner model informed my critical thinking process throughout the development of this study. The scientist-practitioner model emphasizes an integrated approach to science and practice wherein each informs the other to generate the knowledge base applicable in the practice of psychology (Belar & Perry, 1992). In the current study, I used my thorough review of theoretical and empirical literature along with practical guidelines from the fields of family studies, health communication, and nursing to inform my choice of variables (i.e., uncertainty, communication avoidance, and role conflict) and populations (i.e., both domestic and international college students). To complete the scientist-practitioner loop, the findings of my study have implications for practical applicability wherein counseling psychologists can use these findings to develop more tailored interventions in their work with domestic and international students who are facing familial chronic illness.

CHAPTER II. REVIEW OF LITERATURE

Students face a variety of stressful experiences while in college (Lancaster, Melka, & Rodriguez, 2009; Smyth, Hockemeyer, Heron, Wonderlich, & Pennebaker, 2008). Having a family member with a diagnosis of a chronic illness (e.g., heart disease, stroke, cancer, diabetes, arthritis, Alzheimer's, dementia, chronic obstructive pulmonary disease, etc.) is a stressful experience, and college students (both international and domestic) may encounter such an experience during their college years. Researchers in the fields of family studies, communication, and nursing have examined how family members' adjustment is affected when they are dealing with a family member's chronic illness. However, this research has been completed with family members (i.e., adult caregivers, children, and adolescents) who are geographically proximal to their ill family member.

In this chapter, I begin broadly by offering a grounding of where college students are in their identity development. I then give a summary of the theory of emerging adulthood (Arnett, 1998; 2000; 2004; 2006) and its applicability to the domestic and international Asian student populations. I then examine similarities and differences across cultural settings that are of relevance during familial chronic illness. I next explore the experience of chronic illness and the challenges that chronic illness bring to the family

system. I also examine how overall family functioning is affected when families face a chronic illness. I then move into a more detailed examination of the three factors that emerge cross culturally and have an association with family members' functioning in the face of familial chronic illness. More specifically, these factors are: role conflict (e.g., Carton, 2000; Christ et al., 1994; Koerin & Harrigan, 2003), uncertainty in illness (e.g., Burman, 2001; Clarke-Steffen, 1993; Mishel, 1984), and illness-related communication avoidance (e.g., Caughlin et al, 2011; Davey & Davey, 2005; Zhang & Siminoff, 2009). I synthesize the scholarship and review empirical research that has been examined with these three variables using adult and child (i.e., typically children under 18 living in the home, but sometimes including young adult populations) samples. I end the sections for each of these three factors (i.e., role conflict, uncertainty in illness, illness-related communication avoidance) by offering empirically-based speculations about the college student population, including speculations specific to international Asian students. Finally, I bring together the literature on college student adjustment and familial chronic illness, and conclude with a summary of key findings followed by my research questions and hypotheses.

The transition from adolescence to young adulthood has been of great interest to researchers in human development (Hogan & Atone, 1986). Herein, famous researchers like Piaget and Erickson have given us stages that illuminate the pathway towards young adulthood. However, these stages are no longer the only way to conceptualize young adulthood. Hogan and Atone suggest that the transition toward young adulthood occurs on a variety of dimensions (e.g. physiological dimension, social dimension) and that the individual demographic transitions (e.g., leaving parental home and establishing an

independent residence, getting into a romantic relationship) now occur in different orders and at different times for different individuals. Additionally, cultural factors also influence the pathways toward young adulthood. One theory that highlights these cultural factors is Arnett's theory of emerging adulthood.

Theory of Emerging Adulthood

Arnett (2000; 2004; 2006; 2011) has pointed out that over the last fifty years certain demographic shifts have taken place in many post-industrial countries, such as the U.S. These demographic shifts include: effective contraception, uncoupling of sex and marriage, shifts in the age of marriage, and age of first-child birth have all led to the emergence of a new developmental period between the ages of 18 and 29. Tanner, Arnett and Leis (2009) labeled this developmental time span as "the period of emerging adulthood" and refer to the individuals within this span of life as "emerging adults" (p. 34). This developmental period often involves the acquisition of skills and knowledge along with maturation (Tanner et al., 2009). Arnett (2004) identified five qualities that are most prominent in this life phase more than at any other period of the developmental spectrum. These qualities are: identity exploration, instability, self-focus, possibilities, and feelings of being in between.

According to Arnett (2000), in the phase of emerging adulthood, identity exploration primarily takes place in the areas of love, work, and worldviews. In love, emerging adults become involved with different people and learn about the qualities that are most important for them in a partner (Arnett, 2004). Emerging adults also explore various vocational and educational possibilities that prepare them for work. Herein, they focus more on learning about their own abilities and interests (Arnett, 2004). Finally, in

terms of worldviews, active identity exploration within emerging adulthood often leads emerging adults to clarify their identities (i.e., they learn about who they are and what they want from life; Arnett, 2004).

Identity exploration in emerging adulthood is often marked by instability because, in the course of their explorations, emerging adults often experience many changes in areas such as romantic relationships, educational goals, or work goals (Arnett, 2004; Tanner et al., 2009). A major indicator of this instability is the number of times emerging adults change their place of residence. Most emerging adults change residences multiple times during these years, and most of these moves are in connection with love, work, or education (Arnett, 2004).

The period of emerging adulthood is also marked by a focus on oneself (Arnett, 2004). This time of life is the least structured and least bound by obligation towards others (Tanner et al., 2009). Therefore, emerging adults often have the opportunity to concentrate on gaining a more comprehensive understanding of their own selves by gaining a capacity for self-reflection (Arnett, 2004). This focus on the self enables them to lay down a foundation for their adult lives (Arnett, 2004). Lastly, emerging adulthood can be thought of as the age of possibilities, wherein many different futures remain open as a person's life path is still in flux (Arnett, 2004). Therefore, this is an age of "high hopes and great expectations" (Arnett, 2004, p. 16).

Arnett (1994; 2000) has demonstrated that emerging adulthood is the age of feeling in-between adolescence and adulthood. Herein, 60% of individuals between the ages of 18 and 25 years old and 30% of individuals in their early thirties perceive themselves as adults in some ways and not in others. In previous generations, certain

events such as finishing education, marriage, and parenthood were often associated with gaining the status of adulthood (Tanner et al., 2009). However, this is no longer the case. The subjective sense of making the transition into adulthood has now become a more gradual process, no longer marked by such events (Tanner et al., 2009). For many U.S. born emerging adults, the U.S. college experience and the college environment seem to be well suited for the expression of emerging adulthood (Tanner et al., 2009).

Theory of Emerging Adulthood in the U.S.

In the U.S., many individuals in the emerging adult age group move out of their parents' homes in the pursuit of educational opportunities (Furstenberg, 2010). Recent statistics on college student enrollment indicate that about 21 million college students enrolled in different degree granting postsecondary institutions across the U.S. (Knapp, Kelly-Reid, & Ginder, 2011). A proportion of these college students (45%) are also enrolled full time (Knapp et al., 2011). Researchers studying young individuals in the U.S. have now started referring to this developmental period as a distinct phase of life (e.g., Garcia, Reiber, Massey, & Merriwether, 2012; Nelson, Story, Larson, Neumark-Sztainer, & Lytle, 2008; Reinke, Eddy, Dishion, & Reid, 2012; Stone, Becker, Huber, Catalano, 2012; Torkelson, 2012).

In the last decade, the concept of emerging adulthood has entered research nomenclature and has become quite popular. Most recently, researchers have studied the specific experiences of emerging adults with regard to their psychological distress (Miller, 2011), substance use (Stone et al., 2012), casual sexual encounters (Garcia et al., 2012), sexuality (Torkelson, 2012), weight-related behavior change (Nelson et al., 2008), disruptive behavior, depressive symptoms, and adjustment (Johnson, Gans, Kerr, &

LaValle, 2010; Reinke et al., 2012). This phase of life is intriguing because young individuals often identify certain unique variables as their criteria for reaching adulthood.

Arnett (1994) examined college students' conceptions of the transition to adulthood and their own status as adults. The top three criteria that were viewed by U.S. young people as a mark of reaching adulthood were: (a) "accepting responsibilities for the consequences of one's actions," (b) "deciding on beliefs and values independent of parents and other influences," and (c) "establishing a relationship with parents as an equal adult" (p. 216). Only 23% of participants in Arnett's study indicated that they considered themselves to have reached full adulthood status, whereas two-thirds of the participants stated that they considered themselves to be adults in some respects and not in others (Arnett, 1994). Given that most participants in this study were European American and from a middle class socio-economic background, there may be questions about the generalizability of these findings.

Using a similar approach, Arnett (2003) studied the same questions regarding reaching adulthood with a more racially diverse sample (i.e., African Americans, Latin Americans, Asian Americans, and European American college students). Herein, Arnett found that these racially diverse participants also identified the same three indicators for reaching adulthood. However, there were some differences between ethnic groups. According to Arnett (2003), a majority of the European American and Asian American students indicated that they had feelings of being in-between. Conversely, this criterion was not highly endorsed by African Americans or Latin Americans. Students from the African American, Latin American, and Asian American ethnic groups also endorsed more criteria that reflected obligation and duty to family than did their European

American counterparts. Arnett (2003) noted that these findings of the racially diverse study needed to be viewed through the lens of a bicultural identity wherein individuals appeared to embrace the individualism of the American culture along with the communal values of family obligations and consideration for others. This bicultural identity stance is also useful when the phenomenon of emerging adulthood is examined in Asian countries.

Emerging adults in Asian countries grow up in cultures that emphasize collectivism and family obligations (Jensen, 2012). Herein, they do pursue identity exploration; however, this identity exploration occurs within the boundaries set by a sense of obligation towards others, especially to parents (Phinney & Baldelomar, 2011). Nelson et al. (2004) and Seitler and Nelson (2011) studied the occurrence of emerging adulthood with students living in China and India. Their findings indicated that emerging adults often rated group-oriented values such as "becoming less self-oriented and more other oriented", and "supporting parents financially" as essential markers for adulthood. Wu (2011) also found that in China young adults who: (a) came from an urban background, (b) whose parents were professionals themselves, and (c) those whose families were higher up on the socioeconomic ladder were all less likely to endorse marriage and parenthood as the criteria for adulthood. College student participants in Wu's study also indicated that being able to make decisions independently from parents was an important marker for adulthood. Making decisions independently is an important marker for young adults in both Eastern and Western cultures and it also speaks to the changes that occur within relationships between emerging adults and their family members (including parents).

Family relationships between young adults and other family members (especially parents) do undergo a change during the phase of emerging adulthood. Research suggests that young adults in Asian countries such as India and in the U.S. view familial relationships as highly important during this phase of life. For example, Fulgini and Pedersen (2002) empirically demonstrated that family obligation (i.e., family members feel a sense of duty to assist one another and to take into account the needs and wishes of other family members, including parents when making decisions) does go up in this phase of life for an ethnically diverse sample of young adults including East Asian, European Americans, Filipino and Latin Americans. Interestingly in this study, European American young adults reported the sharpest increase in their sense of family obligation even after family income level was controlled. Moreover, in their metanalysis Oyserman, Coon and Kemmelmeier (2002) found that both European American and Indian young adults were equally likely to help their families in cases of extreme need and when the request came from their parents. Both these studies speak to the importance of family in the life of emerging adults in both the U.S. and in Asian countries such as India. I now turn to examining the recent changes that have been taking place in the developing world and how these changes may be creating conditions conducive for the occurrence of emerging adulthood in certain parts of these developing societies.

Theory of Emerging Adulthood and Developing Nations

Arnett (2000) maintained that globalization, urbanization, and technological and economic advancements could be factors that herald the advent of emerging adulthood in developing nations. In recent times, some of Arnett's postulations have started gaining credence.

In terms of globalization, trade and immigration has led to the mingling of cultures (Arnett, 2002). In today's global world, adolescents and emerging adults seldom grow up knowing just one culture (Jensen & Arnett, 2012). Therefore, identity development in the current times is often more complex than in previous generations (Arnett, 2002; Jensen, 2012). With regard to urbanization, an increasing percentage of the world population (52%) is now choosing to live in urban rather than rural areas (The World Bank, 2012). These urbanized individuals are much more likely to come in contact with the values promoted by a global economy including post-materialistic values such as individual autonomy, independence, and self-fulfillment (Arnett, 2011; Douglass, 2007). Furthermore, urbanized individuals often have access to technology.

Jensen and Arnett (2012) indicated that the technological advancement of recent times (e.g., social networking sites, the media, and the internet) have increasingly led individuals from around the world to have interactions with individuals from diverse cultures. This interconnectedness and rapid communication through computer technology is especially accessible to those living in urban areas (Lloyd, 2005).

In the case of economic advancements, Kharas (2010) indicated that a large proportion of Asian households, specifically in India and China, are about to enter the middle-income bracket in the next ten years. Kharas (2010) indicated that currently 28% of the global middle class lives in Asian countries and this number will increase to 54% by 2020. According to Kharas (2010), one important value of this growing middle class is education. Their increased financial capability has enabled individuals from the middle income strata to send their children overseas to countries like the U.S. to gain a high

quality education that is often not available to them in their home countries (Choudaha & Chang, 2012; Najar, 2011).

In light of these global changes, Arnett (2002; 2011) proposed that now, more than ever, young people in the developing nations from the middle class-income bracket who do experience conditions conducive to emerging adulthood have a complex identity. Herein, the overall idea of emerging adulthood may be present but the way it plays out is with cultural overtones.

Identity and Individualism and Collectivism

In the field of psychology, researchers have often studied cultural differences between Eastern and Western countries through the lens of individualism and collectivism (Hofstede, 1980). Herein, the distinction between these constructs refers to the ways in which individuals relate to each other and experience social realities (Phinney & Baldelomar, 2011). According to Oyserman et al. (2002), the core element of individualism is the assumption that individuals are independent of one another. On the other hand, Oyserman et al. (2002) mentioned that the core element of collectivism is the assumption that groups bind and are mutually obligated towards one another.

Researchers have criticized the individualism-collectivism dichotomy (Phinney & Baldelomar; Raeff, 2006a, 2006b). Phinney and Baldelomar (2011) argue that although Eastern and Western cultures exhibit certain recognizable patterns they are by no means solely collectivist or individualist. They note that individual agency plays an important role in identity development across all cultures. Moreover, in a meta-analysis, Oyserman et al. (2002) demonstrated that European American college students were no more individualistic than the college students from African countries (e.g., Ghana, Nigeria) and

South American countries (e.g., Venezuela, Puerto Rico). In addition, they were also no less collectivistic than college students from Japanese or South Korean college students.

Fuller and Narasimhan, (2007) noted that young Asians are now more likely to develop a bicultural identity encompassing a local identity (i.e., an identity based on local circumstances and environment) along with a more global identity (i.e., a sense of belonging to the world culture). An example of this bicultural identity can be found in India, where well-educated young women who are part of a growing high-tech economic sector still prefer to have arranged marriages, in keeping with Indian traditions (Fuller & Narasimhan, 2007). In other words, although this population has the means to keep up with the economic and technological advancement in the world, they still remain connected with their cultural roots and traditions (Arnett, 2002; 2011). A population that may be an embodiment of this bicultural identity is that of international students from Asian countries.

International Asian students form a huge portion of the international student population currently studying in the U.S. (Open Doors, 2013). The Open Doors report (2013) indicated that about 819,644 new international students entered the U.S. in the 2012-2013 academic year to pursue higher education at various colleges and universities. This report indicated that a large number (401,625; 49% of total) came to the U.S. from Asian countries such as China (235,000), India (98,357), and South Korea (73,767).

The conditions posited by Arnett (2000) may be the circumstances in which these international Asian students may have grown up (i.e., the environmental milieu conducive to the development of emerging adulthood). For example, the world education services report (Choudaha & Chang, 2012) indicated that these students often come from

urban settings and the middle-income bracket (Hudzik & Briggs, 2012). Moreover, these students are technologically well connected (Obst & Forster, 2005). Additionally, for international Asian emerging adults, a way of providing financial support to their family is through gaining a quality education. International Asian students often view attending a college or university in the U.S. as an investment in future career prospects (Choudaha & Chang, 2012). Thus, for international Asian students, it is possible that the college experience may be viewed as an initiation into adult responsibilities along with being a time of exploration.

Criticism of the Theory of Emerging Adulthood

Scholars have presented three major criticisms of the theory of emerging adulthood. Brynner (2005) and Wyn and Woodman (2006) argued that emerging adulthood is actually a cohort or generational difference rather than a distinctive developmental phase. Moreover, researchers such as Hendry and Kloep (2007a, 2007b) argued that emerging adulthood is an age-based stage theory, which only describes human development rather than explaining it, thereby failing to meet the criteria of a good theory. Hendry and Kloep also suggested that emerging adulthood should be incorporated within a broader life span model that they have developed, which examines systemic mechanisms and processes that influence human transition and transformation. Finally, Lee (2012) criticized the theory of emerging adulthood by indicating that Arnett used a homogenous lens without regard to structural and individual differences, especially for those populations that are at the margins, such as youth from low-income households and ethnic minorities.

Summary

In summary, Arnett (2000, 2004, 2006) refers to the period of development between the ages of 18 and 29 years as emerging adulthood. This period is filled with identity exploration, wherein individuals in this age group actively explore various options in areas such as work, love, and worldviews. The theory of emerging adulthood is a U.S.-based theory; therefore, it is grounded in the context of U.S. culture. In the ten years since its inception, the theory of emerging adulthood has been used in empirical literature to study a variety of concepts with this age range with different ethnic groups in the U.S. Researchers have also begun exploring the concepts related to emerging adulthood in different Asian cultures (e.g., China, India). Certain income strata (i.e., the higher income class and the middle class) of these Asian countries are experiencing conditions conducive to the emergence of emerging adulthood. A point of connection here may be the idea of a bicultural identity.

In the current study, both U.S.-based ethnic populations and international Asian students may have the thread of bicultural identity in common. Moreover, for European American populations even though the pathway toward adulthood is individualistic, a part of this pathway is also about learning to become more focused on and considerate of others. Taken together, the emerging adulthood theory provides a developmental context that presents how young individuals advance towards adulthood.

In this study, I focused on emerging adults who chose to leave home to attend college. Emerging adults often move away from home in this life phase (Arnett, 2004; 2006). Their change of residence also leads to a shift in family relationships in which emerging adults have to learn to develop a balance between family connection and

independence (Johnson et al., 2010). Moreover, they must adjust to a new environment and new peer and academic relationships (Arnett, 2004). A way to understand how these transitions affect them is through studying their adjustment to college. My main focus in this review of college student adjustment is connection with family as my study examined the possible connections between issues related to familial chronic illness and college adjustment.

College Student Adjustment

Baker and Siryk (1999) defined college student adjustment as "how well a student is adapting to the demands of the college experience" (p. 4). They argued that, theoretically, college student adjustment is a multidimensional construct made up of four constructs: academic adjustment, social adjustment, personal-emotional adjustment, and institutional attachment. Academic adjustment refers to the various educational demands of the college experience (e.g., having academic goals, feeling a sense of academic purpose, and feelings of satisfaction with the academic environment; Baker & Siryk, 1999). Social adjustment refers to the interpersonal-societal demands inherent in the adjustment to college (e.g., relationships with other people on campus, dealing with feelings of being away from home and feelings of satisfaction with the social aspects of the college environment; Baker & Siryk, 1999). Personal-emotional adjustment refers to how the student feels psychologically and physically in college (Baker & Siryk, 1999). Finally, institutional attachment refers to students' feelings about being in college, in general, and about the particular educational institution they are attending (Baker & Siryk, 1999).

College Student Adjustment and Domestic Students

In a recent meta-analytic review, Credé and Niehorster (2012) provided empirical support for the argument that college student adjustment is in fact a multidimensional construct for domestic students. More specifically, they found that domestic students might adjust well to one domain of college adjustment (e.g., academic demands) and adjust poorly on another (e.g., social demands). Additionally, their review indicated that the college student adjustment constructs (i.e., academic, social, personal-emotional, and institutional attachment) had substantial predictive validity for grades and retention for college students. This review also pointed to the association between college student adjustment and family relationships for domestic students. Herein, Credé & Niehorster indicated that college student adjustment was positively associated with non-conflictual independence (i.e., relationship with parents that was free from guilt, anger and resentment).

Arnett (2006) indicated that for emerging adults the transition to college is a major milestone; however, this time of change and exploration may also be stressful for some emerging adults. The reasons why some students make the transition more easily than others still remain elusive (Arnett, 2006). However, in recent years a factor that seems to play an important role in this phase of life is the variable of family involvement. Family members (most often parents) continue to be actively involved with their college-going emerging adult, and this involvement, in turn, is associated with their college student adjustment (Sax & Wartman, 2010).

Family involvement has been studied in relation to college student adjustment. In a review by Sax and Wartman (2010) factors such as mutual reciprocity with family (Wintre & Yaffe, 2000), family cohesion (Johnson, Lavoie, & Mahoney, 2001), attachment to parents (Kalsner & Pistole, 2003; Holmbeck & Wandrei, 1993), and parenting styles that encourage autonomy (Strage & Brandt 1999;Taub, 1997) have all been positively linked with college adjustment. In the current study, I am interested in understanding how college student adjustment evolves in the face of a familial chronical illness.

College student adjustment has also been examined with the ethnic minority population in the U.S and the findings highlight the importance of families for ethnic minorities' college student adjustment (Rodriguez, Mira, Myers, Morris, & Cardoza, 2003). For example, in a study Han and Lee (2011) found that for Vietnamese American college students, higher levels of parental and peer attachment was associated with lower levels of depressive symptoms. Moreover, Fulgini, Tseng, and Lam (1999) found that feelings of familial obligation often underscored the academic motivation of adolescents from immigrant families.

The behavioral aspects of familial obligation may however, impede the academic adjustment for minority students. In a U.S.-based study of young adults (18-25 years of age) from the Asian Pacific, Latin American, African/Afro-Caribbean, and European backgrounds, Tseng (2004) found that the behavioral aspects of family obligation (e.g., interpreting for parents, caretaking for grandparents, looking after younger siblings, etc.) detracted the ethnic minority college student groups from achieving academic goals when compared to their European peers, which in turn affected their academic adjustment. In

Tseng's study, the factor of socioeconomic status played a major role in the amount of time that college students spent taking care of their families' behavioral demands. Moreover, a lack of family support also plays a role in college adjustment for domestic ethnic minorities. Dennis, Phinney, and Chuateco (2005) found that for domestic minorities a lack of family support was associated with a lower GPA and lower college adjustment. All of these studies highlight the different ways in which family relationships play a role in college student adjustment for domestic students, including ethnic minorities.

College Student Adjustment and International Asian Students

College student adjustment has also been studied within international student populations, and the findings indicate that international students face unique challenges when they move to the U.S. that appear to be connected with their college adjustment. Some of the common problems experienced by international students include: apprehension in their language proficiency (Hayes & Lin, 1994), academic stressors (Misra & Costillo, 2004), family-related pressures (Brinson & Kottler, 1995), and feelings of grief and loss associated with the loss of their social networks (Sandhu & Asrabadi, 1994). They may also go through a period of culture shock (Brown & Holloway, 2008) as they acclimatize to their new settings.

Researchers have specifically studied how international Asian students adjust to U.S. colleges (e.g. Hung, 2010; Kaczmarek, Matlock, Merta, Ames, & Ross, 1994; Lin & Yi, 1997). The findings of these studies suggest that international Asian students (vs. domestic students) express needing more information in the areas of academics and career (Leong & Sedlacek, 1989), experience higher levels of personal and emotional

problems (Cheng, Leong, & Geist, 1993), and score lower on social adjustment and institutional attachment (Kaczmarek et al., 1994). Abe, Talbot, and Geelhoed (1998) also found that international Asian students have more difficulty in adjusting to campus life than international students from non-Asian countries.

Even though there is a substantial body of research in the college student adjustment field for domestic students in connection with their family relationships. I struggled to find similar studies using international Asian student samples. There is; however, research on the value of family ties and the importance of family for Asian populations (see Chao & Tseng, 2002; Sung, 2000). Although it must be acknowledged that there are clear intergroup differences between families in different Asian countries and that there is a lot of diversity even between members of the same cultural groups (Chao & Tseng, 2002).

Critique of Studies in College Student Adjustment

There are two limitations in the studies that examine college student adjustment. In domestic college adjustment studies, researchers often choose to concentrate on one facet of college student adjustment (e.g., academic ability, social adaptation), which is an approach that may not always capture all the possible nuances and complexities of this concept. Another major limitation is the lack of college adjustment literature for the international Asian student population.

Summary

In summary, college adjustment research with European American and ethnic minority domestic students indicates that family relationships play an important role in this population's college adjustment. More specifically, for European American students,

relationships with parents free of guilt and resentment are positively associated with college student adjustment. Family relationships also play an important role for the domestic ethnic minorities. Herein, parental attachment is negatively associated with depression, familial obligation is negatively associated with academic adjustment, and lack of family support is negatively associated with overall college adjustment.

In order to gain a more comprehensive understanding of college student adjustment, in the current study I viewed and operationalized college student adjustment through the lens of complexity by using a measure that includes assessment of academic adjustment, social adjustment, personal-emotional adjustment and institutional attachment. In addition, I added the overlay of a familial chronic illness.

In the case of international Asian students, empirical research indicates that international Asian students have more problems adjusting to college then their domestic peers due to the enormous transitions that they make. In addition, there is little known about the interplay between family relationships and adjustment to college for the international Asian student population. Moreover, there is no literature examining their experience with familial chronic illness. These are major gaps in the college student adjustment literature, and I attempted to addresses these issues through the design and implementation of the current study.

Chronic Illness and Family Functioning

In this section, I start broadly by reviewing theoretical and empirical literature on chronic illness. I then go on to examine literature on family members' functioning when dealing with a chronic illness of a family member. I next go deeper into the factors that I examined in the current study, which are: role conflict, uncertainty in illness, and illness-

related communication avoidance. I review empirical literature on these three factors with adult caregiver and child populations and end each of these sections with speculation regarding its applicability to the college student population and also to the international Asian student population.

Prevalence of Chronic Illness

In current times, chronic illnesses seem to be prevalent in both the U.S. and around the world. In this study, I use the CDC definition to define the term "chronic illness." The CDC (2009) defined chronic illness as "non-communicable illnesses that are prolonged in duration do not resolve spontaneously and are rarely cured completely" (p. 2). Chronic illnesses account for the greatest number of early deaths and disabilities experienced worldwide (Patel, Chatterji, Chisholm, Ebrahim, Gopalakrishna, et al., 2011). Therefore, counseling psychologists will likely encounter both domestic and international college students who are facing a situation in which one or more of their family members has a chronic illness.

Research indicates that a family member's chronic illness often affects the entire family (Hilton et al., 2000; Patterson & Garwick, 1994; Steele et al., 1997). In a recent review, Knafl and Gilliss (2002) indicated that most of the studies focusing on family members' functioning in times of a family member's chronic illness fall under two clusters, which are: a descriptive cluster and an explanatory cluster.

In the descriptive cluster, researchers often describe or conceptualize how families make meaning of the chronic illness and how they experience the challenges of familial chronic diseases (Knafl & Gilliss, 2002). Herein, the reviewed studies revealed that, over time, families accommodate to the demands of the chronic illness into their

normal routines. According to Knafl and Gilliss, this accommodation usually occurs after the family members have constructed their own subjective meaning around the chronic illness. Knafl and Gilliss also identified how family members went on with their day-to-day lives in the context of the chronic illness. They indicated that families use strategies such as normalization and avoidance to minimize the disruption caused by the illness. They also indicated that, at certain points (e.g., during the initial diagnosis process, during the transition from the hospital to house care), family members are confronted with making major changes in their usual routines and facing the reality that they may have a radically different future. At these points, family members experience pervasive feelings of uncertainty related to the chronic illness.

In the explanatory cluster, Knafl and Gilliss (2002) reviewed studies that identified variables that explained the quality of family functioning in the context of a familial chronic illness. Herein, family stress was the most frequently studied variable, which was negatively associated with family functioning. As this review synthesized findings across all family members, individual nuances were not considered. Therefore, I also examined empirical literature that investigated the functioning of adult caregivers and children, including adolescents, facing a chronic illness of a family member.

With regard to adult caregivers, the empirical research indicates that when a family member faces a chronic illness, caregivers often experience emotional distress. Holmes and Deb (2003) examined the effects of major chronic illnesses (i.e., cancer, diabetes, arthritis, asthma, dementia, and cardiovascular disease such as stroke) on the psychological health of family members. They found that brain-related conditions such as dementia were associated with the highest levels of emotional distress in the family

followed by cardiovascular disease (e.g., stroke), arthritis, and asthma (Holmes & Deb, 2003). Furthermore, they found that the poor psychological health of one family member was associated with poor functioning for other family members (Holmes & Deb, 2003). In a meta-analysis Cabizuca, Mendlowicz, Marques-Portella, and Coutinho (2009) studied the prevalence rate of Post-Traumatic Stress Disorder (PTSD) among parents of children with chronic illnesses (e.g., cancer, Type I diabetes, epilepsy, and asthma). They found that the PTSD rates for parents of ill children were higher than those of parents with healthy children. Furthermore, the PTSD prevalence rates of mothers were higher than that of fathers, indicating that men and women may experience chronic illnesses differently. The gender difference in levels of stress was also found in children.

Research indicates that children confronting the chronic illness of a family member indicate distress and emotional problems (Kennedy & Lloyd-Williams, 2009; Sieh, Meijer, & Visser-Meily, 2010; Sieh, Meijer, Oort, Visser-Meily, & Van der Leij, 2010). Sieh, Meijer, and Visser-Meily (2010) longitudinally investigated the experience of children facing a parental chronic illness and found that children's reports of stress were positively related to the patient's depressive symptoms and that girls and women had higher levels of stress than did boys and men. Sieh, Meijer, Oort, Visser-Meily, and Van der Leij (2010) performed a meta-analysis of studies that assessed for both internalizing behaviors (i.e., depressive symptoms, anxiety, withdrawal, and physical complaints) and externalizing behaviors (i.e., aggressive and delinquent behaviors) exhibited by children of parents dealing with a chronic illness. They found that both types of behaviors were greater in non-cancer studies (vs. cancer), in samples that included younger (vs. older) children, in ill parents who were themselves younger, in families who

were from low socio-economic (vs, high socioeconomic) backgrounds, and for chronic diseases where the illness duration was longer (vs. shorter). Furthermore, greater effects of externalizing behavior problems were seen in studies with a higher percentage of ill mothers (vs. fathers) and families with single parents (vs. dual parents; Seih et al., 2010).

For adolescents, too, a familial chronic illness can bring about behavioral problems. In a review on adolescents and parental cancer, Osborn (2007) found that adolescents facing early-stage parental cancer often experienced internalizing problems (e.g., symptoms of depression and anxiety). Moreover, Grabiak, Bender, and Puskar (2007), who review research on adolescents facing parental cancer, found that adolescents often exhibited externalizing behaviors (e.g., aggression, arson and disruptive behaviors in home and school) when faced with parental cancer. In Grabiak et al.'s study, their behaviors were often associated with their parents' moods. Research also demonstrates that adolescents facing a family member's chronic illness, usually parents with cancer are better able than children to cognitively comprehend the illness and the treatment procedures (Faulkner & Davey, 2002). Furthermore, according Faulkner and Davey, adolescents are better able to identify the effects of the illness on their current and future family life and relationships.

In Asian cultures too chronic illnesses affect patients' family members, especially their caregivers. Lee and Bell (2011) qualitatively investigated the experience of Chinese caregivers and found that they often felt just as affected by the chronic illness (i.e., various types of cancer) as did the diagnosed patients. In Lee and Bell's study caregivers indicated a sense of helplessness and social stigma in the community as their two sources of distress. Lee and Bell also found patients and caregivers emphasized the need to

conceal emotion in connection to chronic illness. In another study, Rhee et al. (2008) quantitatively studied the experience of South Korean caregivers of cancer patients and found that the majority of the caregivers (67%) were experiencing depression. In this study, researchers found the effects were stronger when the caregivers were women, were the patient's spouse, were in poor health themselves, were feeling burdened by their caregiving responsibilities, and were adapting poorly to the caregiving duties.

Critique of Studies in Chronic Illness and Family Functioning

There are three limitations to the studies focused on chronic illnesses and family functioning. The illness experiences examined in these studies pertain to a wide range of illnesses; therefore, there may be certain nuances that may be unique to certain illness, which may have been lost in these studies. Many researchers grouped children's responses together with those of adolescents, so it is unclear how each psychological functioning variable may be associated with different developmental levels. Finally, there is a dearth of information in the Asian literature about perspectives from family members other than adult primary caregivers. I was not able to find any Asian-based studies that examined the experiences of family members such as children and adolescents during times of familial chronic illness.

Summary

In summary, chronic illnesses bring with them major changes in the family system. Adult, child, and adolescent members of the family are affected in myriad ways (e.g., psychologically and behaviorally) by the familial chronic illness. Adult caregivers and family members often indicate that they experience emotional distress when faced with a familial chronic illness. Furthermore, mothers and girls struggle more with

psychological issues. For children and adolescents, a chronic illness diagnosis of a family member, such as a parent, is associated with internalizing and externalizing problems. Finally, adolescents are better able to comprehend how the chronic illness affects their family relationships.

Studies from Asian cultures indicate that caregivers are just as affected by the familial chronic illness as patients; however, there may also be social stigma attached to chronic illness in these cultures and a strong need to conceal emotion in connection to the illness. Finally, similar to the gender differences on the experience of psychological distress in U.S., women caregivers in Asian countries indicate more psychological distress in the face of familial chronic illness than their male counterparts.

In the current study, I hypothesized that both domestic and international Asian students with family members having a chronic illness would exhibit lower levels of college student adjustment than their peers who do not have a family member with a chronic illness. My reasoning for this hypothesis is connected to aforementioned research suggesting that adult caregivers do experience emotional distress in connection to the familial chronic illness. Furthermore, as with children and adolescents, college students may experience feelings of stress in association with the chronic illness. College students, like adolescents, are probably able to recognize how the chronic illness affects their family. However, because of geographical distance they may struggle with how best to help their families.

Chronic Illness and Variability in Family Functioning

Although there is some consistency in the literature regarding the idea that family members struggle during times of familial chronic illness, there is also variability in how

individual family members function and adapt to the chronic illness. The empirical literature on chronic illnesses with adult and child members of the family has examined various factors that appear to interact with how well these family members face a familial chronic illness. I have divided these factors into family-related factors and illness-related factors.

In the category of family-related factors, scholarly literature has focused on a variety of factors and their associations with family functioning. These include: family cohesiveness (Siminoff et al., 2010), family adaptability (Majerovitz, 1995) and role conflict within families in times of a familial chronic illness (Christ et al., 1994; Edwards, Zarit, Stephens, & Townsend, 2002). Family cohesion (i.e., the degree of commitment, help and support family members provide one another) was negatively associated with depression for caregivers such as spouses and adult children dealing with a familial chronic illness of lung cancer (Siminoff et al., 2010). Family adaptability (i.e., the ability of a family system to change its power structures and roles in response to changing situational and developmental demands) served as a moderator for adult caregivers' level of depression (Majerovitz, 1995). Finally, in the case of role conflict, Edwards et al. (2002) found that employed caregivers' experienced role conflicts from balancing the day-to-day demands of their caregiving role and other life roles. According to Edwards et al, role conflict was also associated with worry, strain, depressive symptoms, and feeling overloaded.

The illness-related factors that have been examined so far include illness-related demands (Lewis et al., 1993), phases of illness (Northouse et al., 2012), uncertainty in illness (Edwards & Clarke, 2004; Gazendam-Donofrio et al., 2011; Mishel, 2007) and

illness-related communication avoidance (Davey et al., 2011; Donovan-Kichen & Caughlin, 2010). Researchers found that more frequent illness-related demands (in this case related to breast cancer) were associated with higher levels of spousal depression and lower levels of overall family coping behaviors (Lewis et al., 1993). In chronic illnesses, such as cancer, all phases of the illness (e.g., pre-diagnosis, diagnosis, treatment, survivorship, recurrence, and advanced stage) were negatively associated with the psychological wellbeing of adult caregivers (Northouse et al., 2012). In the case of uncertainty in illness, high levels of uncertainty in illness was associated with lower psychological wellbeing, including feelings of hopelessness and psychological distress for adult family members and children (e.g., Edwards & Clarke, 2004; Steele et al., 1997). Finally, high levels of illness-related communication avoidance were negatively associated with relationship satisfaction for partners (Donovan-Kichen & Caughlin, 2010) and positively with psychological distress including feelings of anxiety and isolation for children (Davey et al., 2011; Branstetter, Domain, Williams, Graff, & Piamjariyakul, 2008).

Based on these empirical findings from both the adult and children populations, I chose variables for the current study that may have the most relevance to college students. More specifically, I chose one variable from the family category and two from the illness category. From the family-related category, I selected role conflict and from the illness-related category, I selected uncertainty in illness and illness-related communication avoidance. Each of these variables is uniquely connected with the experience of college students.

Role conflict. Chronic illness of a family member brings role changes in the entire family. Major (2003) defined a role as "an expected pattern or set of behaviors associated with a particular position or status" (p. 47). However, when family members have to balance several different roles, they may experience role conflicts. A role conflict is defined as the "simultaneous occurrence of two (or more) sets of pressures such that compliance with one would make more difficult compliance with other" (Kahn et al., 1964, p.16).

The factor of role conflict may be of particular importance for the college student population as students' roles in their families are most fluid in this developmental phase of life (Garcia Preto & Blacker, 2011). Therefore, they may experience a unique push-pull between continuing on in their educational pathways and being there for their families. However, because there is limited research on college students' experience of role conflict in the context of a familial chronic illness, I offer information regarding how role conflict appears to function for distal and proximal family members as well as for adults and children and adolescents. I also offer a brief review of role conflict as it is experienced within Asian cultures.

The National Alliance for Caregiving and AARP (2004) indicated that around 6.7 million adults in the U.S. participate in long distance caregiving, usually for a family member such as a parent. Schoonover, Brody, Hoffman, and Kleban (1988) studied long-distance caregiving and defined it as caring for someone (e.g., aging parents) who lived more than 50 miles away. They called the 50-mile distance the "threshold point at which visiting and face-to face interaction between children and elderly parents decreases significantly" (p. 475). Long-distance caregivers face challenges especially around

assessing the needs of the ill family member (Koerin & Harrigan, 2003). Koerin and Harrigan (2003) note that critical events such as a hospitalization may provide obvious indicators of need; however, family members also experience more gradual decline, which may be hard to assess from a distance. Moreover, they found that the care receiver (e.g., an aging parent) may not want to worry their geographically distant caregiver (e.g., adult children), and consequently may not always disclose their health status or health needs (i.e., communication avoidance) to them. Conversely, sometimes other relatives or even the care receiver might exaggerate the situation (Carton, n.d.) leading to a lack of clarity around health needs. This lack of clarity, coupled with the added stress of travel associated with long-distance creates intense role conflicts for long distance caregivers who are employed or play other roles (Hooyman & Lustbader, 1986; Illardo & Rothman, 1999; Koerin & Harrigan, 2003).

Empirical literature has indicated that proximally close adult caregivers also face role conflict when they are taking care of a chronically ill family member and are also employed. Hoskins et al. (1996) longitudinally followed husbands of women diagnosed with breast cancer and found clear evidence that the women's cancer affected husbands' job performance. In another study, Edwards, et al. (2002) found that for caregivers who were employed, their employee role did not automatically lead to conflict with their caregiver role; however, experiences that caused worry, strain, and conflict in the employment role contributed to role strain in the caregiver role subsequently leading to depression. Similarly, Stephens, Atienza, and Franks (1997) found that employed women who were also caregivers for parents experienced a "negative spillover" between the two roles (i.e., employer and caregiver). Herein, a spillover effect was defined as the

possibility of the thoughts, feelings, and experiences of one role leaking into those of another role (Stephens et al., 1997). This negative spillover was inversely associated with wellbeing. Moreover, the researchers found that similar to Edwards et al. study, during times when stress from one role colored a caregiver's thoughts and experiences in another role, the caregiver experienced more symptoms of depression. Lastly, adult caregivers acknowledged that there were benefits and challenges associated with playing the employer and caregiver role simultaneously.

Scharlach (1994) interviewed caregivers who were also employed full-time and found that these caregivers identified positive aspects (e.g., satisfaction about making a positive contribution to someone's life) and negative aspects (e.g., decreased quality of care) associated with these different roles. The participants also acknowledged that the two roles gave them an opportunity to compensate for the limitations experienced in each role individually.

When faced with a familial chronic illness, children and particularly adolescents experience a shift in their roles. Most research on children's experience of role changes has been conducted with those experiencing parental cancer (e.g. Christ, Siegel, & Sperber 1994; Compas et al., 1994; Compas et al., 1996; Hilton & Elfert, 1996). In a qualitative study, Davey and Davey (2005) found that in families with a parental chronic illness, adolescents often took on day-to-day responsibilities such as shopping for groceries, taking care of younger siblings, and vacuuming. In another study, Christ et al. (1994) found that adolescents felt ambivalent about the role changes that occur in times of a familial chronic illness. More specially, the findings indicated that the role demands

interfered with the adolescents' activities outside the home (e.g., sports, extracurricular activities), which led to the feelings of ambivalence among the adolescent participants.

Adult caregivers of chronically ill family members in Asian countries indicate that they, too, experience role conflicts, especially if they are employed women. In a cross-sectional study, Ho, Chan, Woo, Chong, and Sham (2009) found that in Hong Kong women are often expected to play the role of caregivers to the older adults in the family. The caregiver burden (i.e., perceptions of multiple dimensions of strain) was associated with health issues such as weight loss, symptoms of anxiety and depression, and poorer overall quality of life in comparison to non-caregivers. As for children and adolescents facing a familial chronic illness in Asian countries, I could not find any empirical evidence of research studies that were relevant to this population when it came to the experience of role conflicts or role changes in times of a familial chronic illness.

Critique of studies in role conflict. There are three main limitations of studies that examine role conflict. Most of the literature focused on family members experiencing cancer; therefore, these findings may not be applicable to family situations involving other chronic illnesses. Some of the empirical literature examined included qualitative studies, which raises the question of generalizability of findings to a broader population. Only one empirical study examined role conflicts in Asian cultures; therefore, given the diversity of Asian cultures these findings may not be generalizable to other Asian populations. Finally, I could not find any studies that examined or discussed the changes in roles and routines that Asian children and adolescents experience when a family member is facing a chronic illness.

Summary. In summary**,** when faced with the chronic illness of a family member, families often undergo role restructuring. If family members play multiple roles, then they may experience role conflicts and role spillover. However, adults also report positive aspects of caregiving, including making a positive contribution to the life of the patient and getting a chance to compensate for limitations experienced in other roles. In times of a familial chronic illness, adolescent family members often take on more responsibilities in the family and may experience ambivalence about those added responsibilities. In Asian cultures, employed women caregivers often face role conflicts between their employee and caregiver roles.

Extrapolating from these empirical findings, I speculated that college students' experience of role conflicts in the context of a familial chronic illness would be negatively associated with college student adjustment. Herein, I was particularly interested in the conflict that arose between the roles of "college student" and "family member." College students (particularly domestic students) like adult caregivers may be interested in participating in the day-to-day caregiving of the family member. However, like adolescents there may be ambivalence around taking on responsibilities. Moreover, their family member role in such times may interfere with their social and academic demands in college. Therefore, domestic students may experience a role conflict between their college student role and family member role.

In the case of international Asian students, cultural traditions of solidarity and commitment to family (Saraswathi & Ganapathy, 2002; Seiter & Nelson, 2011) may play a role in them wanting to be there for their families; however, geographical distance may hinder the quality and quantity of the support that they may be able to provide. Therefore,

they too may experience a role conflict between their college student role and family member role. As seen in previous research role conflict is associated with lower well-being; therefore, role conflict may have negative links to college student adjustment for college students (i.e., international Asian and domestic students).

Uncertainty in illness. Uncertainty in connection to the experience of a familial chronic illness is a widely recognized phenomenon. Mishel (1997) developed the concept of uncertainty in illness and defined it as "a cognitive state in which a person is unable to structure or categorize an event because of a lack of sufficient cues" (p. 4). She proposed that uncertainty is present throughout the events of diagnosis, treatment, and even after treatment (Mishel, 1981, 1984; 1988). Uncertainty in illness is an important concept because most families enter the world of chronic illnesses without a psychosocial "map" or understanding that they need to start mastering the challenges brought on by the chronic illness (Rolland, 2005).

The factor of uncertainty in illness may be of particular importance for the college student population as geographical distance between college students and their ill family member may leave them unable to access information about their ill family member when they need it, fueling the uncertainty of the illness trajectory. Moreover, college students are developmentally in a phase filled with normative uncertainty (i.e., emerging adulthood, Arnett, 2004). For them, uncertainty in illness may add on to this normative uncertainty. However, because there is limited research on college students' experience of uncertainty in illness in the context of a familial chronic illness, I offer information regarding how uncertainty in illness appears to function for proximal family members

(i.e., adults and children). I also offer a brief review of uncertainty in illness as it is experienced within Asian cultures.

Uncertainty in illness occurs in times of a chronic illness because chronic illness trajectories are rarely predictable (Mishel, 1981; 1984; 1988). This lack of predictability often leads to frequent appraisal and reappraisal of the illness situation by family members. With this idea in mind the two types of appraisals described by Lazarus and Folkman (1984) in their theory of stress and coping may be particularly relevant to the illness situation. More specifically, Lazarus and Folkman describe the appraisals of harm/loss (i.e., where damage has already occurred) and threat (i.e., where damage is yet to occur but is anticipated). They noted that frequent appraisals and reappraisals of a situation may generate conflicting thoughts, feelings and behaviors paralyzing an individual's ability to decide on a course of action. The frequent appraisals may also raise levels of uncertainty. According to Lazarus and Folkman, uncertainty can have an immobilizing effect on anticipatory coping processes wherein the coping strategies for anticipating an event's occurrence are often incompatible with the strategies needed to anticipate an event's non-occurrence. For example, in an illness scenario family members may need to acknowledge certain losses related to the chronic illness and mourn them; however, new medical procedures may also raise their hopes leaving them in a frequent state of uncertainty.

With regard to empirical attention, uncertainty in illness has been studied with various family members (e.g., Mishel & Murdaugh, 1987; Steele et al., 1997; Wright, Afari, & Zautra, 2009) including husbands (Northhouse, Jeffs, Cracchiolo-Caraway, Lampman, & Doris, 1995) and parents (Cohen, 1993; Mishel, 1983; for a review, see

Stewart & Mishel, 2000). Higher levels of uncertainty have been linked with poorer adjustment for adult family members such as parents. In a longitudinal study, Carpentier, Mullins, Chaney, and Wagner (2006) found that among parents of children with diabetes, those who had high levels of uncertainty also experienced high levels of psychological distress. Carpentier et al. (2006) also indicated that high levels of uncertainty in illness continued to be a robust predictor of psychological distress for parents over time.

Higher levels of uncertainty in one family member may be associated with the uncertainty experienced by other family members in a kind of "contagion" effect. In another study, Fedele et al. (2011) found that parental experience of uncertainty in illness had a significant association with both distress among parents and depressive symptoms among child and adolescent patients. They also found that parental uncertainty seemed to be more predictive of both parental and patient distress as the patient's age increased (Fedele et al., 2011).

Child participants also indicated experiencing uncertainty in times of a chronic illness in the family. Steele et al. (1997) examined the relationship between parental and child uncertainty around a familial chronic illness (i.e., hemophilia and human immunodeficiency virus) and found that children's levels of illness uncertainty were interrelated with their family members' levels of illness uncertainty. Moreover, in children, higher levels of uncertainty were associated with feelings of anxiety and depression

Empirical literature on adults focusing on familial chronic illness in Asian cultures also suggests an association between higher levels of uncertainty and feelings of anxiety. Two studies from Taiwan (Mu, Ma, Hwang, & Chao, 2002; Mu, Ma, Ku, Shu,

Hwang, & Kuo, 2001) examined the associations between uncertainty in illness and anxiety for parental caregivers facing the chronic illness of a child (i.e., different types of childhood cancers). Findings from both studies indicated that feelings of uncertainty were positively associated with feelings of anxiety for both mothers and fathers. As for children and adolescents in Asian countries, I could not find any empirical studies that were relevant to this population when it came to the experience of uncertainty in illness in the context of a familial chronic illness.

Critique of studies in uncertainty in illness. The aforementioned studies do have certain limitations. These studies mostly report uncertainty levels of immediate family members who are an integral part of the disease episode, such as parents who are probably also primary caregivers. There seems to be no pertinent literature on uncertainty in illness experienced by other family members who may not be involved in caregiving and may not interact daily with the diagnosed family member. Also, there are few studies on uncertainty in illness in Asian cultures, and none of the existing literature on Asian families focused on the uncertainty in illness experienced by children in families facing a familial chronic illness. Therefore, findings with U.S. family samples may not be generalizable to Asian families.

Summary. In summary, uncertainty in illness is a pervasive part of the chronic illness trajectory. Furthermore, it has been associated with feelings of distress and anxiety in family members both in the U.S. and in Asian cultures. Children, too, experience uncertainty, and their uncertainty is often linked to the uncertainty levels experienced by other family members. Overall, existing literature indicates that uncertainty is an

important variable for families facing chronic illness and the experience of uncertainty is also a predictor of psychological functioning.

Extrapolating from these empirical findings, I speculated that college students' experience of uncertainty in illness in the context of a familial illness would be negatively associated with college student adjustment. Finch and Gibson (2009) found that young people often need both verbal and non-verbal communication cues to make sense of an illness experience. As college students are not present for the day-to-day caregiving of the patient, they may not have access to all available verbal and non-verbal communication cues to make sense of the illness episode. This communication deficit may increase their levels of uncertainty, which has been associated with poorer wellbeing outcomes. Moreover, Arnett (2004) has argued that young people struggle with uncertainty in the emerging adulthood life phase. In times of a familial chronic illness, this normative uncertainty may increase further. Therefore, uncertainty in illness may have a negative association with college student adjustment for both international Asian and domestic students.

Illness-related communication avoidance. Illness-related communication avoidance is a phenomenon when individuals perceive that they cannot openly discuss the details of the familial chronic illness with their family members. I see illness-related communication as being a type of communication avoidance or topic avoidance. Communication avoidance occurs when individuals decide not to discuss concerns or withhold details around particular issues (Goldsmith, Miller, & Caughlin, 2007).

The factor of illness-related communication avoidance may be of particular importance for the college student population. College students are known to use

communication avoidance in their day-to-day interactions with their family members (Afifi & Afifi, 2009; Guerrero & Afifi, 1995). This normative avoidance may turn to illness-related communication avoidance in the face of a familial chronic illness.

However, because there is limited research on college students' experience of illness-related communication avoidance in the context of a familial chronic illness, I offer information regarding how illness-related communication avoidance functions between proximal family members as well as for adults and children and adolescents. I also offer a brief review of illness-related communication avoidance as it is experienced within Asian cultures.

From a theoretical standpoint, both Miller (1987) and Lazarus and Folkman (1984) offer valuable information regarding communication avoidance in stressful life situations. More specifically, Miller indicated that when a situation is uncontrollable a strategy of information avoidance and distraction (i.e., high blunting) works better than a strategy of information seeking and non-distraction (i.e., low blunting). Herein, individuals who use information avoidance and distraction may experience less stress and lower physiological arousal than those who use other coping approaches. However, communication avoidance can be both threat inducing and threat reducing. According to Lazarus and Folkman (1984), avoidance can be threat inducing as it may raise the ambiguity level surrounding any situation and limit one's sense of control. On the other hand, they note that it could be threat reducing wherein, individuals may seek out alternative explanations about what may be happening.

Empirical qualitative literature indicates that when facing a familial chronic disease, illness-related communication avoidance does occur among adult family

members (Caughlin et al., 2011; Goldsmith, Miller, & Caughlin, 2007), and it is associated with poor emotional outcomes for family members (Zhang & Siminoff, 2009). Herein, adult family members tend to use communication avoidance to (a) minimize the distress caused by the chronic illness (Caughlin et al., 2011; Zhang & Siminoff, 2009), (b) minimize conflictual interactions among family members (Armistead, Klein, & Forehand, 1995), and (c) maintain hope in a distressing situation (Caughlin et al., 2011). However, Caughlin et al. (2011) found that communication avoidance often left certain adult family members feeling left out and isolated from the family. Moreover, Zhang and Siminoff (2009) found that when family members (either the patient or the caregiver) were depressed in connection to the familial chronic illness, communication became even less possible because family members did not see the point of revealing their feelings to anyone else which in turn increased the distress within the relationship.

As for children and adolescents, research suggests that when faced with familial chronic illness, children and adolescents do not tend to use communication avoidance in their interactions with their parents per se; however, they are often left out from the illness related-communication loop. Davey et al. (2011) qualitatively studied children and adolescents who had a parent with breast cancer and found that these participants did not feel included in the illness-related communication about their parents' cancer. In fact, children and adolescents felt overlooked by the medical staff and by their own families.

Compas et al. (1994) also found that adolescents, more than younger children, used avoidance (e.g., spending time away from home or with friends) as a way of coping with their familial illness, especially parental cancer. Davey et al. (2011) offered similar results in that they found that their participants often played sports or video games to

avoid thinking about family members' chronic illness. However, these strategies may not be adaptive for adolescents; Compas et al. (1994) indicated that an overreliance on avoidance was positively associated with poorer psychological outcomes for adolescents.

Adolescents and children may also initiate illness-related communication avoidance in order to shield family members from experiencing distress. In a review of the effects of parental cancer on the family, Weaver, Rowland, Alfano, and McNeel (2010) found that family members were frequently unaware of adolescents and children's elevated levels of distress both during and after the illness episode. Moreover, Davey and Davey (2005) found that adolescents often tried to protect family members by hiding their own feelings of distress.

Empirical literature focusing on familial chronic illness and children in Asian cultures found that in times of a chronic illness in the family (i.e., childhood cancer), Chinese parents often do not reveal information about the illness to their children in order to protect their children (Ow & Katz, 1999). In addition, children themselves kept certain information from their parents.

Critique of studies in illness-related communication avoidance. There are three primary limitations of the findings of the studies focused on illness-related communication avoidance. Most of the empirical literature focused on family members experiencing cancer, and these findings may not be generalizable to other chronic illnesses. Moreover, many of the empirical studies were qualitative in nature, thus bringing into question the generalizability of findings to a broader population. Finally, only one empirical study examined communication avoidance in Asian cultures; therefore, this empirical study may not be generalizable to other Asian countries.

Summary. In summary, illness related communication avoidance often occurs in times of a familial chronic illness. Family members use communication avoidance to minimize distress, avoid conflict, and maintain hope in the family. However, it also creates further distress in relationships. Adolescents and children often perceive that they are left at the peripheries when faced a familial chronic disease and may experience feelings of distress that they do not reveal to their family members. Moreover, older adolescents may use behavioral avoidance strategies in order to not think about the familial chronic illness. However, an increased use of behavioral avoidance on the part of adolescents is associated with increased distress.

Extrapolating from these empirical findings, I speculated that college students' illness-related communication avoidance in the context of a familial illness would be negatively associated with college student adjustment. Across Asian and domestic families, family members may be reluctant to openly communicate about the illness with the college student because know that the college student would not in a position to provide instrumental support to the family. They may also not want to distress the college student. Moreover, college students may themselves avoid discussing the illness with their families as focusing on the familial illness may be emotionally threatening. As seen in previous research, illness-related communication is associated with poorer psychological outcomes. Therefore, illness-related communication avoidance may have a negative association with college student adjustment for college students (both international Asian and domestic students).

Summary of Chronic Illness and Variability in Family Functioning

In summary, many families around the world go through the experience of having a family member with a chronic illness. These families often experience significant challenges in the face of the chronic illness, which brings about changes in the entire family system. Family members react differently to these changes, and overall family wellbeing is often affected in connection with the chronic illness of a family member. Many factors are associated with the variability in the family member's responses to this unique situation, and these factors can be divided into family-related factors and illness-related factors.

After a thorough examination of the adult, children, and adolescent literature in both the U.S. and Asian countries, I selected three factors that were most salient to the college student population. These include role conflict, uncertainty in illness, and illness-related communication avoidance. These factors have been associated with the functioning of family members in both the U.S. and Asian cultures. I hypothesized that each of these three factors would be negatively associated with students' overall college adjustment.

College Student Adjustment and Familial Chronic Illness

My review of the empirical literature revealed only two studies focused on the experience of college students with a family chronically ill family member. More specifically, McPhail (2014) qualitatively examined the experience of a familial chronic illness (i.e., parental cancer) for young adults in college. She identified both positive and negative factors connected with this non-normative event. On the one hand, participants

grew closer to their families and became more health conscious and, on the other hand, they faced challenges in their social life and in their academic work.

Schmidt and Welsh (2010) also examined college student adjustment and overall wellbeing in times of a familial chronic/terminal illness. They studied domestic undergraduate college students (N = 171, aged 21 to 24 years) and their results indicated that all the college students who were facing a chronic/terminal illness of a family member had poor college adjustment (i.e., they mentioned feeling burdened). However, students who used emotion-focused strategies (i.e., behavioral disengagement) to cope with the illness exhibited more negative affect than their peers who did not use behavioral disengagement. Additionally, there were some students who were able to maintain some positive affect in the face of such an event and they appeared to be able to do so because they did not perceive that they were close to their ill relative.

Both of these studies have certain limitations. McPhail's (2014) study had a majority of female participants who had a parent with cancer, limiting the generalizability of the findings to other chronic illnesses and other populations. Schmidt and Welsh (2010) only concentrated only on the experiences of the undergraduate population without indicating why graduate students were excluded. In the current study, I examined the college student adjustment of both undergraduate and graduate students. My rationale for including both these populations was that according Calvert (2014) 33% (about one third) of undergraduate college students are 25 years and older. Moreover, she indicated that now more than ever undergraduate students juggle employment and educational responsibilities like graduate students. Therefore, there may be similarities in their concerns around college student adjustment.

Schmidt and Welsh (2010) also created their own measure of college adjustment, which included only nine items. Their rationale for doing so was that the more popular measure, the Student Adjustment to College Questionnaire (Baker & Siryk, 1999) was too long. Though they did provide the reliability information for their college adjustment measure, they did not provide any sample items. Their use of a measure with only nine items may not allow for an accurate assessment of the nuanced construct that is college adjustment.

In the current study, I expanded upon the work of McPhail (2014) and Schmidt and Welsh (2010) by focusing on the experiences of both domestic and international Asian students, both males and females, and students with and without a chronically ill family member. In the current study I considered certain variables in line with the approaches taken by Schmidt and Welsh (2010). For example, I chose to include illness-related factors like the type of illness and time since the diagnosis in my demographic/background questionnaire. Aligned with the college student adjustment literature, I examined how familial factors such as parental education, parental employment, and socioeconomic status may play a role in college student adjustment. I was also interested in understanding the complexity individual variables such as sex, relationship status (e.g., being single, married, divorced), living status (e.g. living alone, living with roommates) and their connection with college student adjustment especially when faced with a familial chronic illness. Therefore, I included these factors in the current study.

In addition, and beyond past research, I was interested in understanding the college student adjustment of international Asian students who had a chronically ill family member. To the best of my knowledge, no measures exist that assess the variables of role conflict, uncertainty in illness, and illness-related communication avoidance in Asian international college students. Therefore, I conducted a pilot study to ensure that the measures that I utilized in this study were suitable and applicable for international Asian students (see Appendix A).

Summary, Research Questions, and Hypotheses

The current study served three purposes. The first purpose was to examine potential differences that exist in college student adjustment with regard to residency status (i.e., international Asian vs. domestic students). The second purpose was to examine whether there were any differences in college adjustment with regard to illness status (i.e., college students who had a chronically ill family member in contrast to students who did not have a chronically ill family member), regardless of residency status. Finally, the last purpose of the current study was to examine the associations between role conflict, uncertainty in illness, illness-related communication avoidance, and the overall college student adjustment of students who had a family member with a chronic illness, again regardless of their residency status.

RQ1. Does college student adjustment (i.e., academic adjustment, social adjustment, personal-emotional adjustment, and institutional attachment) vary based on residency status (i.e. international Asian vs. domestic students), regardless of familial illness status?

H1: Domestic students will score higher on all four domains of college student adjustment (i.e., academic adjustment, social adjustment, personal-emotional adjustment and institutional attachment) than international Asian students.

RQ 2. Does college student adjustment (i.e., academic adjustment, social adjustment, personal-emotional adjustment and institutional attachment) vary based on familial illness status (having a chronically ill family member vs. having no chronically ill family members), regardless of residency status?

H2: Students (i.e., international Asian and domestic) with a chronically ill family member (i.e., the illness group) will score lower on all four domains of college student adjustment (i.e., academic adjustment, social adjustment, personal-emotional adjustment and institutional attachment) than those without a chronically ill family member (i.e., the non-illness group).

RQ 3. Are role conflict, uncertainty in illness, and illness-related communication avoidance associated with overall college student adjustment for the illness group, regardless of residency status?

H3. Role conflict, uncertainty in illness, and illness-related communication avoidance will be negatively associated with overall college student adjustment for the illness group.

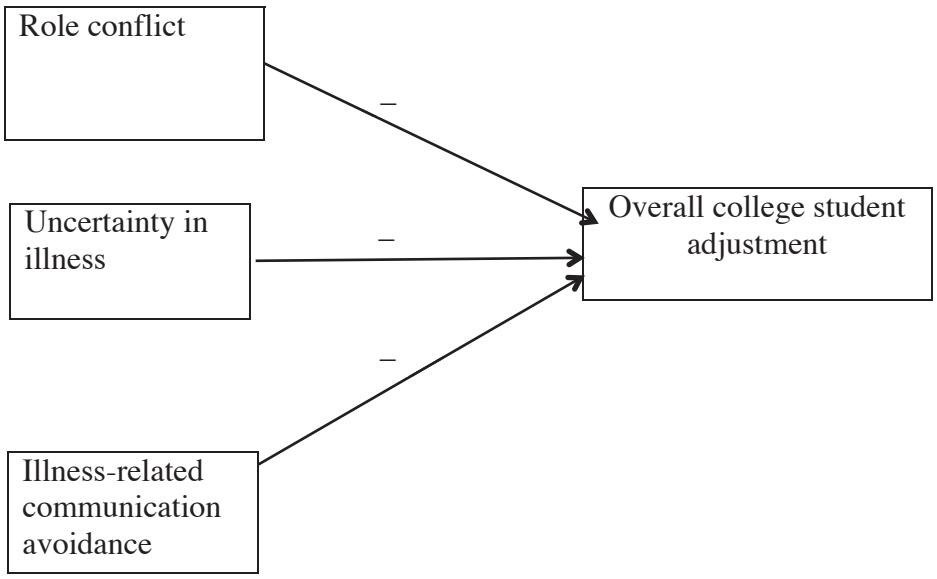

Figure 1.A diagrammatic representation of RQ 3.

RQ 4. Are the relationships between residency status (i.e., international Asian vs. domestic) and each of the family and illness-related variables (i.e., role conflict, uncertainty in illness and illness-related communication avoidance) making a unique contribution to overall college student adjustment above and beyond the contribution of each of these three variables individually?

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CHAPTER III. METHOD

In this chapter, I describe the participants, measures, and procedure for the current study. First, I provide a detailed description of the sample size and of the demographic information of the final sample. Next, I offer a description of the measures used in the current study. All participants in the current study responded to a demographic questionnaire, a college student adjustment measure, and a role conflict measure. Participants who indicated having a chronically ill family member additionally responded to an illness-related demographic questionnaire and two other measures, an uncertainty in illness measure, and illness-related communication avoidance measure. At the end of the chapter, I describe the procedures I used for participant recruitment and data collection at the two Midwestern universities where I collected the data.

Participants

The participants in this study were college students from Purdue University and University of Illinois, Urbana Champaign (UIUC). Both universities have a large international Asian student presence (Division of Management Information, 2014; Purdue Data Digest, 2013). I performed a one-way multivariate analysis of variance (MANOVA) to investigate if scores on the primary variables (i.e., academic adjustment, social adjustment, personal-emotional adjustment, institutional attachment, overall college

student adjustment, role conflict, uncertainty in illness, and illness-related communication avoidance) varied as a function of school membership. Herein, no significant differences emerged, $F(3,145) = 1.20$, $p = .31$; Wilk's $\Lambda = 0.98$, partial $\eta^2 = .02$, and, therefore, I combined the two samples and performed all subsequent analyses using the combined data set.

Individual demographic information. The final sample for the current study included 232 students. The mean age was 20.80 years ($SD = 3.04$ years), the median age was 21 years, and the modal age was 20 years. A majority of the participants were domestic students (63.4%), from a European American background (79.6%). Among international Asian students, over three-fourths indicated they were from either China (54.1%) or India (29.4%). Finally, in terms of sex, 64.2% were women and 35.7% were men. Table 1 displays sex, residency status, country of origin (for international Asian students), race/ethnicity-related data (for domestic students) and year in college (for all students). This table also provides comparisons of the final sample to the student populations at each institution. In the current study, 144 participants (62.06%) were undergraduate students. The remaining 88 participants (37.9%) were graduate students.

Table 1
Demographic Variables Spilt by Schools (n = 232)

Variables	Yes	%	Purdue (N = 36,774)	UIUC (N = 41,505)
Sex				
Female	149	64.2	42.3	44.8
Male	83	35.7	57.6	55.1
Residency Status				
International Asian	85	36.6	17.8	17.9
Domestic	147	63.4	78.0	77.8
Race/Ethnicity				
African American	4	2.7	3.3	4.9
Asian American	7	4.8	4.7	12.9
Biracial/Multiracial	8	5.4	1.6	2.2
European American	117	79.6	62.6	50.2
Latino/a American	6	4.1	3.5	7.3
Middle Eastern American	1	0.7	N/A	N/A
Native American/Alaskan	2	1.4	>.1	>.1
Native Hawaiian/PI	1	0.7	>.1	>.1
Choose not to answer	1	0.7		
Country of Origin				
China	46	54.1	65.7	57.5
India	25	29.4	20.6	12.8
People's Republic of Korea	9	10.1	11.2	16.8
Indonesia	1	1.2	1.4	1.4
Taiwan	1	1.2	3.5	4.8
Japan	1	1.2	1.1	0.7
Choose not to answer	2	2.4		
Year in College				
First Year	38	16.4	13.0	11.4
Second Year	35	15.1	18.4	16.5
Third Year	37	15.9	17.8	18.3
Fourth Year	34	14.7	26.5	26.9
Masters	42	18.1	9.2	10.9
Doctoral	46	19.8	11.6	11.6

Note: Comparison of the current sample (*n* = 232) to Purdue University and UIUC's current student enrollment in 2013-2014

Using the final sample ($N = 232$), I examined the demographic frequencies in my sample and compared the sample percentages to the demographic percentages for the Purdue University and UIUC populations. For both Purdue University and UIUC, differences emerged in one area i.e., sex, men were under represented, χ^2 $(1, N = 232) = 8.32, p < .01$, in my sample.

Table 2 displayed the demographic information on relationship status and living status of the participants. As seen in this table, a majority of the participants were single and were living with roommates.

Table 2
Demographic Information on Relationship Status, and Living Status (N = 232)

Variables	Yes	%
Relationship Status		
Single	185	79.7
Partnered	23	12.9
Married	11	4.7
Separated	4	1.7
Other (e.g., dating)	7	0.4
Chose not to answer	1	
Living Status		
With roommates	162	69.8
Alone	47	20.3
With partner	9	3.9
With family	9	3.9
Other (e.g., sorority)	5	2.2

Family-related demographic information. All domestic participants indicated how far in miles they were from their families. In keeping with the guidelines given in Schoonover et al. (1988), domestic participants had to be at least 50 miles or more away from their families to be included in the current study. Table 3 displays how far

geographically in miles were domestic students located from their families. A majority of the participants lived at 101-200 miles away from their families.

Table 3
Distance from Family for Domestic Students (N = 147)

Distance from family	Yes	%
101-200 miles	69	47.9
More than 200 miles	47	32.0
51-100 miles	24	16.3
50 miles	4	0.03
< than 50 miles	3	0.02

I asked international Asian students to indicate: (a) time spent in the U.S., (b) the location of their families in Asia, and (c) if they had any family in the US. The participants indicated that the time spent in the U.S. ranged between 2 to 132 months (*M*= 25.39 months, *SD*= 24.85 months). A majority of the international Asian participants had families in China and India, and they did not have any family present in the U.S. Table 4 displays the information of location of family in Asia and the U.S. for international Asian students.

Table 4
Location of Family in Asia and in the U.S. for International Asian Students (n = 84)

Variables	Yes	%
Location of family in Asia		
China	46	54.8
India	25	29.4
Republic of Korea	9	10.7
Other Asian country (e.g., Indonesia, Japan)	4	4.8
Chose not to answer	1	
Any family present in the U.S.		
Yes	26	31.0
No	57	67.9
Chose not to answer	1	

All the participants (domestic and international Asian students) also responded to demographic questions related to their parents. More specifically, they indicated the education levels and employment levels of their parents and the socioeconomic status of their families. The mean education level for mothers/maternal figures was 14.48 years (*SD* = 4.65 years) and that for father/paternal figures was 14.83 years (*SD* = 4.77 years). Table 5 displays the current employment levels of these participants' parents.

Table 5
Parental Employment-Related Demographic Information (N = 232)

Variable	Yes	%
Mother/Maternal figure Employment		
Higher Managerial Level	49	21.1
Lower Managerial level	73	31.5
Intermediate Occupations	42	18.1
Small Employers	19	8.4
Semi Routine Occupations	4	1.8
Routine Occupations	3	1.3
Never Worked/Employed	36	15.5
Chose not to answer	6	2.6
Father/Paternal figure Employment		
Higher Managerial Level	110	47.4
Lower Managerial Level	46	19.8
Intermediate Occupations	2	0.9
Small Employers	29	12.5
Technical Occupations	23	9.9
Semi Routine Occupations	3	1.3
Routine Occupations	4	1.7
Never Worked/Employed	11	4.7
Chose not to Answer	4	1.7

As for socioeconomic status, the participants rated the socioeconomic status of their families on a ladder ranging from 1 to 10 (1 = *high income*, 10 = *low income*). The mean socio-economic status for the entire sample was 4.35 (*SD* = 1.52) indicating that most of participants were from a middle-income bracket. Moreover, the mean for

international Asian students was 4.06 (*SD* = 1.43) and that of domestic students was 4.51 (*SD* = 1.56).

Out of the overall sample (*N* = 232), 82 participants (35.34%) indicated that they did not have any family members struggling with a chronic illness. Herein, 19.7% (*n* = 46) were international Asian students and 15.7% (*n* = 36) were domestic students. I asked the non-illness participants to indicate their most recent family stressor. Participants gave a range of responses, which I coded into categories. Five categories emerged. The number of participants endorsing each category were: (a) *no stressors*, 21 participants (25.60%) indicated not having any current familial stressors; (b) *event-related stressors,* 16 participants (19.51%) indicated dealing with stressors such as "wedding planning;" (c) *relational stressors*, 14 participants (17.07%) indicated dealing with an interpersonal stressor such as "family arguments" or "divorce in the family;" (d) *stressors arising because of distance*, 12 participants (14.63%) indicated dealing with concerns such as "homesickness;" and finally, (e) *financial stressors*, seven participants (8.54%) indicated dealing with concerns surrounding finances.

Illness-related demographic information. Overall, 64.7% of the participants (*n* = 150) indicated that they had family members struggling with a chronic illness. Table 6 displays the breakdown of the participants with ill relatives by residency status. This table also displays the most commonly selected chronic illnesses (e.g., diabetes, Alzheimer's, arthritis, cancer, heart disease). The participants indicated their relationship with the ill family member and then answered specific illness-related questions about the ill family member. Herein, I asked them to indicate in months when the family member was diagnosed with the chronic illness. The time since diagnosis ranged from one month to

240 months (M = 76.20 months; SD = 59.57 months). I also asked them to indicate whether the family member was currently in treatment and whether the family member had been hospitalized in the last two years. A majority of the participant's family members were currently in treatment and had not been hospitalized in the last two years.

Table 6
Illness-Related Demographic Information of Close Family Members Struggling with a Chronic Illness (n = 150)

Variables	Yes	%
Students with a chronically ill family member	150	
International Asian	39	26.0
Domestic	111	74.0
Relationship with the ill family member		
Grandmother	39	26.0
Mother/Maternal figure	31	20.7
Grandfather	24	16.0
Father/Paternal figure	21	14.0
Uncle	11	7.3
Aunt	6	4.0
Other	6	4.0
Chose not to answer	6	4.0
Cousin (female)	3	2.0
Sister	2	1.3
Brother	1	0.7
Chronic illnesses most indicated		
Diabetes	39	26.0
Arthritis	29	19.3
Cancer	29	19.3
Heart Disease	17	11.3
Lung Disease	9	6.0
Stroke	9	6.0
Alzheimer's	7	4.7
Dementia	6	4.0
Kidney Disease	5	3.3
Current treatment		
Yes	106	70.7
No	35	23.3
Chose not to answer	9	6.0
Recent hospitalization		
Yes	48	70.7
No	91	23.3
Chose not to answer	10	6.7

Measures

In this section, I describe the measures I used to conduct the current study. The description of each measure includes the purpose of the scale, the total number of items, a description of any subscales relevant to the current study, examples of original items and explanation of any items that were adapted, the method of rating items, and what higher scores indicate. Additionally, I offer psychometric information about the measure including internal consistency (i.e., past and current) and validity. Table 7 provides a summary of all the measures I used in the current study. As a reminder, all participants responded to measures of college student adjustment and role conflict, whereas only those who indicated having an ill-family member responded to measures of uncertainty in illness and illness-related communication avoidance.

Table 7
Summary of Observed Variables

Variable	Source	Measurement	Items	Cronbach's α	
				Past (range)	Current
Student Adjustment to College Questionnaire (*observed*)	Baker & Siryk (1999)	Likert type			
Academic adjustment			24	.83-.90	.88
Social adjustment			20	.83-.91	.87
Personal-Emotional adjustment			15	.77-.86	.82
Institutional attachment			15	.85-.91	.85
Overall college student adjustment			67	.92-.95	.93
Work–Family–School Conflict Scale (*observed*)	Adapted from Olson, (2011)	Likert type	10	.93-.94	.87
Parental Perception of Uncertainty Scale-Family member (*observed*)	Mishel (1997)				
Ambiguity items		Likert type	13	.78-.92	.90
Family Avoidance of Communication of Cancer (*observed*)	Adapted from Mallinger et al. (2006)	Likert type	10	.92	.82

Demographic and background form. I obtained the demographic and background information of the participants through a form I created for this study (see Appendix B). As mentioned previously, I assessed for age, sex, race/ethnicity, year in school, residency status, living status, information about parents including parental employment and educational levels, family's socio- economic status, distance from family (for domestic students), country of family residency for international Asian students), time in the US (for international Asian students). I also created a separate form to collect information on the family member with the chronic illness. Included in this information was type of illness, time since the diagnosis, current treatment and recent hospitalization (see Appendix C).

College student adjustment. The Student Adjustment to College Questionnaire (SACQ, Baker & Siryk, 1999) assesses how well students are adapting to the demands of the college experience. The SACQ has been used with diverse samples of college students including international students (Abe et al., 1998; Baysden, 2002; Kaczmarek et al., 1994) and domestic college students from U.S. colleges, including graduate students (Baker & Siryk, 1999; Adams & Proctor, 2010).

The SACQ is a 67-item multidimensional measure of college student adjustment (see Appendix D). The scale is divided into four domains of college adjustment including academic adjustment, social adjustment, personal-emotional adjustment, and institutional attachment. A factor analysis and examination of the intercorrelations among the SACQ subscales provide support for the premise that adjustment to college has different facets (Baker & Siryk, 1984; 1999).

The academic adjustment subscale consists of 24 items measuring "a student's success in coping with the various educational demands characteristic of the college environment" (Baker & Siryk, 1999, p. 14). An example item from this subscale is, "I have been keeping up to date on my academic work." On this subscale, 11 items are negatively worded and these were recoded. An example of a negatively worded item on this scale is, "I am finding academic work at college difficult."

The social adjustment subscale consists of 20 items measuring "a student's success in coping with the various interpersonal-societal demands inherent in the college experience" (Baker & Siryk, 1999, p.15). An example item from this subscale is, "I am very involved with social activities in college." Six items on this subscale are negatively worded and these were recoded. An example of a negatively worded item on this scale is, "On balance, I would rather be home than here."

The personal-emotional adjustment subscale consists of 15 items measuring "a student's intrapsychic state during her or his adjustment to college and the degree to which she or he is experiencing general psychological distress and any concomitant somatic complaints" (Baker & Siryk, 1999, p. 15). An example item from this subscale is, "My appetite has been good lately." On this subscale, 13 items are negatively worded and these were recoded. An example of a negatively worded item on this scale is, "I haven't been sleeping very well."

Finally, the institutional attachment subscale consists of 15 items measuring "a student's degree of commitment to educational-institutional goals and the degree of attachment to [the] particular institution that the student is attending" (Baker & Siryk, 1999, p. 15). The institutional attachment subscale shares one item with the academic

adjustment subscale and eight items with the social adjustment subscale (Baker & Siryk, 1999). An example item from this subscale is, "I am pleased now about my decision to go to college/university" Seven items on this subscale are negatively worded and these were recoded. An example of a negatively worded item on this scale is, "I wish I was at another college or university."

The items on all four subscales are rated on a 9-point rating scale ranging from 1 = *doesn't apply to me at all* to 9 = *applies very closely to me*. Items are coded or recoded so that higher scores are indicative of better adjustment on all four subscales.

With regard to psychometric information, the internal consistency coefficients for scores on the SACQ subscales range from .83 to .90 for academic adjustment, .83 to .91 for social adjustment, .77 to .86 for personal-emotional adjustment, .85 to .91 for institutional attachment, and .92 to .95 for the overall college adjustment scale for domestic students (Baker & Siryk, 1999). In terms of international students, the internal consistency coefficients for scores on the SACQ subscales were .73 (Sommer, 2013) for academic adjustment, .86 for social adjustment (Popp, 2007), .83 for personal-emotional adjustment (Sommer, 2013), .83 for institutional attachment (Popp, 2007), and low .90s range for the overall college adjustment scale (Kaczmarek et al., 1995). In the current study, the internal consistencies for scores on the subscales were .88 for academic adjustment, .87 for social adjustment, .82 for personal-emotional adjustment, .85 for institutional attachment and .95 for overall college student adjustment. In terms of domestic students, the internal consistency coefficients for scores on the subscales were .88 for academic adjustment, .87 for social adjustment, .89 for personal-emotional adjustment, .88 for institutional attachment. In terms of international Asian students, the

internal consistency coefficients for scores on the subscales were .90 for academic adjustment, .87 for social adjustment, .85 for personal-emotional adjustment, .83 for institutional attachment. These findings indicate high internal consistency (Cohen, 1988).

As for validity, scores on the academic adjustment subscale have been positively associated with academic motivation (Beyers & Goossens, 2002), involvement in social activities (Beyers & Goossens, 2002), and higher grade point average (Dahmus, Bernardin, & Bernardin, 1992). Scores on the social adjustment subscale have been positively associated optimism and higher self-esteem, and negatively associated with loneliness (Montgomery, Haemmerlie, & Ray, 2003). Scores on the personal-emotional adjustment scale have been positively associated with psychological and physical wellbeing (Tomlinson-Clarke, 1998). Scores on the institutional attachment subscale have been positively associated with retention (Credé & Niehorster, 2012). Finally, scores on full-scale adjustment have been negatively associated with depression and alexithymia (Dodgen-Magee, 1992; Kerr, Johnson, Gans & Krumrine, 2004; Wintre & Yaffe, 2000) and positively associated with optimism (Jackson, Pratt, Hunsberger & Prancer, 2005) and extraversion (Schnuck & Handal, 2011).

Role conflict. The Work–Family–School Conflict Scale (WFSC; Olson, 2011) assesses for conflicts between the role dimensions of work, family, and school for working college students. Within each role dimension, the conflicts are further divided into three perspectives (i.e., strain, time, and behavior). The measure also captures the directionality of the conflict and includes 12 subscales (e.g. strain-based school–to–work, time-based work–to–family, behavior-based family–to–school). The original measure consists of 60 items, and a factor analysis by Olson (2011) confirmed a 12-factor solution

for the entire scale. Olson also demonstrated that the 12 subscales were positively inter-correlated.

In the current study, I used two subscales of the original measure, namely, the strain-based family-to-school conflict (FSC-strain) subscale and the time-based family–to–school conflict subscale (FSC-time; see Appendix E). My rationale for selecting these two subscales was that I was examining the role conflict experienced by family members, most specifically college students, who were geographically away from their families; therefore were not participating in the day-to-day responsibilities. As the items of these two subscales did not specifically speak to this geographically distant college population, I slightly modified three items on each of the two subscales after consulting with the grief and loss team. I describe these modifications below.

The FSC-strain subscale consists of five items that measure "the physical and emotional demands (e.g., fatigue, irritability) of the family role that prevent full participation in the school role" (Olson, 2011, p. 72). An example item from the original subscale is, "I am often so emotionally drained when I arrive at school from home that it prevents me from accomplishing school related tasks," which I modified to, "I am often so emotionally drained after I communicate with my family that it prevents me from accomplishing school-related tasks."

The FSC-time subscale consists of five items that measure "the amount of time spent in the family role does not allow enough time to fulfill all responsibilities in the school role" (Olson, 2011, p. 73). An example from the original subscale is, "The amount of time my family takes up makes it difficult to fulfill student responsibilities," which I

modified to, "The amount of time I spend thinking about my family makes it difficult to fulfill student responsibilities."

Items on both subscales are intended to be rated on a 7-point scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. I made an error in the creation of the online survey. Therefore, participants rated items on the subscales on a 5-point scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. Higher scores are indicative of more role conflict (Olson, 2011). In the current study, I added all items on both subscales for a composite total role conflict score.

As for psychometric information, the FSC-strain and FSC-time subscales are positively associated (Olson, 2011). Scores on the two subscales displayed high internal consistency, .93 for the FSC-strain subscale and .94 for the FSC-time subscale (Olson, 2011). In the current study, the internal consistency for scores on this combined measure was .87, which added support for my use of a total composite role conflict score. With regard to validity, total scores on the original measure (all twelve subscales together) were positively associated with high job demand, family demand and school demand (Olson, 2014) and negatively associated with job satisfaction, family satisfaction and school satisfaction (Olson, 2011; 2014).

Uncertainty in illness. The Parental Perception of Uncertainty Scale-Family Member (PPUS-FM; Mishel, 1997) was developed to measure the level of uncertainty in family members who have an ill relative. The PPUS-FM is based on Mishel's Uncertainty in Illness Scale (MUIS, Mishel, 1981), which is a scale originally developed to measure ill and hospitalized adult patients' levels of uncertainty. The PPUS-FM has 31

items. A factor analysis established the presence of two-factors related to uncertainty in family members: ambiguity and lack of clarity (Mishel, 1997).

In the current study, I only used the ambiguity items because the lack of clarity factor assesses the uncertainty experienced by proximal family members (i.e., those who are physically close to their ill family member). Mishel (1997) defined ambiguity as a state where the "cues about . . . the illness are vague, indistinct, tend to blur and overlap" (p. 8). A sample item from the ambiguity subscale is, "I am unsure if his/her illness is getting better or worse." After consultation with a grief and loss research team, I dropped two items from the ambiguity scale because these items assessed the ambiguity levels of proximal members. The final PPUS-FM ambiguity subscale used in the current study consisted of 13 items (see Appendix F).

The items were rated on a 5-point scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. Higher scores are indicative of higher levels of ambiguity. In the scoring manual, Mishel (1997) recommends that if an item is not applicable, the item should be scored as 0 = *not applicable*. However, doing so would have led to a violation of the assumption of linearity inherent in Likert-type scales (McLeod, 2008). Moreover, by following Mishel's (1997) recommendation, I would not have been able to use this variable as a continuous variable (Tabachnick & Fidell, 2007). Therefore, after consulting with my advisor, I decided to calculate and use the mean score for each participant, rather than their total score. Herein, I took a mean score of the items that the participants answered; leaving out the items that were marked "not applicable."

As for psychometric information, the scores for the ambiguity subscale have exhibited internal consistency ranging from .78 to .92 (Mishel, 1997). The internal

consistency for the ambiguity items for the current sample was .90, indicative of high consistency (Cohen, 1988). With regard to validity, the original PPUS-FM measure has been used with family members dealing with different types of chronic illnesses including cancer, heart conditions, and critical events such as intensive care unit hospitalizations (Mishel, 1997). Furthermore, the scale has been used in studying Asian populations (Mu, Ma, Hwang, et al., 2001; Mu, Wong, Chang et al., 2002). Lastly, the scores on the original Mishel Uncertainty in Illness Scale (on which the PPUS-FM is based) have been positively associated with anxiety (Mitchell & Courtney, 2004) and psychological distress (Mishel, 1984), and negatively associated with relationship satisfaction (Reich, Olmsted, &Van Puymbroeck, 2006).

Illness-related communication avoidance. The Family Avoidance of Communication of Cancer (FACC) measure was developed to assess cancer patients' perceptions of whether they (the patients themselves) could discuss their cancer openly with their family members (Mallinger, Griggs, & Shields, 2006). The original scale has five items, and a factor analysis indicated the presence of a single construct (Mallinger et al., 2006). A sample item from this scale is, "Family members discourage me from talking about my cancer."

For the purposes of the current study and after a consultation with a grief and loss research team, I changed the phrase "my cancer" to "the illness" (see Appendix G). An example of an original item is "Family members discourage me from talking about my cancer" which I changed to, "Family members discourage me from talking about the illness." I also created five parallel items similar to those on the FACC in order to tap into

the participants' self-directed avoidance. An example of a newly created item is, "I discourage family members from talking about the illness."

The items are rating using a 5-point scale ranging from 1 = *less avoidance* to 5 = *more avoidance*. Mallinger et al. (2006) directed researchers to compute raw scores by adding the items. This raw score was then transformed to range from 0-100. In the current study I transformed the score to percentile ranks. Higher scores reflect greater illness-related communication avoidance (Mallinger et al., 2006).

As for psychometric information, the internal consistency of scores was .92 (Mallinger et al., 2006) and 93-.95 (for Chinese and Korean- American, female, breast cancer survivors; Lim & Ashing-Giwa, 2012). The internal consistency of the scores using the current study sample was .82, indicative of high consistency (Cohen, 1988). In order to examine the reliabilities more comprehensively, I spilt the scores into family-related avoidance items and self-avoidance items, and found the reliabilities to be .84 and .90 respectively for the two sets of items. With regard to validity, FACC scores have been negatively associated with mental health (Malinger et al., 2006) and health-related quality of life (Lim & Ashing-Giwa, 2012).

Procedure

Prior to collecting data, I sought an exemption from the Institution Review Board (IRB) at Purdue University. I also contacted the IRB officials at UIUC via email and was informed that in order to perform the study at UIUC I needed to submit Purdue University's IRB approval documentation to them. After receiving the requisite permission from Purdue IRB I sent across the Purdue IRB documentation to the UIUC IRB officials. I then proceeded to carry out the study on the Purdue and UIUC campus.

In order to recruit participants at Purdue University, I contacted the Registrar's Office. An official at the Registrar's office randomly selected participants' email addresses for the current study. That official then sent out the recruitment email (see Appendix H) and follow up email (see Appendix I) to those participants. At UIUC, I contacted the Division of Management Information. An official from that office created a file of randomly selected participants and sent out the recruitment email (see Appendix H) and the follow up email to those participants (see Appendix I). The recruitment email and the follow up email included a hyperlink to the online Qualtrics survey I created for the current study.

Individuals who decided to take part in the study clicked on the hyperlink and were directed to the survey's website and presented with an information letter (see Appendix J). The information letter described the purpose of the study and the voluntary nature of their participation. Individuals were also informed that that they could exit the survey at any point. To maintain anonymity, I did not collect IP addresses, nor did I request any identifying information (i.e., name, address). Finally, to maintain the study's integrity, the web program's settings did not allow participants to complete the survey more than one time.

I presented all the participants with the demographic questions and the college student adjustment measure. With the help of "skip logic" in Qualtrics, I asked participants who indicated having a family member with a chronic illness to respond to the illness-related demographic questions. I then directed them to keep in mind their familial chronic illness and respond to the role conflict measure, uncertainty in illness measure and illness-related communication avoidance measure.

On the other hand, I asked participants who indicated not having a family member with a chronic illness to specify their most recent family stressor and complete the role conflict measure with that stressor in mind. At the end of the survey, I thanked all participants for their contribution.

CHAPTER IV. RESULTS

In this section I present the results of the current study. I first describe the process of data screening and the preliminary analyses. I then present the findings from the primary analyses I performed to address the research questions and to test the associated hypotheses.

Data Screening

Prior to performing any analyses I examined the data for accuracy of data entry by verifying the SPSS file against the Excel file generated from the Qualtrics survey website. By doing so I was able to confirm that the data were accurately transferred.

I then examined the data to confirm that all the participants who completed the survey fit the inclusion criteria of the study. More specifically, all participants (i.e., international Asian and domestic) had to be between the ages of 18-29 years, which is generally the age of emerging adulthood (Arnett, 2000; 2004; 2006; Tanner & Arnett 2009; Tanner, Arnett & Leis 2009). International Asian students had to have family members residing in an Asian country (e.g., China, India, People's Republic of Korea,). Finally, in keeping with Schoonover et al. (1988) study domestic students had to reside more than 50 miles away from their families.

In order to recruit participants for this study, a total of 4,000 students (2,000 from Purdue University and 2,000 from University of Illinois, Urbana-Champaign) were sent the recruitment email. Out of these potential participants, 340 responded by at least following the link to the survey, for an initial response rate of 8.5%. Of these 340 participants, I removed 36 cases, as these individuals did not answer any questions in the survey. Furthermore, two international student participants were removed as they indicated that their families resided in non-Asian countries (i.e., Dubai and Canada). The total number of participants at this stage was 302.

Next, I conducted data screening procedures to determine if there were any patterns in the missing data. One way to handle missing data is by deleting the cases (Tabachnick & Fidell, 2007). In the current study, I identified and removed 49 participants, 29 from the illness group sample and 20 from the non-illness group sample, as they did not complete the whole survey but rather ended their participation in the middle of the college student adjustment measure. I believe that the attrition rate at this point was due to fatigue. The college student adjustment measure was the longest of all the measures and it was presented to all the participants at the beginning of the survey.

I then checked the remaining data to ensure that the missing data points were random with no discernible patterns by running the Missing Values Analysis in SPSS 21.0 (Tabachnick & Fidell, 2007). No patterns emerged. For the remaining responses, I replaced missing items via the linear trend at point procedure. The total number of participants after these screening procedures was 253.

I then screened the data for univariate and multivariate outliers. I used the screening procedures offered by Pallant (2010) to check for the outliers. For univariate

outliers, I examined the box plots (Pallant, 2010; Tabachnick & Fidell, 2007). More specifically, I looked for extreme high values that were marked with asterisks. I was able to determine that my data had three univariate outliers for role conflict, four for uncertainty in illness, four for illness-related communication avoidance and four for the college student adjustment (i.e., inclusive of the four domains of college student adjustment and overall college student adjustment). I deleted these 15 outliers. The total number of participants after this process was 238. I then performed the Mahalanobis Distance Test with $p < .001$ to check for the presence of multivariate outliers (Pallant, 2010). By doing so, I detected and deleted six more outliers. These data screening procedures resulted in the final sample of 232 participants. Based on this final sample the response rate for this study was 5.8%. A post-hoc calculation indicated that with a sample of 232 participants and eight predictors, the power was .99 (Soper, 2014). A summary of the cases that were removed is presented in table 8.

Table 8
Summary of removed cases

Reasons for removal	*n* cases removed
Non-participation in the study	36
Inclusion criterion not met	2
Non-completion of at least one measure	49
Univariate outliers	15
Multivariate outliers	6
Total	108

I used the steps outlined by Tabachnick and Fidell (2007) to check for normality and the presence of skewness and kurtosis. The negatively skewed variables were academic adjustment, social adjustment, and institutional attachment (i.e., subscales of college student adjustment) and uncertainty in illness. I used reflect and square root to transform these negatively skewed variables (Pallant, 2010; Tabachnick & Fidell, 2007). The positively skewed variables were role conflict and illness-related communication avoidance. I used a square root to transform the positively skewed variables (Pallant, 2010; Tabachnick & Fidell, 2007).

Tabachnick and Fidell (2007) indicated that skewness and kurtosis are considered less problematic when the sample size is larger than 200 participants, as was the case in the current study. Tabachnick and Fidell also proposed that data transformations are not universally recommended for failures of normality. Herein, they indicated that if all data are skewed to about the same extent, any improvements of analysis with transformations are marginal. Most of my variables were skewed and transforming them only led to marginal improvements. Moreover, I compared the correlations between the original skewed variables and the non-skewed variables to the correlations between the transformed versions of skewed variables and the non-skewed variables. Herein, I determined that the relationships did not meaningfully differ with regard to strength, significance, or direction of association (see Table 9). Therefore, I made the decision to use the original data for all of my analyses.

Table 9

Bivariate Correlations for the Transformed and Non-Transformed Variables

Variables	1	2	3	4	5	6	7	8
1.Role conflict[b]	_							
2. Uncertainty in illness[a]	.36**	_						
	-.43**							
3. Illness-related communication	.18*	.17*	_					
avoidance[b]	.18*	-.16						
4. Academic adjustment[a]	-.36**	-.13	-.19*	_				
	.35**	-.17*	.17*					
5. Social adjustment[a]	-.32**	-.21**	-.05	.59**	_			
	.31**	-.19*	.02	-.57**				
6. Personal-emotional	-.38**	-.22**	-.04	.61**	.57**	_		
				-.60**	-.55**			
7. Institutional attachment[a]	-.35**	-.24**	-.10	.67**	.86**	.55**	_	
	.34**	-.26**	.09	.64**	.86**	-.56**		
8. Overall college student	-.41**	-.22**	-.13	.87**	.86**	.81**	.86**	_
adjustment[a]	.39**	.23**	.10	.87**	.84**	-.80**	.84**	

Notes: Top numbers represent non-transformed data; bottom numbers represent the transformed data. *$p < .05$. **$p < .01$.
[a]Reflection square root transformation. [b]Square root transformation

Preliminary Analysis

Research questions 1 and 2 of the current study were focused on the entire student sample and research questions 3 and 4 were focused only on the illness group (i.e., the participants who indicated having an ill family member). Therefore, I performed preliminary analyses separately for each of these groups.

Entire sample. In this section I present the preliminary analyses I performed for the entire sample. For research question 1 and 2, the independent variables (IVs) were residency status (i.e., international Asian vs. domestic) and illness status (i.e., students who indicated having a family member with a chronic illness vs. students who indicated not having a family member with a chronic illness). The dependent variables (DVs) were the four domains of college student adjustment (i.e., academic adjustment, social adjustment, personal-emotional adjustment, and institutional attachment).

I generated basic descriptive information for the entire sample. More specifically, I obtained the means, standard deviations, and ranges for all the primary variables in the current study (see Table 10). I also assessed for internal consistency and obtained Cronbach alpha coefficients for the scores on all scales. All the measures had adequate internal consistency (Cohen, 1988). To ensure that my data were not affected by multicollinearity, I reviewed the correlations between the primary variables (i.e., role conflict, uncertainty in illness and illness-related communication avoidance, the four subscales of college student adjustment and overall college student adjustment) and determined that they were all less than .85 (see Table 9), indicating a minimal likelihood of multicollinearity (Tabachnick & Fidell, 2007).

Table 10
Summary of Descriptive Data for Primary Variables (N = 232)

Variables	*Mean*	*SD*	Minimu Score	Maximum Score	Cronbach α
Academic adjustment	150.9	28.7	72	209	.88
Social adjustment	120.0	27.6	34	174	.87
Personal-emotional	89.4	22.8	34	135	.82
Institutional attachment	103.0	19.1	32	135	.85
Role conflict	15	5.3	10	33	.87

I also examined the data to determine if there were any significant associations between the DVs for research questions 1 and 2, and the demographic background variables (some of which were continuous and some were categorical). Of the continuous demographic variables (i.e., education levels of parents/parental figures, socio-economic status), none were significantly associated with the DVs. Although only completed by domestic students, "miles from home" was an additional continuous variable. "Miles from home" was also not significantly associated with the DVs. These analyses are presented below in Table 11.

Table 11
Correlations between Primary Variables and Demographic Variables (N = 232)

Variables	1	2	3	4	5	6	7
1.Maternal education	_						
2.Paternal education	.82**	_					
3.Socio economic status	-.29**	-.24**	_				
4.Academic adjustment	.04	.05	-01	_			
5.Social adjustment	.04	.03	-.08	.59**	_		
6.Personal-emotional	-.09	-.08	-.03	.61**	.58**	_	
7.Institutional attachment	.03	. 03	.04	.67**	.86**	.55**	_

Note: *$p < .05$. **$p < .01$.

I performed several one-way multivariate analyses of variance (MANOVAs) to determine if the DVs varied as a function of the categorical demographic variables (i.e., age, sex, race/ethnicity, year in school, relationship status, living status, employment levels of parents/parental figures, and family socioeconomic status). For international Asian students, I also examined whether the DVs varied as a function of the country of origin for family in Asia, and the presence of family in the U.S.

Tabachnick and Fidell (2007) recommended having at least 20 observations per cell for each dependent variable in MANOVA. Therefore, 80 observations per cell would have been necessary for the analyses of the four dependent variables (i.e., academic adjustment, social adjustment, personal-emotional adjustment, institutional attachment). With regards to age, I did not have enough observations per cell to perform a MANOVA. Therefore, although not ideal, I divided participants into three groups: young participants

(18-20 years of age) = 96, middle participants (21-24 years of age) = 70, and older participants (25-29 years of age) = 62. For age, $F(8,444) = 2.50$, $p = .011$; Wilk's $\Lambda = 0.92$, $\eta_p^2 = .04$. More specifically significant differences arose on academic adjustment, $F(2,225) = 4.91$, $p = .008$, $\eta_p^2 = .04$ and personal-emotional adjustment, $F(2,225) = 3.48$, $p = .03$, $\eta_p^2 = .03$. A post hoc Tukey test indicated that young participants (18-20 years of age, $M = 145.09$, $SD = 27.11$) scored significantly lower than older participants (25-29 years of age, $M = 159.53$, $SD = 28.37$) on academic adjustment. Moreover, young participants ($M = 85.31$, $SD = 23.50$) scored significantly lower than older participants ($M = 94.97$, $SD = 23.30$) on personal-emotional adjustment. As per Cohen's (1988) guideline, the difference between the two groups would be considered small. However, seeing the significant differences on their mean scores, I decided to include age as a covariate in my primary analysis.

With regard to sex differences, $F(4, 224) = 3.59$, $p = .007$; Wilk's $\Lambda = 0.94$, $\eta_p^2 = .06$. More specifically, females ($M = 154.37$, $SD = 28.49$) scored significantly higher than males ($M = 144.79$, $SD = 28.49$) on academic adjustment, $F(1,227) = 5.86$, $p = .02$, $\eta_p^2 = .03$. As per Cohen's (1988) guideline, the difference between females and males would be considered small. Moreover, there was an unequal distribution of participants with more females ($n = 149$) represented then males ($n = 83$). Therefore, I decided not to include sex in my primary analyses.

With regard to race/ethnicity for domestic students, I collapsed the racial/ethnic groups into two groups, as I did not have enough participants in each racial/ethnic group. Moreover, I also wanted to meet the recommendations set by Tabachnick and Fidell (2007). Therefore, although not ideal I divided participants into two groups:

Underrepresented Racial Minority students and European American students. Underrepresented Racial Minority students included the eight Biracial/Multiracial participants, seven Asian American participants, six Latino/a American participants, four African American participants, two Native American/Alaskan participants and one Middle Eastern American participant (n = 28). The other category was of European American students (n = 115). For race/ethnicity, $F(4,140) = 3.32$, $p = .012$; Wilk's $\Lambda = 0.91$, $\eta_p^2 = .09$. For academic adjustment, $F(1, 143) = 3.51$, $p = .063$, $\eta_p^2 = .024$. For social adjustment, $F(1, 143) = 8.43$, $p = .004$, $\eta_p^2 = .056$. Lastly, for institutional attachment, $F(1, 143) = 13.28$, $p = .000$, $\eta_p^2 = .09$. More specifically, European American students scored significantly higher than Underrepresented Racial Minority students on academic adjustment, social adjustment, and institutional attachment. The mean and standard deviations scores of the participants on each of these subscales are presented in Table 12. As the international Asian students did not respond to this item, I was not able to include it in the primary analyses. My inability to account for these differences is a clear limitation of the current study.

Table 12

Mean and Standard Deviation Scores for the Two Racial/Ethnic Groups on the Adjustment Subscales

Variables	Underrepresented Racial Minority Students		European American Students	
	M	*SD*	*M*	*SD*
Academic adjustment	143.53	27.40	153.86	27.16
Social adjustment	112.06	26.20	127.57	26.30
Institutional attachment	94.81	21.49	108.20	17.15

For year in school, I divided the students into three groups to account for low numbers in some groups: first and second year undergraduate students (n = 89), third and fourth year undergraduate students (n = 52), and graduate students (n = 88). A significant difference arose for the four domains of college student adjustment as a set, $F(8,446) = 3.19$, $p = .002$; Wilk's $\Lambda = 0.90$, $\eta_p^2 = .05$. When examined further, a difference emerged on personal-emotional adjustment, $F(2,226) = 3.73$, $p = .03$, $\eta_p^2 = .032$. More specifically, graduate students (M = 94.08, SD = 22.29) scored significantly higher than the first and second year undergraduate students (M = 85.02, SD = 24.24). As per Cohen's (1988) guideline, the difference between the graduate students and the first and second year undergraduates is considered small. Moreover, I was going to include age as a covariate in my primary analysis. Therefore, I decided not to include year in school my primary analyses.

No significant differences emerged for academic adjustment, social adjustment, personal-emotional adjustment, and institutional attachment in connection with the categorical variables of relationship status, living status, and levels of parents/parental figures employment. For international Asian students, no significant differences emerged for academic adjustment, social adjustment, personal-emotional adjustment, and institutional attachment in connection with the categorical variables of country of origin for family in Asia and presence of family in the US Further descriptions of the results of these analyses are included in Appendix K.

The conclusion based on my preliminary analyses with the entire sample was that age had a significant association with academic and personal-emotional adjustment. Therefore, I decided to use age as covariate when I ran a MANCOVA to address research questions 1 and 2.

Illness group. In this section I present the preliminary analysis I performed for the students who indicated having a family member with a chronic illness. For research question 3 and 4, the IVs were role conflict, uncertainty in illness, and illness-related communication avoidance. The DV was overall college student adjustment.

First, I generated basic descriptive information for the illness group. More specifically, I obtained the means, standard deviations, and ranges for all the primary variables in the current study for the illness group (see Table 13). I also assessed for internal consistency and obtained Cronbach alpha coefficients for the scores on all the scales. All the measures had adequate internal consistency (Cohen, 1988). To ensure that my data were not affected by multicollinearity, I reviewed the correlations between the primary variables (i.e., role conflict, uncertainty in illness- related communication avoidance and overall college student adjustment) and determined that all were less than .85 (see Table 14), indicating a minimal likelihood of multicollinearity (Tabachnick & Fidell, 2007).

Table 13
Summary of Descriptive Data for Primary Variables (n = 150)

Variables	*Mean*	*SD*	Minimum Score	Maximum Score	Cronbach α
Role conflict	15.4	5.5	10	33	.93
Uncertainty in illness	3.17	1	0	4.6	.90
Illness-related communication avoidance	50	26.2	28.3	99.3	.82
Overall college student adjustment	420.4	78.6	217	571	.93

I also examined the data to determine if there were any significant associations between overall adjustment for research questions 3 and 4, and the demographic background variables, some of which were continuous and some were categorical. Of the continuous demographic variables (i.e., education levels of parents/parental figures, socio-economic status, time since the diagnosis), none were significantly associated with overall college student adjustment (see Table 14). Although only completed by domestic students, "miles from home" was an additional continuous variable included in this analysis and it too was not significantly associated with overall college student adjustment.

Table 14

Bivariate Correlations for the Primary Variables and the Demographic Variables in the Illness Group (n = 150)

Variables	1	2	3	4	5	6	7	8
1. Maternal education	-							
2.Paternal education	.78**	-						
3. SES	-.27**	-.33**	-					
4. Time since diagnosis	-.10	-.18	.06	-				
5. Role conflict	-.01	.02	.10	-.11	-			
6. Uncertainty in illness	.01	-.03	.07	-.11	.46**	-		
7. Illness-related communication avoidance	.01	.05	.01	-.18	.18*	.17*	-	
8. Overall college student adjustment	.04	.02	-.07	-.21	-46**	-.24**	-.13	-

Note: *$p < .05$. **$p < .01$.

I then performed several Analyses of Variance (ANOVAs) to determine if the primary DV (i.e., overall college student adjustment) varied as a function of the categorical demographic variables (e.g. age, sex, race/ethnicity, year in school, relationship status, living status, employment levels of parents/parental figures, relationship with the family member having the chronic illness, type of chronic illness, current treatment, and recent hospitalization). Kraemer and Thiemann (1987) recommend having at least seven participants per cell for performing an ANOVA. Moreover, empirically speaking I needed at least 40 participants per group to perform these analyses. As I did not have enough participants for these analyses I decided to combine certain groups.

With regards to age, I divided participants into three groups: young participants (18-20 years of age) = 63, middle participants (21-24 years of age) = 42, and older participants (25-29 years of age) = 44. The decision to split individuals into three groups was purely empirical on my part. For age, a slight significant difference arose on overall college adjustment, $F(2,146) = 3.00$, $p = .053$; $\eta_p^2 = .04$. However, the post hoc Tukey test did not indicate any significant differences between the three groups. As age had a slight association with overall college student adjustment I decided to include it in my primary analysis.

With regard to race/ethnicity for domestic students, I divided participants into two groups: Underrepresented Racial Minority students and European American students. The Underrepresented Racial Minority students ($n = 20$) which included seven Biracial/Multiracial participants, five Latino/a American participants, three African American participants, three Asian American participants, one Native

American/Alaskan participant and one Middle Eastern American participant. The other category was European American students (n = 90). For race /ethnicity, a statistically significant difference emerged between the two groups, $F(1, 106) = 5.99$, $p = .02$; $\eta_p^2 = .05$. More specifically, European American students (M = 434.90, SD = 77.19) scored significantly higher than Underrepresented Racial Minority students (M = 389.38, SD = 73.42) on overall college student adjustment. As international Asian students did not respond to this item I decided to not include race/ethnicity in my primary analyses.

With regard to relationship status, I once again divided the participants into two groups: single, never married group (n = 118) and the not single group (n = 31). The not single category consisted of partnered students (n = 18), six students who selected "other" (e.g. dating or engaged), five who were married students, and one who was separated/divorced. A statistically significant difference emerged between the two groups $F(1,146) = 5.28$, $p = .02$, $\eta_p^2 = .035$. More specifically the single, never married group (M = 428.62, SD = 78.56) scored significantly higher than the not single group (M = 392.73, SD = 72.16) on overall college student adjustment, As per Cohen's (1988) guideline, the difference between the single and the not single group is considered small. Therefore, I decided not to include relationship status in my primary analyses.

Overall college student adjustment did not vary based on the other categorical demographic variables (e.g., sex, race/ethnicity, year in school, living status, employment levels of parents/parental figures, relationship with the chronically ill family member, type of chronic illness, current treatment, and recent hospitalization)

were associated with any significant changes on overall college student adjustment. International Asian students were also asked to indicate the country of origin for family in Asia and whether they had any family living in the US. Neither of these variables was significantly associated with overall college student adjustment. A detailed description of these non-significant analyses appears in Appendix K.

The conclusion based on my preliminary analyses with the illness group was that age had a slight significant association with overall college student adjustment. Therefore, I decided to include age when I performed the hierarchical regression to address research questions 3 and 4.

Primary Analyses

In the current study, research questions 1 and 2 were focused on possible differences in the four domains of college student adjustment based on residency status (i.e., international Asian and domestic) and illness status (i.e., having a family member with a chronic illness vs. not having a family member with a chronic illness). To test the associated hypotheses I performed a MANCOVA with the entire sample.

Research questions 3 and 4 were focused on possible associations between total college student adjustment and three illness and family-related factors (i.e. role conflict, uncertainty in illness, and illness-related communication avoidance). To test the hypotheses associated with these research questions, I performed a hierarchical regression with participants of the illness group (i.e., part of sample having a family member with a chronic illness).

Residency status, illness status, and college adjustment. To address research questions 1 and 2, I performed a MANCOVA with the entire sample. For

this analysis, Tabachnick and Fidell (2007) recommend that there be more cases than dependent variables in each cell. However, VanVoorhis and Morgan (2007) indicated that "if minimizing the number of participants is critical, seven participants per cell, given at least three cells, will yield power of approximately 50% with the effect size of .50" (p. 48). Following these two guidelines, I needed to have at least 28 participants per cell for the four dependent variables. As can be seen from table 15 below, I did have enough participants per cell to perform this analysis.

Table 15
Participants Split by Residency and Illness Status

Residency Status	Illness Status	
	Yes	No
International Asian students	39	46
Domestic students	111	36

The 2 × 2 between subjects MANCOVA included the four domains of college student adjustment (i.e., academic adjustment, social adjustment, personal-emotional adjustment and institutional attachment) as DVs, with residency status (i.e. international Asian vs. domestic students) and illness status (i.e., having a family member with a chronic illness vs. not having a family with a chronic illness) as IVs. I also used age as a covariate, per the preliminary analyses. The research questions and their corresponding hypotheses are as follows:

RQ1. Does college student adjustment (i.e., academic adjustment, social adjustment, personal-emotional adjustment, and institutional attachment) vary based on residency status (i.e. international Asian vs. domestic students), regardless of familial illness status?

H1: Domestic students will score higher on all four domains of college student adjustment (i.e., academic adjustment, social adjustment, personal-emotional adjustment and institutional attachment) than international Asian students.

RQ 2. Does college student adjustment (i.e., academic adjustment, social adjustment, personal-emotional adjustment and institutional attachment) vary based on familial illness status (having a chronically ill family member vs. having no chronically ill family members), regardless of residency status?

H2: Students (i.e., international Asian and domestic) with a chronically ill family member (i.e., the illness group) will score lower on all four domains of college student adjustment (i.e., academic adjustment, social adjustment, personal-emotional adjustment and institutional attachment) than those without a chronically ill family member (i.e., the non-illness group).

After controlling for age, significant main effects emerged for residency status, $F(4,220) = 2.53$, $p = .04$; Wilks'Δ =. 97; $\eta_p^2 = .04$, and illness status, $F(4,220) = 2.96$, $p = .02$; Wilks'Δ =. 95; $\eta_p^2 = .05$. In contrast, no interaction effect emerged, $F(4,220) = .99$, $p = .78$; Wilks 'Δ =. 99; $\eta_p^2 = .01$.

For residency status, significant differences emerged for social adjustment, $F(1,223) = 9.55$, $p = .002$, $\eta_p^2 = .04$, and institutional attachment, $F(1,223) = 6.42$, $p = .01$, $\eta_p^2 = .03$ (H1). On social adjustment, domestic students ($M = 124.95$, $SD = 26.94$) scored significantly higher than international Asian students ($M = 112.71$, $SD = 27.60$). On institutional attachment too, domestic students ($M = 105.73$, $SD = 18.47$) scored significantly higher than international Asian students ($M = 99.15$, $SD = 19.22$). No differences emerged between the two groups for academic adjustment $F(1,223) =$

1.42, p = .24, η_p^2= .01 or personal-emotional adjustment $F(1,223) = 2.42$, p = .12, η_p^2= .01.

For illness status, significant differences emerged for personal-emotional adjustment (H2), $F(1,223) = 8.38$, p = .004, η_p^2= .04. More specifically, students who indicated having a family member with a chronic illness scored significantly lower (M = 86.47, SD = 24.39) than those students who indicated not having a family member with a chronic illness (M = 94.09, SD = 18.35) on personal-emotional adjustment. No differences emerged between the groups on academic adjustment, $F(1,223) = 0.09$, p = .76, η_p^2= .00, social adjustment $F(1,223) = .57$, p = .45, η_p^2= .00 or institutional attachment $F(1,223) = .57$, p = .45, η_p^2= .00.

Taken together, the findings indicate that hypotheses 1 and 2 were both partially supported. With regard to residency status, although I predicted that domestic students will score higher than international Asian students on all four domains of college student adjustment, significant differences emerged on two of the four domains (i.e., social adjustment and institutional attachment). With regard to illness status, although I predicted that students having a family member with a chronic illness would score lower on all four domains of college student adjustment, significant differences only emerged on one of the three domains (i.e., personal-emotional adjustment).

Illness- and family-related factors and overall college student adjustment.

To address research questions 3 and 4, I performed a hierarchical regression with the illness group (i.e., those participants who indicated having a family member with a chronic illness; n = 150). The IVs were residency status, age, role conflict,

uncertainty in illness, and illness-related communication avoidance and the DV was overall college student adjustment. The research questions and the corresponding hypothesis follow:

RQ 3. Are role conflict, uncertainty in illness, and illness-related communication avoidance associated with overall college student adjustment for the illness group, regardless of residency status?

H3. Role conflict, uncertainty in illness, and illness-related communication avoidance will be negatively associated with overall college student adjustment for the illness group.

RQ 4. Are the relationships between residency status (i.e., international Asian vs. domestic) and each of the family and illness-related variables (i.e., role conflict, uncertainty in illness and illness-related communication avoidance) making a unique contribution to overall college student adjustment above and beyond the contribution of each of these three variables individually?

In order to answer research question 3 and 4, I performed a hierarchical regression. However, before performing the hierarchical regression, in accordance with the guidelines set by Tabachnick and Fidell (2007), I centered the scores for the three IVs (i.e. role conflict, uncertainty in illness, and illness-related communication avoidance). For centering scores, I subtracted the mean scores from the total scores. I then created interaction terms. For creating interaction terms, I dummy-coded residency status (0 = International Asian and 1 = domestic) and created interaction terms by multiplying the dummy-coded residency status with each of the centered

versions of the three IV variables (i.e. residency × role conflict, residency × uncertainty in illness, and residency × illness-related communication avoidance).

In step one of the hierarchical regression, I included the IVs of residency status (i.e., international Asian vs. domestic) and age (as per preliminary analyses). In step two, I included the centered scores for the three IVs (i.e., role conflict, uncertainty in illness, and illness-related communication avoidance), and in step three I included the interaction terms (i.e. residency × role conflict, residency × uncertainty in illness and residency × illness-related communication avoidance).

Table 16 includes the unstandardized regression coefficients (B), the standard error regression coefficient (SE B), the standard regression coefficients (β), and the semipartial correlations (sr_i^2) for the hierarchical regression. R was significantly different from zero at the end of each step. After step three with all the IVs in the equation, $R = .51$, $F(8,138) = 6.04$, $p < .01$. After step one with the residency status and age in the equation, $R^2 = .06$ (Adjusted $R^2 = .05$), $F_{\text{inc}}(2,144) = 4.75$, $p = .01$. More specifically, as age increased so did overall college student adjustment. As for residency status, domestic students were higher in their overall college adjustment than their International Asian peers. After step two, with the three centered scores added to the equation (i.e., centered scores of role conflict, uncertainty in illness and illness-related communication avoidance), $R^2 = .25$ (Adjusted $R^2 = .22$), $\Delta R^2 = .19$, $F_{inc}(3,141) = 11.55$, $p < .01$.

Table 16

Associations between Illness and Family-Related Factors, and Overall College Student Adjustment for the Illness Group (n=150)

Variable	Overall college student adjustment			
	B	SE B	B	sr_i^2
Step 1				
Age	5.61	2.13	.22	.21**
Residency	-33.48	14.95	-.19	-.18*
Step 2				
Age	4.22	1.96	.17	.18*
Residency	-19.75	13.74	-.11	-.12
Role conflict	-5.86	1.20	-.41	-.38**
Uncertainty in illness	-0.25	.48	-.04	-.04
Illness-related communication avoidance	-0.11	.22	-.04	-.04
Step 3				
Age	3.96	1.97	.16	.17*
Residency	36.06	43.30	.20	.07
Role conflict	-6.38	1.46	-.44	-.35**
Uncertainty in illness	.07	.54	.01	.01
Illness-related communication avoidance	-.21	.26	-.07	-.07
Interaction: Residency × Role conflict	1.36	2.55	.05	.05
Interaction: Residency × Uncertainty in illness	-1.65	1.20	-.35	-.12
Interaction: Residency × Illness-related communication avoidance	.49	.52	.09	.08

Note: $^{**}p < .01$, $^{*}p < .05$

In step two, age again emerged as a significant positive contributor to overall college student adjustment, wherein as age increased so did overall college student adjustment. In addition, role conflict emerged as a significant negative contributor to overall college student adjustment, wherein as role conflict increased overall college student adjustment decreased. The addition of the interaction terms (i.e. residency ×

role conflict, residency × uncertainty in illness and residency × illness-related communication avoidance) in step three, did not result in any significant increment in R^2, $R^2 = .26$ (Adjusted $R^2 = .22$), $\Delta R^2 = .01$, $F_{inc}(3,138) = .78$, $p = .51$.

Taken together, the findings indicate that hypothesis 3 was partially supported. As predicted, a significant negative association emerged between role conflict and overall college student adjustment. However, significant associations did not emerge between uncertainty in illness or illness- related communication avoidance and overall college student adjustment. Finally, the interactions between residency status and the family and illness-related IVs (i.e., role conflict, uncertainty in illness and illness-related communication avoidance) failed to make any unique contributions to overall college student adjustment above and beyond the individual contributions of these variables. Table 17 provides a complete list of the hypotheses and their outcomes.

Table 17
Summary of the Hypotheses and their Outcomes

Hypotheses	Outcome
H1: Domestic students will score higher on all four domains of college student adjustment (i.e., academic adjustment, social adjustment, personal-emotional adjustment and institutional attachment) than international Asian students.	Partially Supported
H2: Students (i.e., international Asian and domestic) with a chronically ill family member (i.e., the illness group) will score lower on all four domains of college student adjustment (i.e., academic adjustment, social adjustment, personal-emotional adjustment and institutional attachment) than those without a chronically ill family member (i.e., the non-illness group).	Partially Supported
H3. Role conflict, uncertainty in illness, and illness-related communication avoidance will be negatively associated with overall college student adjustment for the illness group	Partially Supported

Exploratory Analyses

I performed a chi-square analysis between residency status and illness status to determine if it was more likely for students with a particular residency status to be more or less likely to indicate having a familial chronic illness. The results indicated a significant difference, χ^2 (1, N = 232) = 20.69, $p < .001$ in that domestic students were more likely than international Asian students to indicate that they had a family member with a chronic illness.

Moreover, in order to gain a more comprehensive understanding of the importance of residency status and role conflict in connection with overall college student adjustment, I performed a hierarchical regression analysis using the entire

study sample ($N = 232$). In this hierarchical regression, the IVs were age, residency status, illness status, and role conflict, and the DV was overall college student adjustment.

In step one of the hierarchical regression, I included the IVs of age as (per preliminary analysis), residency status (i.e., international Asian vs. domestic) and illness status (i.e., having a family member with a chronic illness vs. not having a family member with a chronic illness). In step two, I included the centered score for role conflict, and in step three I included the interaction terms (i.e., age × role conflict, residency status × role conflict, and illness status × role conflict).

Table 18 includes the unstandardized regression coefficients (B), the standard error regression coefficient (SE B), the standard regression coefficients (β), and the semipartial correlations (sr_i^2) for the hierarchical regression. R was significantly different from zero at the end of each step. After step three with all the IVs in the equation, $R = .46$, $F(7,185) = 6.99$, $p = 0.00$.

After step one with the age, residency status and illness status in the equation, $R^2 = .06$ (Adjusted $R^2 = .04$), $\Delta R^2 = .06$, $F_{\text{inc}}(3,189) = 3.66$, $p = .013$. Both age and residency status emerged as significant contributors to the variance in overall college student adjustment. More specifically, as age increased so did overall college student adjustment. As for residency status, domestic students were higher in overall adjustment than their international Asian peers.

After step two, with the centered score of role conflict in the equation, $R^2 = .20$ (Adjusted $R^2 = .19$), $\Delta R^2 = .15$, $F_{inc}(4,188) = 11.99$, $p = .000$. Age, again, emerged as a significant positive contributor to overall college student adjustment, wherein as

age increased so did overall college student adjustment. In addition, role conflict emerged as a significant negative contributor to overall college student adjustment, wherein as role conflict increased overall college student adjustment decreased. The addition of the interaction terms (i.e., age × role conflict, residency status × role conflict, and illness status × role conflict) in step three, did not result in any significant increment in R^2, $R^2 = .21$ (Adjusted $R^2 = .18$), $\Delta R^2 = .006$, $F_{inc}(7,185) = .72$, $p = .71$.

Table 18

Associations between Age, Residency Status, Illness Status, Role Conflict, and Overall College Adjustment for the Entire Sample (N = 232)

Variable	Overall college student adjustment			
	B	SE B	B	sr_i^2
Step 1				
Age	4.46	1.68	.18	.18**
Residency status	-27.63	11.05	-.18	-.17*
Illness status	-11.81	10.87	.08	-.07
Step 2				
Age	3.12	1.57	.13	.13*
Residency status	-17.12	10.38	-.11	-.11
Illness status	-2.58	10.17	-.02	-.02
Role conflict	-5.42	.88	-.38	-.37**
Step 3				
Age	3.27	4.53	.13	.05
Residency status	-17.46	10.45	-.11	-.10
Illness status	-3.72	10.22	-.02	-.03
Role conflict	-3.50	1.87	-.25	-.13
Interaction: Age × Role conflict	-.01	.29	-.01	-.00
Interaction: Residency status× Role conflict	.15	1.83	.01	.01
Interaction: Illness status × Role conflict	-2.87	1.91	-.17	-.10

Note: $^{**}p < .01$, $^{*}p < .05$.

Taken together, these findings indicate that domestic students are more likely to indicate that they have family member with a chronic illness and that they were higher in overall adjustment than the international Asian students. Moreover, role conflict appears to play a significant role in overall college student adjustment in that role conflict was negatively associated with overall college student adjustment regardless of residency or family illness status.

CHAPTER V. DISCUSSION

The purpose of the present study was to contribute to the fields of counseling psychology, thanatology, and life threatening illnesses and inform the practice of counseling psychologists by focusing on the experience of college students having a family member with a chronic illness. The current lack of empirical and theoretical literature on college students facing a familial chronic disease leaves practitioners with little guidance for how best to serve this population. I began by examining if there were possible differences that existed in college student adjustment with regard to residency status (i.e., international Asian vs. domestic). I then examined whether there were any differences in college adjustment between college students who had a chronically ill family member in contrast to those students who did not have a chronically ill family member, regardless of their residency status. I also examined the associations between role conflict, uncertainty in illness, illness-related communication avoidance, and the overall college student adjustment for college students having a family member with a chronic illness, regardless of their residency status. Lastly, I explored whether the interactions between residency status, and the family and illness-related variables (i.e., role conflict, uncertainty in illness, and illness-related communication avoidance) made a unique contribution to overall college student adjustment above and beyond the contribution of each of these three variables individually.

In the current study, I collected data from 232 college students at Purdue University and UIUC. I used four quantitative measures and a series of demographic questions to answer four research questions and test three corresponding hypotheses. The findings indicated partial support for H1, H2, and H3. RQ4 was exploratory and therefore, was not associated with a hypothesis, but the answer to the research question was negative, in that the interactions between residency status, and the family and the illness-related variables (i.e., role conflict, uncertainty in illness, and illness-related communication avoidance) did not uniquely contribute to overall college student adjustment above and beyond the contributions of these variables individually. In this chapter, I begin by reviewing the main findings of the study, including the results from my testing of the hypotheses. I offer my own thoughts on why the results may have emerged as they did along with connections with prior empirical findings. When appropriate, I use the theory of emerging adulthood (Arnett, 1998; 2004; 2011) and offer explanations of the findings from a developmental perspective. I go on to offer clinical implications of the findings. I then review the limitations of the current study and offer suggestions for future researchers. Finally, I provide a conclusion and suggest how the current study contributes to the empirical literature.

Primary Findings

Residency Status and College Student Adjustment

In this section, I review the results focused on differences in college student adjustment based on residency status (i.e., international Asian vs. domestic). I then offer possible rationale for the results.

Based on past research, I hypothesized that domestic students would score higher

on all four domains of college student adjustment (i.e., academic adjustment, social adjustment, personal-emotional adjustment and institutional attachment) than international Asian students (H1). H1 was partially supported. After controlling for age, domestic students scored significantly higher than international Asian students on the domains of social adjustment and institutional attachment. However, the effect sizes of these differences were small ($\eta^2 = .04$ for social adjustment, and $\eta^2 = .03$ for institutional attachment, Cohen, 1988). On the other hand, domestic students and international Asian students did not differ on their adjustment scores in the domains of academic adjustment and personal-emotional adjustment.

My sense of the finding that domestic students exhibited significantly higher social adjustment and institutional attachment than their international Asian peers is that although both international Asian and domestic face interpersonal transitions in their move to the university; the magnitude of these transitions are different for each group. International Asian students do face more transitions than their domestic counterparts and therefore, their low scores in these areas are perhaps to be expected. More specifically, international Asian students' transitions include moving countries, entering a new culture (Hechanova-Alampay et al, 2002) developing stronger language skills (Pendersen, 1991), learning a new educational system, and new cultural norms (Kaczmarek, et al 1994). These are not transitions general faced by domestic students. International Asian students may also find the social environment in the U.S. to be unwelcoming. For example, international students may want to interact with domestic students to alleviate the stress that arises in connection to their transitions; however, domestic students may not be welcoming of international students, herein domestic students may even avoid

international Asian students (Spencer-Rodgers, 2002). Lastly, university resources (e.g., housing, dining, residence life) are often geared toward serving the needs of domestic students (e.g., Kher, Juneau & Molstad, 2003) which may be why international Asian students are not as attached to their universities as their domestic peers.

Moreover, the lack of significant differences between domestic and international Asian students with regard to academic and personal-emotional adjustment may be connected to similarities in intrapersonal development across the groups. More specifically both groups are likely increasing maturity which may be fostering academic capability (McInnis & James, 1995), and also improving their self-regulation of emotions (Soto, John, Gosling & Potter, 2011), consistent with college student development and emerging adulthood theory (Arnett, 2004; Chickering & Reisser, 1993). In the current study, age did emerge (per the preliminary analyses) as significantly and positively associated with both academic and personal emotional-development, offering further support for this idea of shared intrapersonal development in these domains.

Illness Status and College Adjustment

In this section, I review the results focused on differences in college student adjustment based on family illness status (i.e., having a family member with a chronic illness vs. not having a family member with a chronic illness). I then offer possible rationale for the results.

Based on past research, I hypothesized that the illness group (i.e., students who had a family member with a chronic illness) would score lower on all four domains of college student adjustment (i.e., academic adjustment, social adjustment, personal-emotional adjustment and institutional attachment) than the non-illness group (i.e.,

students who did not have a family member with a chronic illness), regardless of their residency status (H2). H2 was partially supported. After controlling for age, the illness group scored significantly lower than the non-illness group on the domain of personal-emotional adjustment. However, the effect size of the difference was small ($\eta^2 = .04$, Cohen, 1988). In contrast, the illness group did not score significantly lower than the non-illness group on the domains of academic adjustment, social adjustment, or institutional attachment.

My sense of the finding of a significant difference on personal-emotional adjustment between the illness and the non-illness group is that the illness group was likely experiencing a lack of predictability in connection to their family member's illness. This lack of predictability may have contributed to the illness group frequently appraising and reappraising their family members' illness situation (Lazarus & Folkman, 1984). In contrast, the non-illness group may have experienced more predictability when it came to their familial stressor leading them to not be so frequent in their appraisals. According to Lazarus and Folkman (1984), frequent appraisals and reappraisals regarding a stressful life event may contribute to heightened psychological and physiological stresses. Herein, the illness group may not really know what they need to do in order to be prepared in connection to their family member's illness and therefore, their heightened stress levels may be contributing to their relatively lower scores on personal-emotional adjustment scale, compared to the non-illness group. As a reminder, the personal–emotional adjustment assessed for two aspects of college adjustment namely, "a sense of psychological wellbeing" and "a sense of physical wellbeing" (Baker, 2002, p.6).

Moreover, with regard to the lack of differences between the illness and non-

illness groups on academic adjustment, social adjustment, and institutional attachment, one possible explanation is that these subscales do not focus on issues that could easily be tied back to any specific illness experiences. All these subscales focused quite specifically on the college experience. For example, the academic adjustment subscale assesses aspects such as "motivation for being in college and doing college work, making an actual academic effort, success of the effort expended, and satisfaction with the academic environment" and the institutional attachment measure assesses for "satisfaction with being in college in general, and satisfaction with being at the institution in which one is enrolled" (Baker, 2002, p.6). In contrast the personal-emotional subscale of the SACQ assesses more broad-based functioning. Therefore, the lack of differences between the illness and non-illness groups on these domains may suggest that family illness is less connected with the college student experience than it is with more global functioning. It may also be that illness and non-illness related family stressors have a similar rather than distinct connection with the more narrowly focused domains of college student adjustment.

Family and Illness-related Factors, and Overall College Student Adjustment

In this section, I review the results focused on associations between the family and illness-related factors, and overall college student adjustment for the illness group. I then offer possible rationale for the results.

Based on past research, I hypothesized that the family and illness-related factors of role conflict, uncertainty in illness, and illness-related communication avoidance would be negatively associated with overall college student adjustment for the illness group, regardless of their residency status (H3). H3 was partially supported. The findings

indicated that the family variable of role conflict was negatively associated with overall college student adjustment, explaining 35% of the variance when all the factors were taken into consideration. Moreover, no associations were found between overall college student adjustment and the illness-related variables of uncertainty in illness and illness-related communication avoidance.

My sense of the finding of a significant negative association between role conflict and overall college student adjustment is that in times of a familial chronic illness college students would like to spend time with their families, but also need to meet the demands of school. Herein, they may experience challenges in balancing demands and, thus, may experience a push-pull between the two roles. Students who experience more push-pull appear to have lower adjustment. Moreover, students with lower adjustment, even prior to the family illness, may be more easily drawn into the push- pull of role conflict than are those with higher overall college student adjustment.

Moreover, the lack of association between overall college student adjustment and the illness-related variables (i.e., uncertainty in illness and illness-related communication avoidance) may have emerged because the illness-related variables focus specifically on the illness experience. In contrast both the role conflict and overall college adjustment measures focus, at least in part, on the college student experience. The role conflict measure refers specifically to participants' ability to manage both their role as a student and their role as a family member, whereas the uncertainty in illness and illness-related communication avoidance measures did not refer back to issues specifically related to college life. Therefore, it makes some sense that role conflict, in contrast to the illness-related factors emerged as significantly associated with college student adjustment. Role

conflict may have more relevance than these other two variables to the experience of being a college student.

Additionally, the distributions of both of the illness-related variables may have made it statistically improbable to detect an association between these variables and overall college student adjustment. More specifically, when I examined the distribution for uncertainty in illness and illness-related communication avoidance, I found both the distributions to be skewed in one direction and also leptokurtic (i.e., highly peaked and restricted in variance; Sheskin, 2004). In the case of uncertainty in illness, the scores clustered toward the right or the higher end of the distribution leading to negative skewness. Herein, most participants indicated experiencing high levels of uncertainty in illness. In the case of the illness-related communication avoidance, scores were clustered towards the left or the lower end of the distribution leading to positive skewedness (Sheskin, 2004). Herein, most participants indicated having low levels of illness-related communication avoidance. Therefore, given the skewed and leptokurtic nature of these distributions it was difficult to find any association between these variables and overall college student adjustment.

From the lens of emerging adulthood, college students do experience normative uncertainty in this phase of life (Arnett, 2004). Herein, the uncertainty in illness may be adding to this normative uncertainty, which in turn, may be associated with their emotional and physiological wellbeing (i.e., personal-emotional adjustment).

Interaction Effects and Contribution to Overall College Student Adjustment

In this section, I review the results focused on the interaction terms between residency status, and the family and illness-related factors for the illness group (i.e.,

college students who indicated having a family member with a chronic illness; RQ4). RQ4 was exploratory in nature and I did not develop a hypothesis for this research question. With this research question, I explored whether the interactions between residency status, and that the family and illness-related factors (i.e., role conflict, uncertainty in illness, and illness-related communication avoidance) would make a unique contribution to overall college student adjustment above and beyond the contributions of each of these three variables separately. The findings indicated that these interactions did not make any unique contributions to overall college student adjustment for participants in the illness group.

I believe that the interactions between residency status and the family and illness-related variables did not contribute to overall college student adjustment because the common denominator of having a family member with a chronic illness may in some way cut across cultural systems to bring forth a ubiquitous reaction. The family and illness-related variables (i.e., role conflict, uncertainty in illness, and illness-related communication avoidance) that I chose for this study have been studied cross-culturally in connection with family illness, wherein these variables have been found to play a role in the wellbeing of families cross-culturally. Therefore, the relationships between the variables (i.e., overall college student adjustment, role conflict, uncertainty in illness, and illness-related communication avoidance) may have emerged as analogous across residency status.

Exploratory Findings

Residency Status, Ill Status, Role Conflict, and Overall College Student Adjustment

I performed two additional analyses and found that domestic students were more likely to report familial chronic illness than were international Asian students and that role conflict was negatively associated with overall college adjustment, regardless of residency or family illness status. Petronio's (2002) communication privacy management (CPM) theory may offer concepts that can help to explain this finding. CPM is a theory focused on how individuals make decisions to reveal or conceal private information. Two core beliefs of the theory are that culture dictates the norms of disclosure and privacy at any given time, and that men and women have different privacy boundaries based upon their socialization. In the case of the current study, these factors (i.e., the norms of disclosure, privacy boundaries, and socialization) may have operated differentially for domestic and international Asian students when it came to reporting familial chronic illness. Moreover, access to health care, the focus on prevention, and the management of chronic illnesses is different in Asian middle and lower income countries and the U.S. (WHO, 2011). Therefore, even the concept of chronic illness may be perceived differently across cultures which may be why international Asian students reported lower instances of familial chronic illness than their domestic counterparts.

As for the general negative association between role conflict and overall college student adjustment, I believe that in the phase of emerging adulthood family relationships are in a state of flux. More specifically family relationships undergo major changes when college students transition to college (Arnett, 2004; Chickering & Reisser, 1993). Herein, students are separating from the family and starting to assume responsibility for

themselves, along with learning to manage new relationships and meet new social and academic demands. Although these changes may be operationalized differently in different cultures, research does indicate that emerging adults from Asian countries (e.g., China, Nelson et al.2004 and India, Seitler & Nelson, 2011) do experience some sense of transition in independence from their families during this developmental phase (Nelson et al., 2004). Going through these transitions makes this phase of life stressful (Arnett, 2004). Therefore, any disturbance in the two roles (i.e., college student and family member) in this phase of life is bound to have an association with college student adjustment. For example, both Meeuwise, Born and Severiens (2011) and Home (1998) found that role conflict between the family and student roles negatively affected college students' efforts in school (i.e. hindered their academic performance). Similarly, when college students indicate experiencing lower adjustment they may be more vulnerable to experiencing role conflicts than those with higher adjustment. These findings raise some interesting clinical implications.

Clinical Implications

The findings of the current study may be used to inform the work of counseling psychologists working in a variety of units on college campuses such as, counseling centers, the office of student affairs, office of international students, and offices focused on family relations. In the following paragraphs, I review how these professionals can use the findings of the current study.

Counseling psychologists working in counseling centers may use the current findings in their individual and group work. In terms of individual therapy, the findings indicate that students who have a close family member with a chronic illness may

experience lower personal and emotional functioning than their peers who do not have an ill family member. Therefore, counseling psychologists need to assess for personal-emotional functioning when students present with challenges related to coping with a family illness. In addition, it would be helpful to include familial illness in intake protocols. Moreover, if these students do report experiencing role conflicts, counseling psychologists may normalize their distress and help them articulate both the negatives and positives of the role conflict, thereby moving them toward personal growth.

Counseling psychologists could also explore various coping strategies in their individual sessions with college students to help them feel more in control. Miller (1987) indicated that when a situation is uncontrollable (e.g., waiting for a family member's test results) a strategy of information avoidance and distraction works better than a strategy of information seeking and non-distraction. Therefore, counseling psychologists can collaborate with college students to come up with strategies that may help them cope with the uncertainty that they may be experiencing in connection with their familial illness. Lazarus and Folkman (1984) also indicated that avoidance, as a coping strategy can be either threat inducing as it increases ambiguity or threat reducing as it let's individuals explore alternative explanations. Therefore, counseling psychologists can work with college students to see how best to use avoidance as a strategy to feel more in control in times of a familial illness.

Counseling psychologists may also advocate for these students with their professors when it comes to getting more time on assignments or exams especially when there is an emergency in connection to the familial chronic illness. In addition, all students, regardless of residency or illness status, who are experiencing role conflict

between their roles of student and family member may have issues around overall college adjustment. Therefore, counseling psychologists can remain vigilant and assess for role conflicts when student clients present with overall challenges to adjusting to college.

With regard to group work, counseling psychologists working in counseling centers may create support groups for students who are dealing with a familial illness. These students have unique needs for support, which are often unmet by their friend circles (McPhail, 2014). Through group work counseling psychologists may be able to connect these students with their fellow students who are going through similar experiences. Support groups do appear to be an effective intervention for college student facing a variety of stressful life events (e.g., bereavement groups, Battle, Greer, Ortiz-Hernndez & Todd, 2013; international student groups, Carr, Koyama & Thiagarajan, 2003; sexuality-related groups, Welch, 1996).

Counseling psychologists working in offices of student affairs and international student services may use the current findings in variety of outreach programs. Herein, professionals may create intercultural diversity trainings, outreaches, and psychoeducational workshops for both college students and staff members; programs that highlight the benefits of intercultural interactions between domestic and international students. Doing so may enhance intercultural communication competence (i.e., ability to communicate in an intercultural context; Huang, 2014). Previous research has indicated that such intercultural interactions have helped in retention for international students (Westwood & Barker, 1990), attainment of better academic performance for both international and domestic students (De Vita, 2002), and have led to an increase in open mindedness for domestic students (Williams & Johnson, 2011). The provision of such

outreach efforts may also lead to a more inclusive environment on U.S. campuses (Huang, 2014).

Counseling professionals in the office of student affairs and international students' services could also use the current findings to prompt the implementation of focus groups with international students. Such focus groups with international students could result in specific information regarding the unique needs of these students. Counseling psychologists working in these units could then collaborate with other student services such as housing, dining, and residence life in the development and delivery of more tailored services for international students. Moreover, through these types of focus groups these professionals may facilitate a constructive dialogue between international students and university policy makers that might help in creating more international student inclusive policies on university campuses. These types of endeavors may help international students experience a greater sense of social adjustment and more attachment to their universities.

Lastly, counseling psychologists in office of family relations may use the current findings to develop a variety of psychoeducational materials and programs for parents. More specifically, these educational efforts could focus on the importance of parent-student relationships and their association with college student adjustment. Extrapolating from the current findings, these professionals could create brochures, workshops, and seminars on topics such as the importance of parental involvement in students' academic adjustment (Mattanah, Hancock, & Brand, 2004), persistence in subjects such as science and math (Byars-Winston & Fouad, 2008; Ratelle, Larose, Guay, & Sencal, 2005), substance use, and risky sexual behaviors (Padilla-Walker, Nelson, Madsen & Barry,

2008). Emerging adulthood researchers have empirically demonstrated the importance of parental involvement in all these aforementioned areas

Limitations

The limitations of this study can be grouped into three categories. Herein the limitations relate to: sampling, measurement, and research design. I review specific issues within each category.

Sampling

With regard to sampling, the small sample size, particularly of international Asian students, is a primary limitation of the current study. A larger sample size of international students would have enabled me to examine for intergroup differences based on countries and even bring into focus specific adjustment domains in which the international students from particular countries had the lowest scores. Moreover, all of the participants in the current study were recruited from two large public universities. Both Purdue University and UIUC have a large presence of international Asian students and these campuses have services (e.g. cultural centers) to address some of the needs of these students. This may not be the case on smaller campuses. Additionally, the results of the study may have limited generalizability for college students in other regions of the U.S., students on private campuses, domestic students who live closer to their families, other international populations, and adults in other age groups. Moreover, these results may have limited applicability for graduate students who are developmentally at a different phase in their adulthood than undergraduate students.

With regard to the low sample size in the illness group, I could not examine the data for potential differences in terms of different types of chronic illnesses. For example,

a diagnosis of diabetes may be seen in a different light as a long-term chronic illness than a diagnosis of cancer, which may be seen as an acute condition more connected to the idea of imminent death.

Furthermore, I limited my sample to domestic students who lived within 50 miles or more from their families and to international Asian students. Moreover, when compared to the general campus populations, more women than men students chose to participate in this study. I was also unable to use the variable of race/ethnicity in my primary analysis, as I did not have enough participants from different domestic racial minorities. All these factors limit the generalizability of the findings.

The results of this study may also be biased due to self-selection into the study. The college students who chose to participate in this study may have been fundamentally different from the students who did not choose to participate in this study. For example, all of the participants were recruited via email and data were collected through an online survey. Internet self-report surveys are susceptible to sampling concerns (e.g., false reporting of demographics) and access concerns (e.g., discounting individuals who do not have internet access because of economic disparities (Keller & Lee, 2003; Wolf, 1998). However, researchers have argued that data collected via the Internet is comparable to data collected through other modes, such as paper and pencil administration (Mathy, Schillace, Coleman & Berquist, 2002). Lastly, the current study did not include the responses of those college students who had left the college campus because of a familial illness; this too limits the generalizability of the findings.

Measurement

There was no empirical literature on international Asian students and familial chronic illness. Moreover, no instruments had been developed to specifically examine the responses of international Asian students in times of familial illness. Therefore, I performed a pilot study (Appendix A) to ensure that the measures used in the current study were relevant to the international Asians student population. However, none of the participants in the pilot study made any comments about the understandability or the applicability of the instruments or items even when they were specifically asked for this type of feedback. Therefore, it was difficult to ascertain whether these instruments did in fact capture the nuances of the familial chronic illness experience for international Asian students. There may have also been an element of social desirability and/or saving face for these students (Johnson & Van de Vijver 2003; Oetzel & Ting-Toomey, 2003; Ting-Toomey, 1988), leading them to not report any problems with the survey items.

Another measurement-related limitation of the current study was that the subscales of the SACQ have a few shared items. For example, the institutional attachment subscale shared one item with academic adjustment and eight items with the social adjustment subscale, which may have resulted in a lack of independence of the measurement errors calling into question the discriminant validity of each measure (Budescu & Rodgers, 1981; Trochim, 2006) and the construct validity of the overall measure (Trochim, 2006).

I also made modifications to the role conflict measure and the illness-related communication avoidance measure, which may have affected the results of the current study. In consultation with the grief and loss research team, I modified the role conflict

measure and also created new items for the illness-related communication avoidance measure to tap into participants' self-directed avoidance. These changes may have altered the construct validity of each of these scales.

I also made a scaling error in the current study and in the pilot study. I erroneously scaled the role conflict measure on a 5-point rather than 7-point rating scale, as was originally indicated by Olson (2011). My error on the role conflict scale may have resulted in the measure operating differently than intended by the author. However, the internal consistency of scores on all of the modified measures was acceptable and the scores on these measures correlated in expected directions with other study variables.

Lastly, I was limited in my choice of measures in the current study. For example, uncertainty in illness is a concept that has not been studied with a college student population. Therefore, after consulting with the grief and loss research team I decided to use only 13 items from the original uncertainty measure that were most applicable to this population. However, these items may not have captured all the nuances of uncertainty in illness experienced by this population.

Research Design and Statistics

The current study is limited with regard to the research design and the statistics that I used. In the current study, I used a correlational, cross-sectional design, which has certain disadvantages. First, there are potentially confounding variables related to the illness (e.g., type of illness, course of illness), individual participants (e.g., level of optimism) and family environment (e.g., family coping styles) that I did not account for in this study. For example, in the current study, as I was focused on distal family members, I did not include the variable of family coping style (e.g., Kotchick, Forehand,

Armistead, Klein & Wierson, 1996) as a primary variable however, family coping style is an important variable to study and it may highlight an important facet of familial chronic illness for college students. Second, although I studied the associations among the primary variables, the cross-sectional nature of the design did not allow for these associations to be viewed across time nor did it allow for any causal inferences to be made. Last, the small effect sizes that emerged in this study indicate that the findings must be discussed cautiously.

Future Research

The current study has four main recommendations for future research. More specifically, the present findings indicate a need for further research for college students facing a familial chronic illness, the need for the development of college student-specific measures, the importance of the use of different research designs, and the importance of the use of robust statistical methods.

It would be beneficial if future researchers continued studying the college student experience of familial illness, as limited empirical research is available on this issue. The current findings indicated that students facing a family illness scored significantly lower on personal and emotional adjustment than did their peers not facing a family illness. However, the effect size of this difference was small. Therefore, larger and more diverse samples would help to ensure that findings are generalizable across different populations of students. Moreover, there may be significant differences that may arise across various chronic illnesses; therefore, future researchers may investigate the possible differences across familial chronic illnesses (e.g., cancer, Alzheimer's, diabetes) and students' identity development. For example, the identity development of undergraduate students

in times of familial chronic illness may be different from that of graduate students who may have already begun moving towards adulthood.

Future researchers may also want to expand their research focus and include variables such as patterns of communication within families, family coping styles, and social support to inform how these factors play a role for college students who are facing a familial chronic illness. Additionally, they may want to examine the interactions between ethnicity and socioeconomic status, or even gender and socioeconomic status to see how these variables may work together in times of a familial chronic illness for college students. Additionally, future researchers may examine the intergroup differences between Asian international students in times of familial chronic illness and highlight the areas of wellbeing or adjustment where international Asian students struggle the most in times of a familial chronic illness.

There is also a need for the development of college student-specific measures to assess constructs such as uncertainty in illness and illness-related communication avoidance. Although the scores on the measures that I modified for the current study exhibited acceptable psychometric properties, these measures may not be appropriate for all student populations. Moreover, it may help to have more culturally-based instruments, which may enhance understanding and better capture the nuances of the familial illness across cultures.

Additionally, researchers may want consider using a variety of research designs to study the college student population with a familial illness. For example, future scholars may consider developing process-outcome studies wherein they study culturally relevant interventions with college students from diverse backgrounds (e.g., nationality, income

class, educational level) who are facing a familial chronic illness. They may also consider using a longitudinal research design that allows for a more comprehensive examination of the relationship between various psychological constructs (e.g. post- traumatic growth, resilience, hardiness, optimism) and the various facets of the familial illness experience (e.g., types of chronic illness, severity, duration). Such studies may also allow scholars to draw more causal conclusions.

Finally, the findings of the current study indicate a need for future researchers to use robust statistical methods. Herein, future researchers could use path analysis or structure equation modeling to better capture the relationships between the primary variables in a more comprehensive fashion.

Conclusion

In the current study, I empirically examined the differences in college student adjustment based on residency status (i.e., international Asian vs. domestic), and illness status (i.e., having a family member dealing with a chronic illness vs. not having a family member dealing with a chronic illness). I also examined possible associations between overall college student adjustment, and the family and illness-related variables of role conflict, uncertainty in illness, and illness-related communication avoidance. A total of 232 international Asian students and domestic students participated in this study.

The current study made a contribution to the field of counseling psychology by addressing a gap in the college student adjustment literature wherein minimal empirical attention has been given to the experience of college students facing a familial chronic illness. The current study also added to the international student adjustment literature, particularly for international Asian students. Moreover, the study made contributions to

the fields of thanatology and life-threatening illnesses where college students are an understudied population. Herein, the current study took the first step towards highlighting some of the difficulties (i.e., lower personal and emotional adjustment) that arise for college students dealing with a familial chronic illness.

Consistent with past research, the results of the current study indicated that international Asian students exhibit lower social adjustment and institutional attachment than their domestic peers, regardless of their illness status. The results also empirically demonstrated that regardless of residency status, students having a family member with a chronic illness experienced more distress (e.g., feel tense, overwhelmed, not sleeping, having frequent headaches) than those that did not have a family member with a chronic illness. Finally, role conflict was negatively associated with overall college student adjustment regardless of residency and illness status indicating that family relationships are important to surviving and thriving in college for all students.

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APPENDICES

Appendix A. Pilot Study

In my main study I used three quantitative measures to assess the constructs of role conflict, uncertainty in illness, and illness-related communication avoidance. The three measures I used to assess these constructs had not been empirically tested with an international Asian student population so I conducted a pilot study to examine the psychometric properties of these three measures with this population.

Method

Participants

A total of 61 international Asian students chose to participate in this study. Out of these, nine participants (15%) did not answer any questions therefore their responses were removed. Additionally, 15 participants (24.6 %) did not complete one or more measures and their responses too were removed. The final number of participants in this study was 37 (60.7%). Out of these participants, 16 identified as women, 20 as men, and one as "other". With regard to year in college, 22 participants were graduate students and 15 were undergraduates. Their ages ranged from 19 to 29 years (M = 23.46 years, SD = 3.08 years).In this sample, 19 participants (51.35%) identified as growing up in India and five in People's Republic of South Korea (13.5%). The remaining participants grew up in other Asian countries; i.e., four grew up in Taiwan, three in Thailand, two in Indonesia, and one each in Philippines, Hong Kong, China, and Malaysia. Additionally, all participants indicated that they had family members living in these Asian countries (i.e., India, People's Republic of Korea, Taiwan, Thailand, Indonesia, Philippines, Hong

Kong, China, and Malaysia). Finally, with regard to relationship status, 30 participants indicated that they were single (81.1%), four were partnered, and three were married.

The participants responded to demographic questions focused on their parents' (i.e., mother/maternal figure or father/paternal figure) education levels, employment levels, and the family's socioeconomic status. The mean education level for mothers/maternal figures was 14.56 years (*SD* = 5.28 years) and that for fathers/paternal figures was 15.89 years (*SD* = 4.16 years). For parents' employment level, 43.2% (*n* = 16) indicated that their mother/maternal figure had never worked/were long term unemployed, 40.5% (*n* = 15) indicated that their mother/maternal figure occupied a managerial position, and three participants each (8.1%) indicated that their mothers/maternal figures were employed in intermediate occupations or were self-employed.

Out of the 37 participants, 86.4% (*n* = 32) indicated that their fathers/paternal figures were occupied in managerial positions and two participants (8.1%) indicated that their fathers/paternal figures were employed in intermediate occupations. Moreover, one participant indicated that their father/paternal figure was employed in a routine occupation, and another that his father had never worked/was long term unemployed. One participant did not answer this question. Finally, for socioeconomic status (1 = *high income*, 10 = *low income*), the mean socio-economic status for the entire sample was 3.72 (*SD* = .97) indicating that most of participants were from an upper middle-income bracket.

Participants also responded to demographic questions about family members who were facing chronic illness. Out of the total 37 participants, 46% (*n* = 17) of the

participants indicated that they had a family member with a chronic illness back home. For their relationship with the chronically ill family member, five participants (29.4%) indicated that the ill family member was their mother/maternal figure; five participants (29.4%) indicated that it was their father/paternal figure, three participants (17.6%) indicated that it was their grandfather, and two participants (11.8%) indicated that it was their grandmother. Finally, one participant indicated that the ill family member was a sibling (a brother), and the remaining participant indicated that it was an uncle.

The types of chronic illnesses indicated were: five participants each indicated that their family member was dealing with diabetes and five with Alzheimer's. Two participants indicated that their family member was dealing with heart disease and two with arthritis. Lastly, kidney disease, lung disease, and stroke where indicated by one participant each. The time since diagnosis ranged from 4 months to 312 months (M = 70.46 months, SD = 93.07 months). Finally, seven participants (41.1%) indicated that their family member was currently in treatment and five participants (29.4%) indicated that their family member had been hospitalized in the last two years.

In the final sample, 20 participants indicated that they did not have any family members struggling with a chronic illness. These participants were asked to indicate their biggest current family stressor and then asked to fill out the role conflict measure keeping this current family stressor in mind. The top family stressors identified by eight participants (40%) were relational concerns (e.g., "meeting expectations," "I came out to my family"), four participants (20%) indicated that they did not have any pressing familial concerns, three participants (15%) indicated that distance from family was the cause of their stress. One participant indicated that they were struggling with financial

stressors (10%) and one indicated dealing with career-related stress (10%). Finally, one participant (5%) indicated that they did not wish to answer this question.

Measures

Role conflict. The Work–Family–School Conflict Scale (WFSC; Olson, 2011) assesses for conflicts between the role dimensions of work, family, and school for working college students. Within each role dimension, the conflicts are further divided into three perspectives (i.e., strain, time, and behavior). The measure also captures the directionality of the conflict and includes 12 subscales (e.g. strain-based school–to–work, time-based work–to–family, behavior-based family–to–school). The original measure consists of 60 items, and a factor analysis by Olson (2011) confirmed a 12-factor solution for the entire scale. Olson also demonstrated that the 12 subscales were positively inter-correlated.

In the pilot study, I used two subscales of the original measure, namely, the strain-based family-to-school conflict (FSC-strain) subscale and the time-based family–to–school conflict subscale (FSC-time; see Appendix E). In consultation with a grief and loss team, I slightly modified three items on each of the two subscales; I describe these modifications below.

The FSC-strain subscale consists of five items that measure "the physical and emotional demands (e.g., fatigue, irritability) of the family role that prevent full participation in the school role" (Olson, 2011, p. 72). An example item from the original subscale is, "I am often so emotionally drained when I arrive at school from home that it prevents me from accomplishing school related tasks," which I modified to, "I am often so emotionally drained after I communicate with my family that it prevents me from accomplishing school-related tasks."

The FSC-time subscale consists of five items that measure "the amount of time spent in the family role does not allow enough time to fulfill all responsibilities in the school role" (Olson, 2011, p. 73). An example from the original subscale is, "The amount of time my family takes up makes it difficult to fulfill student responsibilities," which I modified to, "The amount of time I spend thinking about my family makes it difficult to fulfill student responsibilities."

Items on both subscales are intended to be rated on a 7-point scale ranging from 1 = *strongly disagree* to 7 = *strongly agree*. I made an error in the creation of the online survey. Therefore, participants in the pilot study rated items on the subscales on a 5-point scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. Higher scores are indicative of more role conflict (Olson, 2011). In the pilot study, I added all items on both subscales for a composite total role conflict score.

As for psychometric information, the FSC-strain and FSC-time subscales are positively associated (Olson, 2011). Scores on the two subscales displayed high internal consistency, with .93 for the FSC-strain subscale and .94 for the FSC-time subscale (Olson, 2011). In the pilot study, the internal consistency for scores on the items of the combined FSC-strain and FSC-time was .95, adding support for my use of a total composite role conflict score. With regard to validity, total scores on the original measure (all twelve subscales together) were positively associated with high job demand, family demand and school demand (Olson, 2014) and negatively associated with job satisfaction, family satisfaction and school satisfaction (Olson, 2011; 2014).

Uncertainty in illness. The Parental Perception of Uncertainty Scale-Family Member (PPUS-FM; Mishel, 1997) was developed to measure the level of uncertainty in

family members who have an ill relative. The PPUS-FM is based on Mishel's Uncertainty in Illness Scale (MUIS, Mishel, 1981), which is a scale originally developed to measure ill and hospitalized adult patients' levels of uncertainty. The PPUS-FM has 31 items. A factor analysis established the presence of two-factors related to uncertainty for family members: ambiguity and lack of clarity (Mishel, 1997).

In the pilot study, I only used the ambiguity items because the lack of clarity factor assesses the uncertainty experienced by proximal family members (i.e., those who are physically close to their ill family member). Mishel (1997) defined ambiguity as a state where the "cues about . . . the illness are vague, indistinct, tend to blur and overlap" (p. 8). A sample item from the ambiguity subscale is, "I am unsure if his/her illness is getting better or worse." After consultation with a grief and loss research team, I dropped two items from the ambiguity scale because these items assessed the ambiguity levels of proximal members. The final PPUS-FM ambiguity subscale used in the pilot study consisted of 13 items (see Appendix F).

The items were rated on a 5-point scale ranging from 1 = *strongly disagree* to 5 = *strongly agree*. Higher scores are indicative of higher levels of ambiguity. In the scoring manual, Mishel (1997) recommends that if an item is not applicable, the item should be scored as 0 = *not applicable*. However, doing so would have led to a violation of the assumption of linearity inherent in Likert-type scales (McLeod, 2008). Moreover, by following Mishel's (1997) recommendation, I would not have been able to use this variable as a continuous variable (Tabachnick & Fidell, 2007). Therefore, after consulting with my advisor, I decided to calculate and use the mean score for each participant, rather

than their total score. Herein, I took a mean score of the items that the participants answered; leaving out the items that were marked "not applicable."

As for psychometric information, the scores for the ambiguity subscale have exhibited internal consistency ranging from .78 to .92 (Mishel, 1997). The internal consistency for the ambiguity items for the pilot sample was .96, indicative of high consistency (Cohen, 1988). With regard to validity, the original PPUS-FM measure has been used with family members dealing with different types of chronic diseases including cancer, heart conditions, and critical events such as intensive care unit hospitalizations (Mishel, 1997). Furthermore, the scale has been studied an Asian population (Mu, et al., 2001; 2002). Finally, the scores on the original Mishel Uncertainty in Illness Scale (on which the PPUS-FM is based) have been positively associated with anxiety (Mitchell & Courtney, 2004) and psychological distress (Mishel, 1984), and negatively associated with relationship satisfaction (Reich, Olmsted, &Van Puymbroeck, 2006).

Illness-related communication avoidance. The Family Avoidance of Communication of Cancer (FACC) measure was developed to assess cancer patients' perceptions of whether they (the patients themselves) could discuss their cancer openly with their family members (Mallinger, Griggs, & Shields, 2006). The original scale has five items, and a factor analysis indicated the presence of a single construct (Mallinger et al., 2006). A sample item from this scale is, "Family members discourage me from talking about my cancer."

For the purposes of the pilot study and after a consultation with a grief and loss research team, I changed the phrase "my cancer" to "the illness" (see Appendix G). An example of an original item is "Family members discourage me from talking about my

cancer" which I changed to, "Family members discourage me from talking about the illness." I also created five parallel items similar to those on the FACC in order to tap into the participants' self-directed avoidance. An example of a newly created item is, "I discourage family members from talking about the illness."

The items are measured on a 5-point scale ranging from 1 = *less avoidance* to 5 = *more avoidance*. Mallinger et al. (2006) directed researchers to compute raw scores by adding the items. This raw score was then transformed to range from 0-100. In the pilot study I transformed scores to percentile ranks. Higher scores reflect greater illness-related communication avoidance (Mallinger et al., 2006).

As for psychometric information, the internal consistency of scores was .92 (Mallinger et al., 2006) and 93-.95 (for Chinese and Korean- American, female, breast cancer survivors; Lim & Ashing-Giwa, 2012). The internal consistency of the scores for the pilot study sample was .84, indicative of high consistency (Cohen, 1988). With regard to validity, FACC scores have been negatively associated with mental health (Malinger et al., 2006) and health-related quality of life (Lim & Ashing-Giwa, 2012).

Procedure

I conducted this pilot study at Purdue University and at University of Illinois-Urbana Champaign (UIUC). I used three methods to recruit participants for this study. At Purdue University, I used a snowballing technique by contacting six different international Asian student organizations and requesting their student leaders to send out my recruitment email (see Appendix H) and a follow-up email (see Appendix I) to their listservs. Both the recruitment email and follow up email contained a web link to the survey. At UIUC, I contacted officials at the Division of Data Management who

randomly selected 50 Asian international students to whom the recruitment and follow-up email with the web link were sent. Finally, I used Facebook to recruit participants. Herein, I contacted nine other international students on their Facebook pages and they placed my recruitment message, which was the same as the recruitment email on their own Facebook page asking Asian international students to participate in the pilot study. All recruited participants were also encouraged to forward the recruitment message to anyone that they believed fit the inclusion criteria for the study. The Facebook recruitment message contained a web-based link to the study survey.

Individuals who decided to take part in the study clicked on the hyperlink, whereby they were directed to the survey's website and presented with an information letter (see Appendix J). The information letter described the purpose of the study and the voluntary nature of their participation. Individuals were also informed that that they could exit the survey at any point. To maintain anonymity, I did not collect IP addresses, nor did I request any identifying information (i.e., name, address). Finally, to maintain the study's integrity, the web program's settings did not allow participants to complete the survey more than one time.

All participants were presented with the demographic questions and the illness related demographic questions. With the help of "skip logic," participants who indicated having a family member with a chronic illness were then directed to the keep in mind their familial chronic illness and respond to the role conflict measure, uncertainty in illness measure and illness-related communication avoidance measure. At the end of each measure two open-ended questions invited the participants to comment on the relevance and understandability of the items.

On the other hand, participants who indicated not having a family member with a chronic illness were asked to specify their most recent family stressor and complete the role conflict measure with that stressor in mind. At the end of the role conflict measure, the participants were asked two open-ended questions to comment on the relevance and understandability of the items. At the end of the survey all participants were thanked for their participation and were provided with the opportunity to comment on their overall survey experience.

Results

The data were examined for accuracy of data entry, missing values, and a fit between variable distributions and the assumptions of multivariate analysis. The final participant sample for this study was 37 participants (i.e., 17 participants who indicated having a family member with a chronic illness and 20 participants who indicated not having a family member with a chronic illness). Linear trend at point was used to replace random and minimal item-level missing values. The analyses indicated that there were no violations of assumptions of normality, linearity, and homoscedasticity for the three variables (i.e., role conflict, uncertainty in illness and illness-related communication avoidance).

I then calculated the basic descriptive information for role conflict, uncertainty in illness, and illness-related communication avoidance (see Table 1). The mean score for role conflict was calculated for the entire sample whereas the means for uncertainty in illness, and illness-related communication avoidance were calculated only for the participants who indicated having a family member with a chronic illness. Table 1 also

displays the Cronbach α for each of the three measures. The scores for the pilot sample displayed good internal consistency (Cohen, 1988).

Table 1
Descriptive Information for the Three Primary Variables

Variables and Measures	*Mean*	*S.D.*	Min	Max	Cronbach α
Role conflict[a]	48.5	12.8	23	71	.95
Uncertainty in illness[b]	2.5	.98	1.3	4	.96
Illness-related communication avoidance[b]	32.4	19	12	62	.84

Note: [a]$N = 37$. [b]$n = 17$,

Table 2 displays the correlations among the continuous demographic variables and the three primary measures (role conflict, uncertainty in illness, and illness-related communication avoidance). The continuous demographic variables were: age, education levels (mother/maternal figure and father/paternal figure), and socioeconomic status. I also included the illness-related continuous demographic variable of time since the diagnosis ($M = 67.9$ months, $SD = 90.19$ months, range = 4 to 300 months) in this correlation. Time since the diagnoses was positively correlated with age ($r = .70$, $p = .008$) and uncertainty in illness ($r = .61$, $p = .05$).

Table 2

Bivariate Correlations for the Primary Variables and the Demographic Variable

Variables	1	2	3	4	5	6	7	8
1.Age[a]	-							
2. Maternal education[a]	.03	-						
3. Paternal education[a]	-.08	.76**	-					
4. SES[a]	-.02	.14	.03	-				
5. Diagnosis of illness	.70**	.29	-.00	-.13	-			
6.Role conflict[a]	.18	.15	.22	-.23	.08	-		
7.Uncertainty in illness[b]	.43	-.03	-.13	.14	.61*	.42	-	
8.Illness-related communication avoidance[b]	-.07	.07	-.43	.26	.33	-.51	-.10	-

Note: [a]N=37. [b]n=17. *$p < .05$. **$p < .01$

The following continuous demographic variables were *not* significantly correlated with role conflict, uncertainty in illness, and illness-related communication avoidance: parents' education level (mother/maternal figure and father/paternal figure), and socioeconomic status. Furthermore, the continuous illness-related demographic variable of time since the diagnosis was also not correlated with role conflict, and illness-related communication avoidance. Finally, surprising no significant associations emerged between the three primary variables (i.e., role conflict, uncertainty in illness, and illness-related communication avoidance).

In this pilot study, I also included categorical demographic variables such as: sex, country of origin, employment status of parental figures, marital status, and illness-related categorical demographic variables such as: relationship with the ill family member, type of illness that the ill family member is struggling with, current treatment,

and recent hospitalization. The analyses of these categorical variables would have involved comparing groups. As I had few participants in this pilot study, it precluded my ability to analyze for possible group differences based on these categorical demographic variables and illness-related categorical demographic variables.

I then reviewed the open-ended questions wherein participants could comment on the relevance and understandability of the items on all three of the measures. Surprisingly, none of the participants made any comments about the relevance and understandability of the items. Nor did anyone comment on the overall survey experience. There could be at least two explanations for this occurrence. First, it could be that the participants understood all the items and found them to be relevant and therefore, did not think it necessary to comment on any of the items. Second, the cultural attitudes may have acted as a barrier to making any negative comments to the statements wherein these participants were dissatisfied with these items however, did not want to comment on it. Empirical studies have indicated that in cultures such as those of China and Japan, individuals use a more avoiding style of conflict management in an effort to save "the other-face" (i.e. they show concern for another's image, Oetzel & Ting-Toomey, 2003, p. 603). The lack of comments is a major limitation of this pilot stu

Appendix B. Demographic Questions

1. Age: _____

2. Sex: Woman: ____ Man: ____ Other: ____ Choose not to answer: ____

3. Year in the University:
   First year: ___
   Sophomore: ___
   Junior: ___
   Senior: ___
   Master's: ___
   Doctoral: ___

3. Which country did you grow up in?
   China: _____
   Republic of Korea: _____
   India: _____
   Other Asian country: _____
   Other countries (*if other, exit survey*): _____
   Choose not to answer: _____

4. In which country does your family currently live?
   China: _____
   Republic of Korea: _____
   India: _____
   Other Asian country: _____
   Other countries (*if other, exit survey*): _____
   Choose not to answer: _____

5. Are you:
Single: _____
Partnered: _____
Married: _____
Separated: _____
Divorced: _____

6. Parents education level: (sliders)
Mother:
0----------5----------10----------15> years of education

Father:
0----------5----------10----------15> years of education

7. Parents employment:

Mother:

Higher managerial and professional occupations: _____

(*Occupations in large organizations, managerial professions and higher professional occupations, e.g., doctors, lawyers, professors, engineers)*

Lower managerial and occupations: _____

(Occupations with lower professional and higher technical occupations, lower managerial and higher supervisory occupations, e.g., school teachers, nurses, journalists)

Intermediate occupations: _____

(Occupations in clerical, sales and intermediate technical occupations, e.g.. secretaries, photographers, airline cabin crew)

Small employers and own account workers: _____

(Small employers are those who employ others and so assume some managerial function. Own account workers are self-employed people engaged in nonprofessional trade or personal services. E.g., Self-employed contract workers, hairdressers, shopkeepers).

Lower supervisory and technical occupation: _____

(Lower supervisory and technical occupations with some service element. E.g., Train drivers, Plumbers, Electricians, Foreman)

Semi-routine occupations: ___

(Occupations with some level of decision making. E.g., Call center workers, Care assistants, Postal workers, Security guards)

Routine occupations: ____

(Occupations with a basic contract where employees are paid for a specific service. E.g., Bus drivers, Restaurant Hostess/host, Car parking attendants)

Never worked and long-term unemployed: _____

(People who have never had an occupation or those that have not been employed for an extended period of time)

Not classified: _____

(Occupations that cannot be classified or cannot be found. Included in this category are the people who are retired, long term sick or disabled, people looking for employment and students)

Father:

Higher managerial and professional occupations: _____

(*Occupations in large organizations, managerial professions and higher professional occupations, e.g., doctors, lawyers, professors, engineers)*

Lower managerial and occupations: _____

(Occupations with lower professional and higher technical occupations, lower managerial and higher supervisory occupations, e.g., school teachers, nurses, journalists)

Intermediate occupations: _____

(Occupations in clerical, sales and intermediate technical occupations, e.g., secretaries, photographers, airline cabin crew)

Small employers and own account workers: _____

(Small employers are those who employ others and so assume some managerial function. Own account workers are self-employed people engaged in nonprofessional trade or personal services. E.g., Self-employed contract workers, hairdressers, shopkeepers).

Lower supervisory and technical occupation: _____

(Lower supervisory and technical occupations with some service element. E.g., Train drivers, Plumbers, Electricians, Foreman)

Semi-routine occupations: ___

(Occupations with some level of decision making. E.g., Call center workers, Care assistants, Postal workers, Security guards)

Routine occupations: ____

(Occupations with a basic contract where employees are paid for a specific service. E.g., Bus drivers, Restaurant Hostess/host, Car parking attendants)

Never worked and long term unemployed: _____

(People who have never had an occupation or those that have not been employed for an extended period of time)

Not classified: _____

(Occupations that cannot be classified or cannot be found. Included in this category are the people who are retired, long term sick or disabled, people looking for employment and students)

8. Please use the slider to indicate where you think your family stands at this point relative to other people in your country. To the right of the slider are the people who are the best off- those who have the most money, the most education and the most respected jobs. To the left, are the people who are the worst off- who have the least money, least education and the least expected jobs or no jobs. The further right your family is on this slider the closer you are to the families at the very top.

A------B------C------D------E------F------G------H------I------J

Appendix C. Illness-Related Demographics

1. Is anyone in your family (including extended family) currently struggling with any one of the following diseases? (Please tick the ones that apply).

- Alzheimer's: _____ How many are struggling with this condition? _____
- Arthritis: _____ How many are struggling with this condition? _____
- Cancer: _____ How many are struggling with this condition? _____
- Dementia: _____ How many are struggling with this condition? _____
- Diabetes: _____ How many are struggling with this condition? _____
- Heart Disease: _____ How many are struggling with this condition? _____
- Kidney Diseases: ____ How many are struggling with this condition? _____
- (e.g., like those that require going in for dialysis)
- Lung Diseases: ___ How many are struggling with this condition? _____
- (e.g. Emphysema , Asthma, or Chronic Bronchitis)
- Stroke: _____ How many are struggling with this condition? _____

- No, I do not have any family members struggling with these conditions._____

2. What is the biggest family-related stressor you are currently dealing with? **(Presented only to those who identify that they do not have any family members struggling with a chronic illness).**

_____

3. Look back at the list of family members you have who are struggling with these diseases. Think about the **one** person on this list that you feel the closest to--and then answer the following questions:

a. What is your relationship with this closest and ill family member?

Mother: _____ Father: _____ Sibling (sister): _____ Sibling (brother): _____

Grandmother: _____ Grandfather: _____ Aunt: _____ Uncle: _____

Cousin (female): _____ Cousin (male): _____ Niece: _____ Nephew: _____

In-laws (please mention the relationship):_____ Other: _____

b. Which specific disease is this closest and ill family member struggling with?

- Alzheimer's: _____
- Arthritis: _____
- Cancer: _____
- Dementia: _____
- Diabetes: _____
- Heart Disease: _____

Appendix D. Student Adjustment to College Questionnaire

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Appendix E. Modified Family-to- School Conflict Scales

Instructions: Please rate how much you agree or disagree with the following statements

1. After I communicate with my family, I am often too frazzled to participate in school activities/responsibilities

1----------2----------3----------4----------5
Strongly Disagree Neutral Agree Strongly
Disagree Agree

2. My family life conflicts with my school class schedule

1----------2----------3----------4----------5
Strongly Disagree Neutral Agree Strongly
Disagree Agree

3. I am often so emotionally drained after communicating with my family that it prevents me from accomplishing school related tasks

1----------2----------3----------4----------5
Strongly Disagree Neutral Agree Strongly
Disagree Agree

4. The time I must devote to thinking about my family keeps me from participating in my school responsibilities.

1----------2----------3----------4----------5
Strongly Disagree Neutral Agree Strongly
Disagree Agree

5. Due to all the pressures at home, sometimes, when I am at school I am too stressed to do the things I want to do.

1----------2----------3----------4----------5
Strongly Disagree Neutral Agree Strongly
Disagree Agree

6. The time I spend thinking about my family responsibilities often interferes with my school responsibilities.

1----------2----------3----------4----------5
Strongly Disagree Neutral Agree Strongly
Disagree Agree

7. Due to stress at home I am often preoccupied with family matters at school.

1----------2----------3----------4----------5
Strongly Disagree Neutral Agree Strongly
Disagree Agree

8. I have to miss school activities due to the amount of time I spend thinking about my family responsibilities.

1----------2----------3----------4----------5
Strongly Disagree Neutral Agree Strongly
Disagree Agree

9. Because I am often stressed with family responsibilities, I have a hard time concentrating on my schoolwork.

1----------2----------3----------4----------5
Strongly Disagree Neutral Agree Strongly
Disagree Agree

10. The amount of time my family takes up makes it difficult to fulfill student responsibilities.

1----------2----------3----------4----------5
Strongly Disagree Neutral Agree Strongly
Disagree Agree

Appendix F. Uncertainty in Illness

Instructions: Please read each statement. Take your time and think about what each statement says. Then place a mark under the column that most closely measures how you are feeling about your chronically ill family member TODAY. If you agree with a statement, then you would mark under either "Strongly Agree" or "Agree". If you disagree with a statement, then mark under either "Strongly Disagree" or "Disagree". If you are undecided about how you feel about him/her, then mark under "Undecided" for that statement. If the statement is not applicable to you then mark "Not Applicable" Please respond to every statement.

1. I am unsure if her/his illness is getting better or worse.
1. Strongly Agree
2. Agree
3. Undecided
4. Disagree
5. Strongly Disagree
0. Not Applicable

2. It is unclear how bad her/his symptoms will be.
1. Strongly Agree
2. Agree
3. Undecided
4. Disagree
5. Strongly Disagree
0. Not Applicable

3. Her/his symptoms continue to change unpredictably.
1. Strongly Agree
2. Agree
3. Undecided
4. Disagree
5. Strongly Disagree
0. Not Applicable

4. I understand everything explained to me.
1.Strongly Agree
2.Agree
3.Undecided
4.Disagree
5. Strongly Disagree
0. Not Applicable

5. It is difficult to know if the treatment or medications she/he is getting are helping.
1. Strongly Agree
2. Agree
3. Undecided
4. Disagree
5. Strongly Disagree
0. Not Applicable

6. There are so many different types of staff; it's unclear who is responsible for what.
1. Strongly Agree
2. Agree
3. Undecided
4. Disagree
5. Strongly Disagree
0. Not Applicable

7. The course of her/his illness keeps changing. She/he has good and bad days.
1. Strongly Agree
2. Agree
3. Undecided
4. Disagree
5. Strongly Disagree
0. Not Applicable

8. It's vague to me how my family will manage the care of her/him after she/he leaves the hospital.
1. Strongly Agree
2. Agree
3. Undecided
4. Disagree
5. Strongly Disagree
0. Not Applicable

9. It is not clear what is going to happen to her/him.
1. Strongly Agree
2. Agree
3. Undecided
4. Disagree
5. Strongly Disagree
0. Not Applicable

10. The results of her/his test are inconsistent.
1. Strongly Agree
2. Agree
3. Undecided
4. Disagree
5. Strongly Disagree
0. Not Applicable

11, I can generally predict the course of his/her illness.
1. Strongly Agree
2. Agree
3. Undecided
4. Disagree
5. Strongly Disagree
0. Not Applicable

12. Because of the treatment, what she/he can do and cannot do keeps changing.
1. Strongly Agree
2. Agree
3. Undecided
4. Disagree
5. Strongly Disagree
0. Not Applicable

13. They have not given him/her a specific diagnosis.
1. Strongly Agree
2. Agree
3. Undecided
4. Disagree
5. Strongly Disagree
0. Not Applicable

Appendix G. Modified Family Avoidance of Communication of Cancer Scale

The following questions are about your family and you. Please indicate how often each of the following is true.

1. Family members discourage me from talking about the illness.

1----------2----------3----------4----------5

Not at all true Completely true

2. I hardly talk to anybody about the illness.

1----------2----------3----------4----------5

Not at all true Completely true

3. I discourage family members from talking about the illness

1----------2----------3----------4----------5

Not at all true Completely true

4. Family members get upset with me if I talk about the illness.

1----------2----------3----------4----------5

Not at all true Completely true

5. My motto about the illness is “don’t ask, don’t tell.”

1----------2----------3----------4----------5

Not at all true Completely true

6. Almost no one in my family will talk with me about the illness.

1----------2----------3----------4----------5

Not at all true Completely true

7. I get upset with family members if they talk about the illness.

1----------2----------3----------4----------5

Not at all true Completely true

8. In my family the motto about the illness is “don’t ask don’t tell.”

1----------2----------3----------4----------5

Not at all true Completely true

9. If family members start talking about the illness I change the subject.

1----------2----------3----------4----------5

Not at all true Completely true

10. If I start talking about the illness, family members change the subject.

1----------2----------3----------4----------5

Not at all true Completely true

Appendix H. Recruitment Email

Subject Line: A study on life roles and college adjustment (Purdue University)/A study for college students (UIUC)

Hello!
My name's Meghana Suchak and I am a graduate student at Purdue University. I am working on a research project under the direction of my advisor Dr. Heather Servaty-Seib. The purpose of this project is to explore the relationship between different role responsibilities and college adjustment. I am hoping that you will be able to help me in my project by participating in this study.

This study has been approved by Purdue University's Institutional Review Board. It is conducted through an on-line survey and should take about 15-20 minutes to complete. Responses are anonymous and you can skip any questions or leave the survey at any time.

In order to participate in this study, you MUST be between the ages of 18 and 29 years. If you are an international student, you MUST also be from an Asian country. If you would like to participate in this study please click on the link below:

https://purdue.qualtrics.com/SE/?SID=SV_6i17GUQWb7t9C8R

If you have any questions about this study, please feel free to contact me at msuchak@illinois.edu or my advisor at servaty@purdue.edu. Thank you very much for your help! Your responses will be especially valuable to those who assist college students in counseling centers.

Kind regards,
Meghana Suchak, M. Psych (Coun)
Counseling Psychology Doctoral Candidate
Purdue University

Appendix I. Follow Up Email

Subject Line: A study on life roles and college adjustment (Purdue University)/A study for college students (UIUC)

Hello!

I am writing to you to follow up regarding an email I sent you last week about a research project. If you have completed the survey thank you very much, and you need not read further. If you still haven't let me tell you a bit about me and this project. I am really hoping that you will be able to help me by participating in this study.

My name's Meghana Suchak and I am a graduate student at Purdue University. I am currently working on this project under the direction of my advisor Dr. Heather Servaty-Seib. The purpose of the project is to explore the relationship between different role responsibilities and college adjustment.

This study has been approved by Purdue University's Institutional Review Board. It is conducted through an on-line survey and should take about 15-20 minutes to complete. Responses are anonymous and you can skip any questions or leave the survey at any time.

In order to participate in this study, you MUST be between the ages of 18 and 29 years. If you are an international student, you MUST also be from an Asian country. If you would like to participate in this study please click on the link below:

https://purdue.qualtrics.com/SE/?SID=SV_6nRVQResnm2b1KR

If you have any questions about this study, please feel free to contact me at msuchak@purdue.edu or my advisor at servaty@purdue.edu.Thank you very much for your help! Your responses will be especially valuable to those who assist college students in counseling centers.

Kind regards,
Meghana Suchak, M. Psych (Coun)
Counseling Psychology Doctoral Candidate
Purdue University

Appendix J. Letter of Information

Conflicts between Family and School Roles and Adjustment

Heather L. Servaty-Seib, Ph.D.

Purdue University

Educational Studies

Purpose of Research

The purpose of the current study is to explore the relationship between family and school responsibilities and college adjustment. For the purpose of this study, you must be a college student between the ages of 18 and 29. If you are an international student, you must be from an Asian country.

Specific Procedures

The following online survey includes questions focused on background information; your current experiences with college, your communication with your family, and questions regarding stressful family events (e.g., familial illness). Please complete these forms and click the submit button upon completion.

Duration of Participation

This survey will take approximately 20 minutes to complete.

Risks

Although the privacy and confidentiality of your responses will be protected through multiple methods, a breach of confidentiality is still a possibility. To minimize the risk of a confidentiality breach, a number of actions have been taken and the safeguards used to minimize this risk can be found in the confidentiality section. The other risks are no greater than that which is found in everyday life. It is possible you may experience some discomfort while filling out the survey. If you need personal assistance, you can contact a counselor near you by logging on to: www.purdue.edu/caps. If you need immediate assistance, you can receive support at the Lafayette Crisis Center by calling 1-765-742-0244, the USA National crisis hotline by calling 1-800-273-TALK, or by visiting http://suicidehotlines.com/national.html.

Benefits

There are no obvious personal benefits from participating in this study.

Confidentiality

The privacy and confidentiality of your responses will be protected through multiple methods. You are not asked to provide your name or any identifying material other than general demographic information. All completed forms will be kept secure in computer database. Responses will be evaluated and presented collectively, rather than individually. The data will be kept indefinitely, but will only be used collectively for presentations or publications. Only the project team and College of Education IT department can access the data. However, participants should also be aware that their research records may be reviewed by departments at Purdue University responsible for regulatory and research oversight.

Voluntary Nature of Participation

You do not have to participate in this research project. If you agree to participate, you can withdraw your participation at any time without penalty, and you can skip questions if you choose.

Contact Information:

If you have any questions about this research project, you can contact either Heather L. Servaty-Seib at (765) 494-0837 or servaty@purdue.edu or Meghana Suchak at (765) 421-3330, msuchak@purdue.edu. If you have concerns about the treatment of research participants, you can contact the Institutional Review Board at Purdue University, Ernest C. Young Hall, Room 1032, 155 S. Grant St., West Lafayette, IN 47907-2114. The phone number for the Board is (765) 494-5942. The email address is irb@purdue.edu.

Appendix K. Preliminary MANOVA Analyses with the Entire Sample

As indicated in the primary document, I performed a series of MANOVAs to determine if differences emerged for academic adjustment, social adjustment, personal-emotional adjustment, and institutional attachment in connection with the categorical variables of relationship status, living status, levels of parent/parental figure employment (e.g., higher managerial levels, intermediate occupations) for the whole sample and the country of origin for family in Asia (e.g., China, India) and presence of family in the U.S. for the international Asian participants. No group differences on the four domains of college student adjustment emerged for any of these categorical variables. I offer the specifics of these analyses in this section. In many cases, I did not have enough observations per cell, and therefore, I created larger subgroups. However, even with the larger subgroups, there were times when there were not enough cases per cell. Nevertheless, in order to be thorough in my preliminary analyses, I still performed the MANOVAs.

For relationship status, I did not have enough observations per cell to perform a MANOVA as per the guidelines set by Tabachnick and Fidell (2007). Therefore, I divided the participants into two groups: single students (n = 182) and not single students (n = 46). Although not ideal, I grouped all the participants who indicated that they were not single into one group. The not single group consisted of: partnered students (n = 23), married students (n = 11), four students who were separated/divorced and seven students who indicated "other" wherein, they were either dating or engaged. No significant differences emerged between the single and the not single group on the four domains of

adjustment as a set, omnibus $F(4,223) = 1.20$, $p = .31$; Wilk's $\Lambda = 0.98$, $\eta_p^2 = .02$. Therefore, I did not examine the findings at the univariate level.

For living status, I once again did not have enough observations to perform a MANOVA as per the guidelines set by Tabachnick and Fidell (2007). Therefore, I divided the participants into two groups: living alone ($n = 47$) and not living alone ($n = 182$). The not living alone group consisted of: students living with roommates ($n = 162$), nine students who were living with their partners and nine who were living with their families. Lastly, five students had "other living arrangements" (e.g., living in a sorority). No significant differences emerged between the two groups of participants on the four domains of adjustment as a set, omnibus $F(4,224) = 2.40$, $p = .051$; Wilk's $\Lambda = 0.96$, $\eta_p^2 = .04$. Therefore, I did not examine the findings at the univariate level

For mother/maternal figure and father/paternal figure employment level, I performed two separate MANOVAs to determine if there were any significant differences on the four domains of college student adjustment based on parental employment level (e.g., higher managerial and intermediate occupations). No significant differences emerged on the four domains of adjustment as a set for either of those variables. For maternal employment the omnibus $F(24,744.28) = .67$, $p = .88$; Wilk's $\Lambda = 0.93$, $\eta_p^2 = .02$ and for father/paternal employment the omnibus $F(28,773.01) = .91$, $p = .60$; Wilk's $\Lambda = 0.89$, $\eta_p^2 = .03$. Therefore, I did not examine the findings at the univariate level.

In the case of international Asian students, for country of family origin in Asia, I did not have enough observations to perform a MANOVA as per the guidelines set by Tabachnick and Fidell (2007). However, in order to be thorough, I still performed this

analysis. The countries of origin for families in Asia were: China = 46, India = 24, nine participants selected Republic of Korea and four selected other Asian countries (i.e., Indonesia, Japan, Taiwan). No significant differences emerged on any of the four domains of adjustment as a set based on the country of family origin in Asia, omnibus $F(16, 229.77) = 1.42, p = .13$;Wilk's $\Lambda = .75, \eta_p^2 = .07$. Therefore, I did not examine the findings at the univariate level.

Finally, in the case of international Asian students, I asked them to indicate presence of family in the U.S., 67.9% of the students ($n = 57$) indicated that they did not have family living in the U.S. whereas 31% of the students ($n = 26$) indicated that they did have family living in the U.S. No significant differences emerged on any of the four domains of adjustment as a set based on the presence of family in the U.S., omnibus $F(8,152) = 1.10, p = .37$;Wilk's $\Lambda = .89$, $\eta_p^2 = .06$. Therefore, I did not examine the findings at the univariate level.

Appendix L. Preliminary ANOVA Analyses with the Illness Group

As indicated in the primary document, I performed a series of ANOVAs to determine if the primary DV (i.e., overall college student adjustment) varied as a function of the categorical demographic variables of sex, living status, living status, employment levels of parents/parental figures, relationship with the family member having the chronic illness, type of chronic illness, current treatment status of the family member, and recent hospitalization status of the family member in the last two years. International Asian participants were also asked to indicate the country of origin for family in Asia (e.g. China, India) and presence of family in the U.S. None of these variables were significantly associated with overall college student adjustment for the participants. I offer the specifics of these analyses in this section. In some cases, I did not have enough observations per cell and, therefore, I created larger subgroups. However, even with the larger subgroups, there were times when there were not enough cases per cell. Nevertheless, in order to be thorough in my preliminary analysis I still performed the ANOVAs.

For sex, there were no significant differences on overall college adjustment, $F(1,147) = 1.19, p = .277; \eta_p^2 = .008$ between females ($n = 101$) and males ($n = 49$). For year in school, I divided the students into three groups to account for low numbers in some groups: first and second year undergraduate students ($n = 64$), third and fourth year undergraduate students ($n = 28$), and graduate students, which included masters and doctoral level students ($n = 57$). No significant difference emerged on overall college student adjustment between the three groups, $F(2,146) = 1.59, p = .21; \eta_p^2 = .02$.

For living status, I divided the participants into two groups: living alone group (n = 28) and not living alone group (n = 118). The not living alone group consisted of: 107 students living with roommates, five students who indicated living with their partners, another five who indicated having "other living arrangements" (e.g., living in a sorority house) and three who indicated living with family. No significant differences emerged on overall college student adjustment between the two groups of participants, $F(1,147) = 0.78$, $p = .780$; $\eta_p^2 = .001$.

For mother/maternal figure and father/paternal figure employment level, I performed two separate ANOVAs to determine if there were any significant differences on overall college student adjustment based on parental employment level (e.g., higher managerial and intermediate occupations). No significant differences emerged on overall adjustment based on maternal employment, $F(6,138) = .69$, $p = .66$; partial $\eta_p^2 = .03$ or paternal employment, $F(7,138) = 1.01$, $p = .43$; partial $\eta_p^2 = .05$.

For relationship with family member with a chronic illness, I did not have enough observations to perform an ANOVA. However, in order to be thorough I still performed this analysis. The family relationships indicated were: grandmother (n = 39), mother (n = 31), grandfather (n = 24), father (n = 21), uncle (n = 11), six participants indicated that the family member was an aunt, six participants chose "other" relatives (e.g., step father, step mother, great grandmother), three participants indicated that the family member was a female cousin, two participants indicated that the family member was a sister and one participant indicated that it was a brother. No significant differences emerged on overall adjustment based on relationship with the family member with a chronic illness, $F(16,132) = .72$, $p = .77$; $\eta_p^2 = .08$.

For type of chronic illness, I did not have enough observations to perform an ANOVA. However, in order to be thorough I still performed this analysis. The types of chronic illness indicated were: diabetes (n = 39), arthritis (n = 29), cancer (n = 29), heart disease (n = 17), nine participants indicated lung disease (e.g. emphysema), nine indicated stoke, seven indicated Alzheimer's, six indicated dementia, and five indicated kidney disease. No significant differences emerged on overall adjustment based on the type of chronic illness, $F(8,140) = 1.43$, $p = .19$; $\eta_p^2 = .075$,

For current treatment status of the family member, there were no significant differences on overall college adjustment, $F(2,146) = .014$, $p = .99$; $\eta_p^2 = .000$ between the participants who indicated that their family member was currently in treatment (n = 106) and those who indicated that their family member was not currently in treatment (n = 35).

For recent hospitalization status of the family member in the last two years, there were no significant differences on overall college adjustment, $F(2,145) = .621$, $p = .54$; $\eta_p^2 = .008$, between the participants who indicated that their family member had been hospitalized in the last two years (n = 48) and those who indicated that their family member had not been hospitalized in the last two years (n = 91).

In the case of international Asian students, for country of origin of family in Asia, I did not have enough observations to perform an ANOVA. However, in order to be thorough I still performed this analysis. The country of origin for families in Asia were: China (n = 17), India (n = 16), four participants indicated People's Republic of Korea and one indicated Kazakhstan. No significant differences emerged on overall college student

adjustment based on the country of origin for family in Asia, $F(3,34) = .30$, $p = .83$; $\eta_p^2 = .03$.

Finally, in the case of international Asian students, I asked them to indicate for presence of family in the U.S. No significant differences emerged on overall college student adjustment, $F(1,36) = .22$, $p = .65$; $\eta_p^2 = .01$ between participants who indicated not having family in the U.S. ($n = 16$) and those that indicated having family in the U.S. ($n = 22$).

VITA

VITA

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EDUCATION

PhD	2008-2014	Purdue University Counseling Psychology (APA-accredited) Advisor: Heather Servaty-Seib, PhD
M. Psych	2003-2005	Monash University, Australia Counseling Psychology (APS-accredited) Advisor: Phillip Greenway, PhD
B.A.	1998-2000	Mumbai University Bachelor of Arts (Psychology)

RESEARCH EXPERIENCE

Discovery and Learning Research Center, Purdue University West Lafayette, IN
Research Assistant 08/2009 – 07/2013
* Wrote mixed-method evaluation reports for a four-year National Institutes of Health (R25CA128770) funded project on training undergraduate and graduate students to work within interdisciplinary teams in the field of cancer prevention.
Supervisors: Dorothy Teegarden, PhD, Omolola Adedokun, PhD, Loran Carleton-Parker, PhD

Faculty of Education, Purdue University West Lafayette, IN
Research Assistant 08/2008-07/2009
* Researched articles, organized, and reviewed research material for a research project on acculturation of Italian immigrants
Supervisor: Ayse Ciftci, PhD

Faculty of Education, Monash University Clayton, Australia
Research Assistant 08/2003- 02/2004

- Entered and analyzed quantitative data using SPSS for two research projects focusing on the perceptions of 200 middle and high school students towards the Victorian Police force

Supervisor: Terence Bowles, PhD

PUBLICATION

Suchak, M. (2007). *Leukemia per Amit ke Jeet*. Mumbai, India: Akar Publishers. (The book has now been translated in several Indian languages).

ROUNDTABLE DISCUSSIONS, ACADEMIC PAPERS, AND POSTER PRESENTATIONS

Banks, J, Henke, L., Macy, S., & **Suchak, M.** (2013, September). *Microaggressions in the educational setting*. Facilitated a roundtable discussion for the Annual Dennis H. May Diversity Conference. Champaign, IL.

Suchak, M. (2013,April). *Effects of familial illness on college students: A review*. Poster session presented at the 35th Association of Death Education and Counseling Annual Conference, Hollywood, CA.

Parker, L.C., **Suchak, M.,** Adedokun, O., Adams, R., Teegarden, D., Childress, A., & Burgess,W (2012, April). *Assessing cross-disciplinary thinking in cancer prevention research*. Paper presented at the 2012 Annual Meeting of the American Educational Research Association. Vancouver, Canada.

Adedokun, O., Lee, J., Parker, L., **Suchak, M.**, Childress, A., Burgess, W., & Teegarden, D. (2010, October). *Examining the Benefits of an Undergraduate Research Experience in Cancer Prevention*. Poster session presented at the 2010 Annual Meeting of the American Association for Cancer Education, San Diego, CA.

Suchak, M. (2009, March). *A review of literature on the utilization of mental health services by Asian Indian immigrants in US*. Poster session presented at the 22nd Great Lakes Regional Counseling Psychology Conference, Muncie, IN.

Suchak, M. (2007, April). *Coping mechanisms of parents whose children suffer from cancer*. Paper presented at the International Confederation of Childhood Cancer Parent Organizations (ICCCPO) Regional Meet. Bali, Indonesia.

Suchak, M. & Maudgal, S. (2007, November). *Sibling adaptation to childhood cancer in India*. Poster session presented at the 39th Annual Congress of the International Society of Pediatric Oncology (SIOP), Mumbai, India.

Suchak, M., Maudgal, S, & Chacko, V (2006, September). *Art therapy for children with cancer*. Paper presented at the 38th International Society of Pediatric Oncology (SIOP) Annual Conference. Geneva, Switzerland.

Bowles, T. & **Suchak, M**. (2003, October). *A cross- cultural comparison of the effects of self-construal on the factors of communication*. Paper presented at the 38th Annual Australian Psychological Society Conference, Perth. Australia.