

# Melissa L. Bessaha, LMSW, MA

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## EDUCATION

- University of Maryland**, School of Social Work, Baltimore, MD May 2016  
*Ph.D. in Social Work*  
Dissertation Title: *Behavioral Health among Foreign-Born and U.S.-Born Emerging Adults: Barriers to Seeking Services, College Enrollment Status, and Service Utilization*  
Co-Chairs: Llewellyn Cornelius, PhD and George Jay Unick, PhD
- New York University**, Silver School of Social Work, New York, NY May 2009  
*Master of Social Work*
- State University of New York (SUNY) Stony Brook University**, Stony Brook, NY May 2007  
*Master of Arts in Psychology*
- State University of New York (SUNY) Stony Brook University**, Stony Brook, NY May 2005  
*Bachelor of Science in Psychology, Minor in Business*

## PROFESSIONAL INTERESTS

- Adolescent and emerging adult behavioral health
- Multicultural and immigrant issues
- Psychoeducation and social justice
- Program development and evaluation

## FELLOWSHIPS

- U.S. Department of Health and Human Services- Substance Abuse and Mental Health Services Administration (SAMHSA): Pre-Doctoral Minority Fellowship Program (\$22,900)** 2015 – Present  
Awarded competitive pre-doctoral grant provided through Council on Social Work Education (CSWE)
- University of Maryland: Academic Research Fellow** 2014 – Present  
Engaged in scholarship and professional development with University of Maryland, Baltimore (UMB)'s Vice-President of Academic Affairs and Vice Dean of the Graduate School on issues related to Middle States accreditation, student affairs, and academic policy. Created longitudinal study, including IRB protocol, survey development, and data analysis, on the ethnocultural empathy of students enrolled in the UMB health sciences and human services graduate programs (dental, law, medical, nursing, pharmacy, social work, and graduate schools). Co-authored manuscript for peer-reviewed publication on ethnocultural empathy study.  
*Principal Investigator: Roger Ward, EdD, JD, MPA*

## RESEARCH EXPERIENCE

- Graduate Research Assistant**, School of Social Work: M-Pathy Project September 2013 – Present  
University of Maryland, Baltimore, MD
- Used Research Electronic Data Capture (REDCap) tool to build and manage online survey for the development of a web-based clinical application, M-Pathy, for computer tablet devices.
  - Wrote grant for and awarded the UMB Competitive Innovation Research Award to fund pilot study on using M-Pathy clinical application among ACT teams in Baltimore and UMB Medical Center.
  - Conducted structured interviews with community-based Assertive Community Treatment (ACT) teams to explore clinicians' attitudes about technology, beliefs about clients' attitudes toward technology, and agency capacity to integrate technology in the workflow of a community-based ACT team.
  - Created structured questionnaire guide for interviews with ACT team clinician and psychiatrists; transcribe interview data; and analyze data using constant comparison methods.

- Performed data management and data analyses (data merging, bivariate, and multi-level models) on predictors of hospital length and cost of stay among a national sample of adults diagnosed with psychotic disorders.
- Led manuscript development for peer-reviewed publication on patient- and hospital-level factors associated with hospital length of stay among patients with psychotic disorders.

*Principal Investigator:* George Jay Unick, PhD

**Graduate Research Assistant**, School of Social Work: Psychosocial Issues of HIV Patients

University of Maryland, Baltimore, MD

July 2013 – July 2014

- Analyzed key informant interviews on experiences of HIV patients from preventing mother-to-child transmission (PMTCT) program and PMTCT service providers about implementing lifelong anti-retroviral therapy (ART) program, Option B+, in Abuja, Nigeria.
- Investigated the role of the Stages of Change model among PMTCT clients.
- Co-authored manuscript for peer-reviewed publication on Option B+ implementation in Nigeria.

*Principal Investigators:* Llewellyn Cornelius, PhD and Joshua Okundaye, PhD

**Graduate Research Assistant**, School of Social Work: Teen Court Evaluation

May 2013 – June 2013

University of Maryland, Baltimore, MD

- Assisted with analysis of guardian and teen interview data who participated in Maryland's teen court program using constant comparative qualitative methods.
- Co-authored mixed-methods manuscript for peer-reviewed publication on teen court involvement.

*Principal Investigator:* Charlotte L. Bright, PhD

**Graduate Research Assistant**, School of Social Work: First Episode Project

September 2012 – June 2013

University of Maryland, Baltimore, MD

- Assisted with interviewing clinicians in a Department of Veterans Affairs Mental Illness Research, Education, and Clinical Center (MIRECC) study on veterans treatment for first episode psychosis.
- Performed systematic literature review on veterans with severe mental illness.

*Principal Investigator:* Deborah Gioia, PhD

**NYU Silver School of Social Work: Research Project Seminar**

August 2008 – May 2009

- One of six MSW students selected to participate in an intensive one-year research seminar, including the development of an independent study on the relationship between life events and stress.

*Principal Investigator:* Trudy Festinger, DSW

**Graduate Research Assistant**, Department of Psychology: Stony Brook Temperament Study

Stony Brook University, Stony Brook, NY

June 2004 – July 2007

- Assisted in Wave 1 of a longitudinal National Institute of Mental Health (NIMH) funded study on the roles of temperament and emotional reactivity, and early adversity in the development and course of mood disorders.
- Administered battery of neuropsychological and psychoeducational tests to assess traits and behaviors.
- Acquired subjects' cortisol samples from saliva and DNA samples from cheek swabs.
- Coded data using affect system of facial coding of frequency and intensity of emotional behaviors.
- Trained and supervised undergraduate research assistants in coding of LabTAB data.
- Developed Master's thesis on relationship between family environment and sibling relationship quality.

*Principal Investigator:* Daniel N. Klein, PhD

**Undergraduate Research Assistant**, Department of Psychology  
Stony Brook University, Stony Brook, NY

June 2003 – June 2004

- Utilized global coding schemes in evaluation of mother-toddler interactions.
- Conducted analysis of the sequential relation between mothers' lax and over reactive parenting.

*Principal Investigators:* Susan O'Leary, PhD and Debbie Leung, PhD

### **PUBLICATIONS**

Schuler, B.R., **Bessaha, M.L.**, & Moon, C.A. (in press). Addressing secondary traumatic stress in the human services: A comparison of public and private sectors. *Human Service Organizations: Management, Leadership, & Governance*.

**Bessaha, M. L.** (2015). Factor structure of the Kessler Psychological Distress Scale (K6) among emerging adults. *Research on Social Work Practice*. doi: 10.1177/1049731515594425

Bright, C.L., Young, D., **Bessaha, M. L.**, & Falls, B. (2015). Perceptions and outcomes following teen court involvement. *Social Work Research*. doi: 10.1093/swr/svv018

Klein, D. N. & **Bessaha, M. L.** (2009). Depressive and self-defeating personality disorders. In T. Millon, P.M. Blaney, & R.D. Davis (Eds.), *Oxford Textbook of Psychopathology* (pp. 738-751). New York, NY: Oxford University Press

### **MANUSCRIPTS UNDER REVIEW**

**Bessaha, M. L.**, Schuler, B. S., & Moon, C.A. (in revision). Social workers' perceptions of training preparedness and social justice norms on workplace empowerment.

**Bessaha, M.L.**, Lily, F., & Ward, R. (under review). Understanding ethnocultural empathy among medical, health sciences and human services students: Preliminary cross sectional findings.

Erekaha, S., Cornelius, L., Okundaye, J. N., Adeyemo, G. D., Ibrahim, A., Fadare-Adeniyi, M., Ezeanolue, E., **Bessaha, M.L.**, Charurat, M., Blattner, W., & Sam-Agudu, N.A. (under review). Acceptability of Option B+: Perspectives from women living with HIV and healthcare workers in rural North-Central Nigeria.

### **MANUSCRIPTS IN PREPARATION**

**Bessaha, M.L.**, Shumway, M., Smith, M., & Bright, C. L., & Unick, G. J. (in progress). Predictors of length of hospital stay using a national sample of adult patients with psychotic disorders.

Fedina, L., **Bessaha, M.L.**, Backes, B. (in progress). Factors associated with sexual assault police reporting and victim service utilization among college-enrolled emerging adults.

Matarese, M. & **Bessaha, M.L.** (in progress). Juvenile justice workforce's attitudes toward sexual and gender minority youth: Influence on the demonstration of protective and supportive behaviors.

### **ACKNOWLEDGEMENTS WITHIN A PUBLICATION**

Alumni Profile: Melissa L. Bessaha, MSW '09 (2014). *Alumni in Action: A Passionate Advocate for Knowledge and Change*. NYU School of Social Work. Available at:  
<http://socialwork.nyu.edu/alumni/alumni-in-action/stories-of-alumni-in-action/melissa-bessaha.html>

## PROFESSIONAL PRESENTATIONS

### *Peer-Reviewed Presentations*

Ko, J. & **Bessaha, M. L.** (2016, June). *Help-seeking behaviors among working-age adults with suicidal ideation*. Oral presentation to be presented at the Joint World Conference on Social Work, Education, and Social Development, Seoul, Korea.

Backes, B., **Bessaha, M. L.**, & Fedina, L. (2016, January). *Female victims of physical and sexual violence: Differences in seeking standalone services post-victimization*. Oral presentation presented at the Society of Social Work and Research (SSWR), 20<sup>th</sup> Annual Conference: Grand Challenges for Social work, Washington, D.C.

**Bessaha, M. L.**, Bright, C., & Unick, G. J. (2016, January). *Predictors of length of hospital stay using a national sample of emerging adult patients with psychotic disorders*. Poster presented at the Society of Social Work and Research (SSWR), 20<sup>th</sup> Annual Conference: Grand Challenges for Social work, Washington, D.C.

**Bessaha, M. L.**, Solis, C., Zummo, J., & Alford, S. (2015, April). *Paradigms that build and sustain effective SEEK/CD student leadership*. Workshop at the Tri-State Consortium of Opportunity Programs in Higher Education 13<sup>th</sup> Biennial Conference: Bringing the Future into Focus the Shifting Paradigms of Higher Education, Tarrytown, NY.

**Bessaha, M. L.**, Belcher, J., Himelhoch, S., Kreyenbuhl, J., & Unick, G. J. (2014, January). *Barriers, attitudes, and capacity for mobile technology adoption in a community ACT provider*. Poster at the Society of Social Work Research (SSWR), 19th Annual Conference: The Social and Behavioral Importance of Increased Longevity, New Orleans, LA.

**Bessaha, M. L.** (2014, October). *Perceptions of training preparedness and social justice norms on workplace empowerment*. Poster at the Council on Social Work Education (CSWE) Annual Program Meeting, Tampa, FL.

**Bessaha, M. L.** (2014, March). *Perceptions of training preparedness and social justice norms on workplace empowerment*. Poster at the 35<sup>th</sup> Annual Graduate Research Conference, University of Maryland, Baltimore, MD.

Franks, C., **Bessaha, M. L.**, Son, M., Alford, S., Diaz, V., Jagielnicka, J., Johnny, W., Afzal, A., Luperon, C., & Dixon, Z. (2013, April). *Social justice and creative engagement: Syllabus as dialogue*. Workshop at the Tri-State Consortium of Opportunity Programs in Higher Education 12<sup>th</sup> Biennial Conference: Access and Opportunities: Keeping America's Promise, Elizabeth, NJ.

Franks, C., **Bessaha, M. L.**, Son, M., Alford, S., Diaz, V., Jagielnicka, J., Johnny, W.,... & Dixon, Z. (2012, December). *Creative engagement through the curriculum development process*. Workshop at the CUNY Sharing What Works Conference: Creative Engagement: Bridging Possibilities between Students, Campus and Community, Borough of Manhattan Community College, New York, NY.

King-Toler, E., **Bessaha, M. L.**, Diaz, V., Son, M., & Franks, C. (2011, March). *Using social media to engage students*. Workshop at the Tri-State Consortium of Opportunity Programs in Higher Education 11<sup>th</sup> Biennial Conference: Assessing Our Past and Planning Our Future in a Changing World, Tarrytown, NY.

King-Toler, E., **Bessaha, M. L.**, Diaz, V., Son, M., & Franks, C. (2010, December). *Using social media to engage students*. Workshop at the CUNY Sharing What Works Conference: Contemporary Needs of Students in Higher Education, CUNY Lehman College, Bronx, NY.

### ***Invited Presentations***

**Bessaha, M. L.** (2016, June). *From digital citizenship to digital leadership: Preparing future college student leaders*. Workshop at CUNY Special Programs Student Leadership Academy: Developing Leaders for a Changing World, Callicoon, NY.

**Bessaha, M. L.** (2015, June). *Engaging college students in effective leadership and digital citizenship*. Workshop at CUNY Special Programs Student Leadership Academy: Developing Leaders for a Changing World, Glen Cove, NY.

**Bessaha, M. L.** (2014, June). *Student leadership and digital citizenship: A costs-benefits analysis of social media*. Workshop at the CUNY Special Programs Student Leadership Academy: Developing Leaders for a Changing World, Glen Cove, NY.

**Bessaha, M. L.** (2013, June). *Social media: The good, the bad, and the debatable*. Workshop at the CUNY Special Programs Student Leadership Academy: Developing Leaders for a Changing World, Glen Cove, NY.

**Bessaha, M. L.** (2011 & 2012, June). *Leadership and power of great social networking*. Workshop at the CUNY Special Programs Student Leadership Academy: Developing Leaders for a Changing World, Glen Cove, NY.

### ***Guest Lectures***

**Bessaha, M. L.** (2015). *Planning for graduate school*. Lecture given to undergraduate psychology students at University of Maryland, College Park. Instructor: Lea Dougherty, PhD

**Bessaha, M. L.** (2013, 2014, 2015). *Cultural empathy and practice*. Lectures given to first-year MSW students at UMB School of Social Work on using the Culturagram (Congress, 2007) and engaging in cultural empathy with clients.  
Instructors: Debbie Gioia, PhD; Catherine Kelly Moon, MSW

### **HONORS & AWARDS**

- Dean Nomination for the UMB Champions of Excellence Award, 2015
- Doctoral Travel Award (\$2,000), UMB School of Social Work, 2013 – 2016
- Honorary Faculty at Dean's Reception, City University of New York (CUNY) John Jay College, 2011
- Honorary Faculty Member of Chi Alpha Epsilon National Honor Society, inducted 2010
- President's Service Award, New York University (NYU), 2009
- Selected as Master of Social Work Student Representative, NYU Commencement Ceremony, 2009
- Tuition Merit Scholarship, NYU, Silver School of Social Work, 2007 – 2009
- Dean's List, Stony Brook University, 2003 – 2004
- Psi Chi National Psychology Honor Society, inducted 2004

### **TEACHING EXPERIENCE**

**Adjunct Professor**, School of Social Work Spring 2016  
University of Maryland, Baltimore, MD  
Course: Mental Health and Social Policy

- Instruct an advanced policy course of 30 MSW students enrolled in the behavioral health specialization.

**Graduate Teaching Assistant**, School of Social Work Fall 2015  
University of Maryland, Baltimore, MD  
Course: Social Welfare and Social Policy Co-Instructor: Michael Reisch, PhD

- Co-taught weekly recitation class section of 25 first-year MSW students; curriculum development.

**Adjunct Lecturer**, School of Social Work  
Columbia University, New York, NY

Spring 2011 – Spring 2012

- Field instructor for MSW students at Columbia University.

**Adjunct Assistant Professor**

Fall 2009 – Spring 2012

Percy Ellis Sutton Search for Education, Elevation and Knowledge (SEEK) Department  
City University of New York (CUNY) at John Jay College of Criminal Justice

Course: Freshman Colloquium

- Instructed required course within the SEEK higher education opportunity program, with approximately 32 enrolled undergraduate students, on topics related to social justice and education, mental health awareness, and interpersonal skill development.

**Graduate Teaching Assistant**, Department of Psychology  
Stony Brook University, Stony Brook, NY

Spring 2007

Course: Research and Writing in Psychology

- Taught recitation class of 25 undergraduate psychology students on research methodology.

**Graduate Teaching Assistant**, Department of Psychology  
Stony Brook University, Stony Brook, NY

Fall 2005 & Spring 2006

Course: Developmental and Abnormal Psychology      Instructor: Paul Kaplan, PhD

- Assisted instructor with developing activities, curriculum development, and grading exams for lecture courses of approximately 300 undergraduate students.

### **PRACTICE EXPERIENCE**

**Counseling Faculty**, SEEK Department

August 2009 – July 2012

CUNY at John Jay College of Criminal Justice, New York, NY

- Faculty appointment providing general counseling, academic advising, and related student services for a higher education opportunity program serving diverse predominantly first-generation American, economically and/or educationally disadvantaged undergraduate students.
- Led curriculum development for a new departmental course required of all SEEK students in accordance with revised university general education content area “justice and the individual”.
- Created department’s first internship program consisting of MSW student social work interns from Columbia University, CUNY Lehman College, and CUNY Hunter College.
- Committee Chair for organizing program’s largest informational fair for 400 freshmen students.
- Mentored veteran student population through the University’s Veteran Resource Office.
- Collaborated on program evaluation through development of student survey and analysis of quantitative data.
- Assisted with development of academic regulations as part of the Academic Review Committee.
- Facilitated stress management workshops for students on academic probation.
- Committee Co-Chair of planning and organizing department’s graduation and honors ceremony.

**Social Work Intern**, Student Health and Counseling Center  
Long Island University at C.W. Post, Brookville, NY

September 2008 – May 2009

- Provided individual counseling services for undergraduate, graduate, and non-traditional students whose diagnoses included adjustment disorder, mood disorder, and post-traumatic stress disorder.
- Conducted initial intake interviews and biopsychosocial assessments for student population.
- Assisted with development of a National Collegiate Athletic Association grant proposal.

**Social Work Intern**, Mental Health Association of New York City  
Harlem Bay Network Clubhouse, New York, NY

September 2007 – May 2008

- Counseled and case managed adult clients with Axis I diagnoses and/or substance abuse history.

- Performed intakes and psychosocial assessments in addition to ongoing counseling and referrals.
- Coordinated and facilitated pre-GED literacy and life skills groups.

### **PROFESSIONAL LEADERSHIP & SERVICE**

- **Board Member**, UMB Representative, Downtown Partnership of Baltimore Inc. 2015 – Present  
Selected as UMB representative for the Downtown Partnership, a nonprofit organization that serves to expand economic development and improve downtown Baltimore living in collaboration with public and private sectors.
- **Manuscript Reviewer**, *Research on Social Work Practice*
- **Manuscript Reviewer**, *Social Work in Mental Health*
- **Conference Proposal Reviewer**, *Society for the Study of Emerging Adulthood*

### **UNIVERSITY LEADERSHIP & SERVICE**

- **Guest Panelist**: UMB School of Social Work- Research Scholars Panel, 2013 – 2016
- **Incoming Doctoral Student Mentor**: UMB School of Social Work PhD Program, 2013 – 2016
- **Student Recruitment Committee**: UMB School of Social Work PhD Program, 2013 – 2016
- **PhD Student Representative**: UMB Graduate Student Association (GSA), 2012 – 2016
- **PhD Program Committee Student Representative**: UMB School of Social Work, 2012 – 2014
- **Qualitative Research Interest Group Member**: UMB School of Social Work, 2012 – 2014
- **Student Leadership Awards Selection Committee**: NYU Silver School of Social Work, Spring 2012
- **Alumni Awards Selection Committee**: NYU Silver School of Social Work, Fall 2011
- **Social Work Champion Mentor**: NYU Silver School of Social Work, 2008 – 2011
- **Vice-President**: NYU Silver School of Social Work Graduate Student Association, 2008 – 2009

### **PROFESSIONAL AFFILIATIONS**

- Society for Social Work Research (SSWR), 2014 – Present
- Council on Social Work Education (CSWE), 2012 – Present
- Society for the Study of Emerging Adulthood (SSEA), 2012 – Present
- Society for Research on Adolescence (SRA), 2012 – 2014
- Professional Staff Congress CUNY, 2009 – 2012
- New York State United Teachers (NYSUT), 2009 – 2012
- National Association of Social Workers (NASW), 2009 – 2012

### **TRAININGS, LICENSURE, & CERTIFICATIONS**

- University of Michigan, Program for Research on Black Americans (PRBA) Summer Mentoring Workshop, Michigan Center for Urban African American Aging Research, June 2016.
- Council on Social Work Education (CSWE), Learning Academy’s “Teaching for Social Justice- Race, Poverty, and Ethnicity”, November 2015
- University of Pennsylvania Equity Institute for Doctoral Students, Center for the Study of Race and Equity in Education, August 2015
- Agency of Healthcare Research and Quality (AHRQ) Medical Expansion Panel Study (MEPS) Data Users’ Workshop, April 2015
- Second Annual Symposium on Social Determinants of Health: Action for Equity, Johns Hopkins University, Urban Health Institute, April 2013
- People’s Institute of Survival and Beyond, Undoing Racism/Community Organizing Workshop, February 2013
- 4th Annual Planning for Qualitative Research: Design, Analysis & Software Integration, January 2013
- Licensed Master Social Worker, New York State
- Seminar in Field Instruction (SIFI) Certification, Columbia University, Spring 2011
- Safe Zone Certification with the NYU Office of LGBT Student Services

## SKILLS

Bilingual French & English, Basic Spanish, Stata Version 14, SPSS Version 22, MPlus Version 7.11, NVivo Version 10, Microsoft Office, Adobe Photoshop, Windows and Mac operating systems, 80WPM

## RELATED EXPERIENCE

**Consultant: Yleana Leadership Academy** New York, NY May 2014 – September 2014

- Provided academic and program development consultation related to college enrollment, academic achievement, and financial aid attainment to leadership academy program for at-risk transition-aged youth.

**Proctor: Advantage Testing of Long Island** Roslyn, NY February 2008 – July 2010

- Proctored and graded students' standardized practice exams.

**Tutor: America Reads/Counts** New York, NY January 2008 – June 2008

- Tutored first grade students with academic needs from P.S. 33 Chelsea Elementary School.

**Academic Advising Assistant: Psychology Department** Stony Brook, NY January 2003 – January 2005  
Stony Brook University

- Advised undergraduate psychology students with academic registration and major requirements.

## Abstract

**Title of Dissertation:** Behavioral Health among Foreign-Born and U.S.-Born Emerging Adults: Barriers to Seeking Services, College Enrollment Status, and Service Utilization

Melissa L. Bessaha, Doctor of Philosophy, 2016

**Dissertation Directed by:** *Llewellyn Cornelius*, Ph.D., Distinguished Professor of Civil Rights and Social Justice Studies, University of Georgia, Athens and *George Jay Unick*, Ph.D., Associate Professor, School of Social Work, University of Maryland, Baltimore

Behavioral health problems are a leading cause of disability and a major public health issue in the United States. Compared to other adult age groups, emerging adults aged 18 to 29 experience more behavioral health problems. Although transitioning to adulthood may provide growth opportunities, it can also be a time of increased vulnerability and risk as emerging adults often face challenges in emotional, educational, and professional transitions. The United States has also seen rapid growth in the foreign-born emerging adult population as well as growing health disparities among immigrant and minority groups; however, prior research investigating behavioral health service use of emerging adults has largely been limited to homogeneous samples of college students. Using the Behavioral Model for Vulnerable Populations, this study explored factors associated with patterns of behavioral health service use across a diverse national sample of emerging adults by nativity status (foreign-born, U.S.-born) and college enrollment status (college student, non- student). A subsample of 6,696 emerging adults from the 2012 Agency for Healthcare Research and Quality Medical Expansion Panel Study was

used for this study. Multiple hierarchical binomial logistic regression analyses were performed to determine which factors predicted patterns of behavioral health service use among emerging adult groups. Employed (foreign-born) and Black (all groups except foreign-born) emerging adults were less likely to use services compared to unemployed and White emerging adults, respectively. Preference for English language (non-college students), shorter duration in the United States (college students), and having insurance (all groups except foreign-born) was associated with service use. Those with middle and high income backgrounds (college students) were less likely to use services compared to poor students. Having higher perceived mental health status (all groups except college students) and higher general mental health status (all groups) predicted less service use. Although certain factors were consistently predictive of service use among emerging adult groups, there were differences that necessitate further research. Findings clearly portray the need for greater awareness and consideration of factors related to service use on healthcare policy and higher education program initiatives especially as they relate to promoting health equity and successful transition to adulthood.

Behavioral Health among Foreign-Born and U.S.-Born Emerging Adults:  
Barriers to Seeking Services, College Enrollment Status, and Service Utilization

by  
Melissa L. Bessaha

Dissertation submitted to the faculty of the Graduate School  
of the University of Maryland, Baltimore in partial fulfillment  
of the requirements for the degree of  
Doctor of Philosophy  
2016

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## Acknowledgements

First and foremost, I would like to acknowledge my deepest gratitude to my dissertation co-Chairs, Drs. Lee Cornelius and Jay Unick. Your support and guidance throughout the doctoral program and dissertation process have been instrumental to my success. Thank you for ensuring that I remain focused and for encouraging me. I also thank my committee members, Drs. Charlotte Bright, Geetha Gopalan, and Nancy Velazquez-Torres for their invaluable feedback. This dissertation would not be possible without the support of my committee and each of their unique perspectives and expertise throughout the dissertation process.

My success in this PhD program would not be possible without the support of two very important people at the School of Social Work, Dr. Donna Harrington and Jen Canapp. I appreciate both of your continued patience and guidance since my first visit to the University of Maryland, Baltimore campus.

I am very fortunate to have mentors who provided encouragement throughout my time at the University of Maryland. Thank you to Vice-President Roger Ward and Assistant Vice-President Flav Lilly for providing rich learning opportunities and guidance. I look forward to our continued collaboration in years to come. My mentors at the City University of New York (CUNY) John Jay College of Criminal Justice (Drs. Chevy Alford, Cheryl Franks, Wendy Johnny, Carmen Solis, and Monika Son) who I am fortunate to call colleagues and friends, I appreciate you. This dissertation is dedicated to my former students at John Jay College who were a source of inspiration.

I am eternally grateful to my family and friends for being a great source of strength. To my mom, dad, brother, uncle, and Belkebir family, thank you for always being there for me and cheering me on. This PhD is not only for me, but also for my parents who have worked so hard to give me everything I needed. To my relatives in Algeria, je vous aime.

Special thanks to my fellow PhD students and cohort members for being my support network and providing much laughter during my time in Baltimore! This dissertation is also dedicated to my departed cohort member and friend, Jeongseok Kong and his wife, Sunmi Jin, you are missed.

Pre-doctoral funding was provided by the Substance Abuse and Mental Health Administration (SAMHSA) funded Minority Fellowship Program (MFP) through the Council on Social Work Education (CSWE).

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## **Chapter 1: Introduction**

The prevalence and severity of behavioral health issues, specific to mental health and substance use, among the emerging adult, aged 18 to 29 (Arnett, 2000, 2014), population in the United States appears to be increasing (Castillo & Schwartz, 2013; Pryor et al., 2010; Reetz, Barr, & Krylowicz, 2013), but the challenges often faced during the transition to adulthood do not receive adequate attention (Institute of Medicine, 2014). Prior research on the behavioral healthcare service use among emerging adults in the U.S. has focused predominantly on convenience samples of American college students with few examining more recent or national trends of behavioral health service use among emerging adult immigrant populations.

Using national data from the 2012 Medical Expenditure Panel Survey (MEPS; Agency for Healthcare Research and Quality [AHRQ], 2012), this dissertation will examine the behavioral health service utilization of emerging adults. The MEPS data allows for the examination of behavioral health service utilization of both foreign-born and U.S.-born emerging adult populations on a national level. The dissertation accomplishes the following: 1) identifies factors related to the behavioral healthcare service utilization of emerging adults, 2) reviews current empirical studies on behavioral health service utilization among foreign-born and U.S.-born emerging adults, 3) describes the methods used for this dissertation, 4) presents the results, and 5) discusses the results, study implications, and future directions.

### **Problem Statement and Background**

**Emerging adults in the U.S.** Emerging adulthood occurs between the late teens through the late twenties (Arnett, 2000, 2014). Emerging adults are at a significant and

critical time of life, which typically involves pursuing post-secondary education, developing careers, and personal relationships that enable them to lead healthy and productive lives (Arnett, 2000, 2014)<sup>1</sup>. Engaging in prosocial behaviors (Barry, Padilla-Walker, Madsen, & Nelson, 2008) and internalizing beliefs and values also reflect emerging adults' "sense of flourishing" during emerging adulthood (Nelson & Padilla-Walker, 2013, p. 68). However, compared to children, adolescents, and older adults, the development of emerging adults aged 18 to 29 is an underrepresented area of study that is often combined with adolescents or young adults in their thirties (Arnett, 2000, 2007; Institute of Medicine, 2014). This is a troubling omission considering the reported health concerns that can affect the emerging adult age group as described below (Kessler, Berglund, et al., 2005; Schulenberg & Zarrett, 2006; Tanner et al., 2007).

Emerging adults today have often been referred to as "Millennials", "Generation Y", or "Generation Me" to differentiate those born between 1982 to approximately 2000 from preceding generations (Howe & Strauss, 2009; Twenge, 2014). Researchers have described this group as distinct from prior generations with unique cultural characteristics such as obsession with social media and technology (Howe & Strauss, 2009; Twenge, 2014); however, this group is not simply generational but a "distinct new life stage" of emerging adulthood that will remain for future generations (Arnett, 2014, p. 2)<sup>2</sup>.

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<sup>1</sup> This description of emerging adulthood was also used in my recent publication (Bessaha, M. L. (2015). Factor structure of the Kessler Psychological Distress Scale (K6) among emerging adults. *Research on Social Work Practice*. doi: 10.1177/1049731515594425).

<sup>2</sup> Chapter 2 provides additional information on emerging adulthood theory and developmental characteristics.

The 2010 American Community Survey revealed that the young adult population aged 18 to 34 years is estimated at 73 million (U.S. Census Bureau, 2014). Of these young adults, 19.7% are living in poverty, 30.3% live with a parent, 65.9% have never married, and 20.2% have a college degree or higher (U.S. Census Bureau, 2014). There are more young adults today who are living in poverty, living with a parent, are unmarried, and are more educated compared to young adults in previous generations dating back to 1980 (Howe & Strauss, 2003; U.S. Census Bureau, 2014).

There is also a rapid growth in the foreign-born population, described by the U.S. Census Bureau as individuals who are not U.S. citizens at birth (including naturalized U.S. citizens, lawful permanent resident immigrants, temporary migrants such as foreign students, humanitarian migrants such as refugees and asylees, and persons illegally present in the U.S), in the last 50 years reflecting major shifts in size and backgrounds (Grieco et al., 2012). The foreign-born population was about 5% of the population in 1970 (Martin & Midgley, 2006), which grew to 12.9% of the population in 2010, approximately 40 million foreign-born people (Greico et al., 2010; Martin & Midgley, 2006; U.S. Census Bureau 2014). This growth in the foreign-born population is projected to increase to nearly 15% of the total U.S. population by 2025 (Martin & Midgley, 2006).

Approximately 15.4% of American young adults today are foreign-born, which has more than doubled since 1980 (U.S. Census Bureau, 2014). This new population of first-generation immigrants is growing and changing the ethnic composition of the U.S. young adult population. According to Grieco et al. (2012), the largest foreign-born groups were Mexicans, Chinese, Indians, and Filipino as reported in the 2010 American Community Survey. As a result of this growing immigrant population, 42.8% of young

adults indicated their ethnicity as other than non-Hispanic White, which reflects a racial and ethnic minority population growth of nearly 6% since 2000 (U.S. Census Bureau, 2014). The increase in diversity of the U.S. population means that all health professionals including social workers are more than likely to engage with ethnically and racially diverse immigrant populations.

**Current behavioral health policy.** Behavioral health problems are the leading cause of disability and are considered a major public health issue (World Health Organization [WHO], 2001) as well as a physical health issue (U.S. Department of Health and Human Services [UDHHS], 1999). Mental disorders affect many Americans, with one in two Americans meeting diagnostic criteria for a mental disorder at some point in their lifetime (Kessler, Berglund, et al., 2005). The Agency for Healthcare Research and Quality (AHRQ) reported that mental disorders were one of the five most costly conditions in the U.S. in 2006 with care expenditures rising from \$35.2 billion in 1996 to \$57.5 billion in 2006 (Soni, 2009). The 2002 annual cost of serious mental illness (SMI) in the U.S. was estimated at \$317.6 billion including loss of earnings (\$193.2 billion), healthcare expenditures (\$100.1 billion), and disability benefits (\$24.3 billion); these costs are believed to be conservative estimates and are expected to rise (Insel, 2008).

The increase in prevalence of behavioral health disorders and rising societal costs of behavioral healthcare expenditures especially among the uninsured have led to health reform and calls for policy and program initiatives. The 1996 Mental Health Parity Act and later the 2008 Mental Health Parity and Addiction Equity Act (MHPAEA) were passed by Congress in an attempt to decrease societal costs to mental healthcare by requiring insurance companies to cover mental health services equal to other medical

services (Kessler, 2014). However, both policies were unsuccessful in creating comprehensive parity mandates for mental health and substance abuse services (Beronio, Glied, & Franks, 2014; Kessler, 2014). The Surgeon General's report on mental health in the U.S. (UDHHS, 1999) and its supplement addressing mental health disparities related to culture, race, and ethnicity (UDHHS, 2001) also called for expansion of healthcare coverage in support of combining parity laws with managed care to bridge the gap in treatment disparities.

The 2010 Patient Protection and Affordable Care Act (ACA) is a policy established to improve access to healthcare through expansion of health insurance especially for lower-income adults and young adults ages 18 to 34 who have higher rates of being uninsured (Collins, Robertson, Garber, & Doty, 2013; Dauner & Thompson, 2014; Kessler, 2014). The ACA consists of several major provisions such as Medicaid expansion of up to 138% of the federal poverty level and expands access to subsidized health insurance coverage to the non-elderly population, including most immigrants (Beronio et al., 2014; Kenney & Huntress, 2012; Kessler, 2014). The ACA's dependent care coverage expansion was initiated to reduce the high number of uninsured emerging adults by providing them with the opportunity to remain as dependents on their parent's health insurance plan until the age of 26, decreasing the number of uninsured emerging adults by an estimated 300 million (Sommers, Buchmueller, Decker, Carey, & Kronick, 2013). The ACA also integrated health service areas related to mental health, substance abuse, and primary care under the term *behavioral health* in order to increase treatment use (Kessler, 2014). This provision expanded behavioral healthcare benefits for more than 60 million Americans (Beronio et al., 2014; Obama, 2014). In addition to expanding

health insurance coverage, the ACA was established to fill the many parity gaps of the 2008 MHPAEA. The ACA created ten essential health benefits (EHBs) including mental health and substance use services to establish parity between behavioral and physical healthcare services (Beronio et al., 2014; Kessler, 2014).

At the 2014 National Mental Health Conference, President Obama's call to action launched a national conversation promoting greater understanding and awareness of behavioral health issues that are reflective of the rapidly changing U.S. population, drawing attention for a need to improve recognition of mental illnesses among young adults considering the early onset of mental disorders (Obama, 2014). In response to President Obama's national call to action, new national program initiatives were created. For example, two major health nonprofits, the Jed Foundation and Clinton Foundation Health Matters Initiative, joined forces to develop the Jed and Clinton Health Matters Campus Program to bring awareness to college student health and strengthening mental health services across universities in the U.S. (Jed and Clinton Health Matters Campus Program, 2014). The aforementioned behavioral health policy and program initiatives clearly portray the need for greater awareness of the factors that impact the healthcare access and utilization of the emerging adult population especially as they relate to the influence of U.S. healthcare reform as well as promotion of social justice and health equity.

**Overview of emerging adult behavioral health.** Although the transition from adolescence to adulthood may provide many growth opportunities, it can also be a period of increased vulnerability and risk. Emerging adults often experience difficulty finding jobs and housing, inadequate support systems, lack access to healthcare especially upon

completion of higher education, or engage in binge drinking and illicit drug use (Arnett, 2000, 2007, 2014; Sussman & Arnett, 2014). They may also experience low emotional health and the inability to cope with stress, which negatively impacts the transition to emerging adulthood (Arnett, 2000, 2014; Perlick, Hofstein & Michael, 2010).

Behavioral health issues are prevalent during emerging adulthood. Various early risk (i.e. poverty, parental mental illness, and violence) and protective factors (i.e. economic security, supportive relationships, and educational achievement) related to emerging adults' environmental experiences and brain development may influence their behavioral health outcomes (Macleod & Brownlie, 2014; Roberts, Roberts, & Chan, 2009). Experiencing psychiatric episodes during adolescence is also associated with impaired functioning in emerging adulthood (Lewinsohn, Rohde, Seekley, Klein, & Gotlib, 2003). Among adults surveyed in the 2011 National Survey on Drug Use and Health (NSDUH), emerging adults aged 18 to 25 had higher reported rates of mental illness, suicidal thoughts, and major depressive episodes in the past year than those in older age groups (Substance Abuse and Mental Health Services Administration [SAMHSA], 2013).

Findings from the largest national survey of behavioral health in the U.S., the National Comorbidity Survey Replication (NCS-R), reported that in a given year approximately 43.8% of emerging adults aged 18 to 29 fit the criteria for a psychiatric disorder, which is higher compared to other adult age groups (Kessler, Chiu, Demler, Merikangas, & Walters, 2005). Lifetime prevalence for the most common psychiatric disorders among emerging adults includes anxiety (30.2%), mood (21.4%), and substance use disorders (16.7%; Kessler, Berglund, et al., 2005). Approximately 75% of all

psychiatric disorders are reported to appear by age 24 (Kessler, Berglund, et al., 2005) and the chances of having a 12-month DSM-IV diagnosis increases during emerging adulthood, indicating a developmental history of psychiatric disorder (Kessler, Chiu, et al., 2005). Although findings from the NCS-R (Kessler, Berglund, et al., 2005; Kessler, Chiu, et al., 2005; Kessler, Demler, et al., 2005), are now over a decade old, they are still relevant to today's emerging adult population. Similar results to the NCS-R were found by Adams, Knopf, and Park (2013) in analyzing a subsample of young adults ages 18 to 34 from the 2010 NSDUH.

Despite the great need for behavioral health services, emerging adults are often reluctant to or have negative attitudes towards seeking treatment, do not believe that they are in need of additional supports (Eisenberg, Hunt, & Speer, 2012; Kessler, Demler, et al., 2005; Yu, Adams, Burns, Brindis, & Irwin, 2008) or receive poor treatment (Wang et al., 2005)<sup>3</sup>. Among the 58.7% of adults with SMI surveyed in the 2008 NSDUH who received treatment for their mental health problem, emerging adults aged 18 to 25 had the lowest rate (40.4%) of treatment use, which included inpatient and outpatient services and prescription medication, compared to other adult age groups (SAMHSA, 2008). Lack of help-seeking behaviors can lead to long-term consequences of early onset behavioral health challenges in emerging adulthood especially in terms of one's mortality, daily life functioning, educational outcomes, social and behavioral functioning, and impact on employment (Ettner, Frank, & Kessler, 1997; Farrell, Barrett, &

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Piacentini, 2006; Perlick et al., 2010). Furthermore, not receiving timely and effective treatment for individuals with early onset mental disorders may increase the risk for physical health challenges in adulthood (Scott et al., 2013).

There are numerous barriers that have been found to hinder emerging adults from using behavioral health services. Such barriers include fear of stigma and labeling (Dearing & Twaragowski, 2010; Perlick et al., 2010), engaging in risky behaviors including binge drinking and drug use to relieve stress, and relying on informal supports such as friendships (Arnett, 2000; Perlick et al., 2010; Rickwood, Deane, Wilson, & Ciarrochi, 2005). The lack of funds, transportation, and access to mental healthcare may also contribute to emerging adults' lack of help-seeking (Mojtabai et al., 2011; Perlick et al., 2010). In addition, the Kaiser Family Foundation reported that approximately 39% of young adults aged 19 to 34 are reported to lack health insurance coverage, which can be detrimental to their well-being (Majerol, Newkirk, & Garfield, 2014). Increased insurance coverage related to ACA expansion led to an increase in mental health treatment use in 2012 (11.9%) compared to 2010 (10.9%), but has had little impact on substance use treatment for emerging adults aged 19 to 26 (SAMHSA, 2013). Fragmented services, varying eligibility criteria, and different treatment methods across behavioral health service systems are challenges that emerging adults often face to access and obtain health services (Pottick, Bilder, Vander Stoep, Warner, & Alvarez, 2008). As emerging adults age out of the systems that have supported them in their youth they must depend on adult services and systems that may not have the resources to support their needs (Meara et al., 2014).

**Behavioral health of emerging adult immigrants.** In addition to the emerging adulthood developmental characteristics, the growth in number of foreign-born emerging adults in the U.S. should also be considered when examining the access and utilization of behavioral healthcare services among emerging adults. Immigrants as well as racial and ethnic minorities have been of interest to researchers as mortality and behavioral health disparities between groups have been reported (Centers for Disease Control and Prevention [CDC], 2013; Singh & Hiatt, 2006). According to the WHO (2012), the social determinants of health, described as the conditions in which persons are born, grow, and live in including systems of healthcare, are mostly responsible for health disparities and inequities that result in unfair differences in health status. It is therefore imperative that differences in health outcomes and determinants among populations are identified to reduce disparities (WHO, 2012). With the increase in heterogeneity of the U.S. immigrant population, ethnic-immigrant groups, such as Asian, Hispanic, and Black immigrants, vary greatly in their socioeconomic, behavioral, and health characteristics (Singh & Hiatt, 2006), which may be associated with vulnerability to behavioral health problems.

Several studies have described a “healthy immigrant effect or paradox” meaning that newly arrived immigrants to the U.S. experience more favorable health compared to U.S.-born Americans (Akresh & Frank, 2008; Cunningham, Ruben, & Narayan, 2008). However, the longer immigrants live in the U.S., the more their health worsens especially related to their mental health (Antecol & Bedard, 2006; Breslau et al., 2007; Cho, Frisbie, Hummer, & Rogers, 2004; Cunningham et al., 2008; Salas-Wright, Kagotho, & Vaughn, 2014). The deterioration of immigrant health over time has been associated with higher

acculturation; greater exposure to the American social environment and adopting more risky health behaviors such as smoking, heavy drinking, and an unhealthy diet were reported the longer immigrants lived in the U.S. reflecting the general native-born population (Antecol & Bedard, 2006; Lara, Gamboa, Kahramanian, Morales, & Bautista, 2005; Lopez-Gonzalez, Aravena, & Hummer, 2005). Rates of mental illnesses such as depression among new immigrants (living in the U.S. for less than four years) and immigrants arriving to the U.S. before the age of 12 as well as for children of immigrants also reflect this trend with depression rates increasing over time (Breslau et al., 2007). In terms of substance use disorders, nativity (first-generation immigrants) and age (immigrants arriving at earlier developmental stages) were associated with a higher risk of developing substance use disorders the longer one lived in the U.S. (Salas-Wright, Vaughn, Clark, Terzis, & Cordova, 2014). These findings further substantiate the evidence of the immigrant paradox and that there is a protective context of immigrants living in their country of origin that may have protected them against risks for developing behavioral health disorders especially if they immigrated to the U.S. later in life as adults (Salas-Wright, Vaughn, et al., 2014).

Emerging adult immigrants are described as having a bicultural notion of the transition to adulthood as they combine transitioning to values of the majority culture and obligations toward others from their native ethnic minority cultural values (Arnett, 2003). Walsh, Shulman, Feldman, and Maurer (2005) compared the emerging adulthood experience as similar to that of the immigration experience since they both require coping and adaptation to change. Achieving an organized sense of self following immigration and navigating through exploration and experimentation of emerging adulthood are

examples of indicators of emerging adult immigrants' transition into adulthood (Walsh et al., 2005). To gain a better understanding on the impact of cultural adaptation on help-seeking of emerging adults, the roles of acculturation and enculturation have often been explored (Leong, Wagner, & Tata, 1995; Miller et al., 2011). Acculturation refers to the psychological processes of adapting to the norms of the dominant cultural group (European American) and enculturation as the process of adhering to the norms of one's indigenous group (Gordon, 1964; Berry, 1980; Berry & Kim, 1988).

Researchers on multicultural counseling frequently use the terms overutilization and underutilization to describe how often various cultural and racial groups seek behavioral health services (Leong et al., 1995; Sue & Sue, 2012). Various factors related to immigration to the U.S. and discrimination faced by this population often lead to underutilizing behavioral health services (Atkinson, 2004; Leong et al., 1995). In their extensive review of mental health service underutilization among diverse racial and ethnic groups, Leong et al. (1995) reported that for Asian Americans and Latinos, acculturation, a lack of culturally appropriate treatment methods, and institutional barriers were factors that contributed to underutilization of services. Adult immigrants and refugees who experience mental health problems may not seek help due to language barriers and acculturative stressors associated with migration and resettlement (Berry, 1997, 2002; Kirmayer et al., 2011). The incompatibility between Western psychotherapy and non-Western cultures may also be related to the underutilization of services among immigrant clients (Atkinson, 2004; Leong et al., 1995; Sue & Sue, 2012). Stricter health and human service program eligibility requirements may lead immigrants to underutilize services compared to U.S.-born citizens, impacting health equity in the U.S. (Fortuny &

Chaudry, 2011; Perreira et al., 2012). The foreign-born population is over 2.5 times more likely than the U.S.-born population to be uninsured (33.7% compared to 12.8%, respectively; Kenney & Huntress, 2012). Despite foreign-born adults having high employment rates, they are also more likely to work in low-wage jobs and less likely to have access to health insurance coverage from their employers compared to U.S.-born adults (Kenney & Huntress 2012).

Emerging adults from diverse racial and ethnic immigrant groups may exhibit psychological distress due to stressors associated with being a “minority” group member (Leong et al., 1995; Perreira et al., 2012; Ramos-Sanchez & Atkinson, 2009). The limited mental health resources from clinicians in the dominant culture and subjective cultural norms of seeking help within one’s family do not encourage the use of mental health services (Ramos-Sanchez & Atkinson, 2009; Yang & Kagawa-Singer, 2007). Although there are low reports of mental healthcare utilization among non-White adult populations (Wang et al., 2005), it is also important to assess the help-seeking behaviors specific to more diverse samples of emerging adult aged immigrants as this population is growing.

**Behavioral health of emerging adult college students.** The vast majority of research on emerging adulthood has used U.S.-born college student sample populations, since college attendance traditionally occurs during the emergence into adulthood. Behavioral health in college settings is an area of growing interest as mental health and substance abuse issues affect every college campus in the U.S and are considered the highest health risk for emerging adults (Dawson, Grant, Stinson, & Chou, 2005; Schwartz et al., 2011; Whitten, 2008). Emerging adult college students often experience the

inability to cope with stressful life events or situations, which negatively impacts their transition to college and adulthood (Arnett, 2000, 2007; Bland, Melton, Welle, & Bigham, 2012; Twenge et al., 2010). Stressors related to financial burden including rising college education expenses and student loan debts as well as being financially dependent on parents, can exacerbate emerging adult college students' behavioral health (Sweet, Nandi, Adam, & McDade, 2013; Walsemann, Gee, & Gentile, 2015).

The trend of low behavioral health among emerging adult college students is not improving. The Columbia University National Center on Addiction and Substance Abuse (CASA) 2007 report on college campus substance use revealed that almost 1 in 4 college students (nearly 1.8 million students) met the medical criteria for substance abuse or dependence. In the American Freshman National Norms of 2010, a study that surveyed approximately 201,000 full-time freshmen students from 279 universities, students rating themselves as "below average" in emotional health grew the most over previous years since the study was first conducted in 1985 (Pryor et al., 2010). In addition, compared to the previous year, college females had a less positive view of their emotional health than college males (Pryor et al., 2010). More recently, the American College Health Association–National College Health Assessment (NCHA; 2013) reported that more than half of about 131,000 college students surveyed experienced "overwhelming anxiety" with about 31% of these students feeling "so depressed that it was difficult to function" in the past year (p.14).

In line with national reports indicating that the majority of emerging adults with behavioral health problems do not seek help from health professionals (Adams et al., 2013; Kessler, Berglund, et al., 2005), most emerging adult college students with

behavioral health problems do not seek formal treatment either (Eisenberg, Hunt, & Speer, 2012). Even more disconcerting, Gallagher (2006) reported that of the 142 reported cases of suicides on college campuses in 2006, only 14 of the students had a history of using mental health services. Seeking more informal support from family and friends is most common among college students with a history of suicide ideation (Arria et al., 2011). Emerging adult college students in general often seek informal sources of help as reported by a national survey of college students, 2007-2010 Healthy Minds Study, with significantly more students using informal help from nonprofessionals such as their peers, family members, and social-networking websites than formal help from mental health professionals (Eisenberg et al., 2012; Eisenberg, Hunt, Speer, & Zivin, 2011).

The growth in number of emerging adult college students from immigrant backgrounds should also be considered when examining college students' behavioral health. One in five millennial college students have an immigrant parent and 1 in 10 have a non-citizen parent, making millennials the most racially and ethnically diverse generation (Howe & Strauss, 2003). According to the U.S. Department of Education's National Center for Education Statistics (2012), first-generation American (born outside of the U.S.) and second-generation American (U.S.-born children of at least one foreign-born parent) emerging adult college students made up approximately 23% of the total undergraduate student population in 2007-2008, and this population is growing. More specifically, immigrant emerging adult college students from states such as California and New York make up the largest groups of immigrant student populations in the U.S. at 45% and 35%, respectively (U.S. Department of Education, 2012).

Many emerging adult college students from immigrant families come from lower socioeconomic backgrounds, have lower academic outcomes, and are first in their family to attend college (Suárez-Orozco, Yoshikawa, Teranishi, & Suárez-Orozco, 2011; U.S. Department of Education, 2012), which are factors that may impact emerging adults' well-being (Schwartz et al., 2011, 2013). Emerging adult college students from cultural minority groups are also reported to experience greater psychological distress (Hayes, Chun-Kennedy, Edens, & Locke, 2011). However, conflicting findings have been reported regarding the idea of an immigrant paradox among emerging adult college student immigrants. While prior research has indicated more severe mental health difficulties among second-generation American immigrant college students (Sullivan, Ramos-Sanchez, & McIver, 2007), other research reported less severe difficulties among this population, which suggests that an immigrant paradox may appear differently or not at all among emerging adult immigrant college students possibly due a mediating relationship with education (Schwartz et al., 2011).

Research exploring the heterogeneity of emerging adult college students and nonstudents is limited, often assuming that emerging adults are a fairly homogenous group (Nelson & Padilla-Walker, 2013). Prior research findings recognize that emerging adult college students are likely different than emerging adult nonstudents especially related to career paths, employment, and earnings (Hamilton & Hamilton, 2006). An evaluation of prevalence of behavioral health disorders and treatment use among a national sample of emerging adults, the 2001-2002 National Epidemiologic Survey on Alcohol and Related Conditions, revealed that college students aged 19 to 25 only had slightly lower prevalence of behavioral health disorders and treatment use (18%) than

non-students (21%) in the same age group (Blanco et al., 2008). However, these findings may not be representative of emerging adults from immigrant families or emerging adults nationally, warranting further investigation.

### **Purpose of the Study**

Considering the need and underutilization of behavioral health services of emerging adults who may benefit from such services combined with the growing population of foreign-born emerging adults, the necessity to identify and examine the factors that are associated with the utilization of services among the emerging adult population remains important. With the increasing number of foreign-born racial and ethnic minority adults living in the U.S. (Grieco et al., 2012; Humes, Jones, & Ramirez, 2011), who may or may not attend college, it is important to consider and acknowledge the heterogeneity of emerging adults in order to best serve their behavioral health needs as they transition into adulthood (Cohen et al., 2003). Given the relatively recent recognition of emerging adulthood as a truly distinct developmental stage from adolescence and adulthood and the behavioral health concerns that often first appear within this period, there is also a need to learn more about what factors are associated with emerging adults' help-seeking behaviors that can lead them to successfully complete the transition to adulthood.

The overall aim of this study is to expand on the existing literature on the behavioral health status and needs of emerging adults in the U.S. that has predominantly used homogenous samples of college student samples. Specifically, the main goals of this study are to: (1) identify the factors (predisposing, enabling, and need factors) associated with the behavioral health service utilization of emerging adults and (2)

identify barriers to behavioral health service utilization among foreign-born and U.S.-born emerging adults as well as college students and non-college students. Results from this study will provide further understanding of the behavioral health service use among foreign-born and U.S.-born emerging adults and college and non-college students on a national level. Additional details on the gaps in the existing literature and aspects of the current study that will address these gaps are discussed in Chapter 2.

### **Relevance to Social Work**

**Social work practice.** This study is relevant to social work practice because it reflects essential social work values. In line with the National Association of Social Work (NASW) *Code of Ethics*, which states that social workers' primary mission is to "enhance human well-being and help meet the basic needs of all people, with particular attention to the needs and empowerment of people who are vulnerable, oppressed, and living in poverty" (NASW, 2009), the study emphasizes the importance of enhancing the behavioral health of diverse emerging adults from immigrant backgrounds living in the U.S. This study also informs several of the practice aims of the National Association of Deans and Directors of Schools of Social Work's (NADD; Williams, Chapa, & Des Marais, 2013) "Advanced Competencies and Practice Behaviors", related to understanding structural and community factors of behavioral health disparities as well as within-group and across-group behavioral health similarities.

The achievement of self-awareness in social work practice can reduce the influence of social workers' personal biases and beliefs when engaging with diverse client populations (Council on Social Work Education [CSWE], 2011). Research-based education that provides clarity on the diverse cultural values impacting clients' decisions

to seek help can promote social worker awareness of how their own personal value systems may impact the client assessment process. Also, an awareness of various cultural values and beliefs such as filial piety that is common for many ethnic groups, which suggests parents have an influential role on the lives of highly enculturated individuals, can inform how social workers construct culturally competent educational materials and encourage bias-free dialogue related to the emerging adult transitional period (Kim, 2007; Kim & Park, 2009; Office of Minority Health [OMH], 2013). As one of the largest groups of behavioral health service providers in the U.S. (U.S. Bureau of Labor Statistics, 2014), social workers have the ability to make a significant impact on the lives of emerging adults especially in supporting their development and successful transition into adulthood.

**Social work policy.** This study also has relevance for social workers engaged in emerging adult behavioral health policy initiatives. The population level benefits of improved emerging adult well-being can inform policy initiatives, which benefit various departments at the federal level (e.g., Health and Human Services, Labor, Defense, and Education). Learning more about how to enhance the health and welfare of young people identifies predictors of success, which can stimulate global competitive advantages. With the increased demand for higher education to gain employment, it is crucial to the developmental needs and behavioral health of emerging adults that institutions such as universities transform their existing policies and programs to accurately reflect the realities of a longer and more multifaceted transition to adulthood and changing characteristics (e.g. ethnic and racial diversity, social class, and income) of the student population (Arnett, 2000, 2007; Settersten & Ray, 2010; Stephens, Markus, & Fryberg,

2012). In addition, this study has relevance to behavioral health insurance policy reform associated with the ACA and Medicaid expansion, which provides the opportunity to better understand the root of health disparities and behavioral health service utilization among emerging adult immigrants. The identification of risk and protective factors is crucial in developing effective policies that reduce health inequalities especially among vulnerable populations such as immigrant youth.

**Social work research.** This study also adds to the social work research knowledge base and addresses some of the recent national behavioral health research priorities. The shifts in priorities of research and funding among major national agencies such as the National Institute of Mental Health (NIMH) and SAMHSA suggest a general commitment to implementing knowledge in behavioral sciences to better understand and reduce behavioral health issues and disparities (NIMH, 2014; Pellmar & Eisenberg, 2000; SAMHSA, 2014). Such shifts in behavioral science research priorities and infrastructure have the potential for addressing gaps in incorporating behavioral theory and science with developing appropriate interventions and policy initiatives (Cicchetti & Hinshaw, 2002).

Furthermore, this study relates to the social work values of engaging in social justice and client-centered practice (CSWE, 2011), which require research that informs the development of accessible, strengths-based, and culturally relevant interventions for diverse and marginalized populations who are in need of behavioral health services. Greater understanding of factors associated with barriers to help-seeking behaviors of diverse groups of emerging adults obtained from this study is of interest to social workers, college administrators and gatekeepers, policy makers, and researchers in order to tailor existing one-sized-fits all approaches to incorporate culturally responsive mental

health treatment (Czyz, Horwitz, Eisenberg, Kramer, & King, 2013). Through the application of research findings, social workers and other behavioral health professionals (e.g., psychologists, college advisement and counseling) have the ability to inform the changing healthcare environment through innovative programming and new, improved models of care.

## **Chapter 2: Theory and Literature Review**

The following provides a description of the theoretical foundation of this study and presents a review of literature that includes articles examining the behavioral health help-seeking behaviors among foreign-born and U.S.-born emerging adults. The theory of emerging adulthood (Arnett, 2000, 2007, 2014) was used to provide developmental context and understanding that the transition to adulthood is a distinct life stage from adolescence and adulthood. The Gelberg-Andersen Behavioral Model for Vulnerable Populations (BMVP; Gelberg, Anderson, & Leake, 2000) provides theoretical foundation in the organization of possible factors involved in behavioral health service utilization.

### **Theory**

The role of theory in research is to provide a framework for organizing what is known and direction for conducting further research (Carpiano & Daley, 2006; Pellmar & Eisenberg, 2000). Having a core set of concepts frames understanding and lays a foundation for research questions (Carpiano & Daley, 2006). Researchers have referred to several frameworks, theories, and conceptual models to explain the behavioral healthcare utilization of young people. A bioecological systems framework was often implied in the literature to emphasize the person-centered interrelatedness of emerging adults' help-seeking behaviors and their management of various systems including university, healthcare, family, cultural, and peer systems.

Prior research on behavioral health help-seeking behaviors among emerging adults in general have also framed their research questions using cognitively based

theories that associated attitudes and beliefs with behavioral change such as the Theory of Reasoned Action (TRA; Fishbein & Ajzen, 1975), Theory of Planned Behavior (TPB; Ajzen, 1991), and the Stages of Change Model (SOC; DiClemente & Prochaska, 1982). Conceptual models related to health were also prominent in prior research including the Health Belief Model (HBM; Rosenstock, 1966) and Behavioral Model of Health Services Use (Andersen, 1995). Theories related to stigma were found including attribution theory (Han, Chen, Hwang, & Wei, 2006; Weiner, Perry, & Magnusson, 1988) that describes seeing mental illness as biological may lead to reducing stigma and modified labeling theory (Link, Cullen, Struening, Shrout, & Dohrenwend, 1989), which states that being labeled as having a mental illness negatively affects one's help-seeking behaviors. Other models specific to mental health help-seeking behaviors were found as well including the explanatory model, cycle of avoidance (COA; Biddle, Donovan, Sharp, & Gunnell, 2007), the process model of young adult mental health help-seeking (Rickwood et al., 2005), and the model of self-concealment and willingness to seek counseling (Cramer, 1999).

Research that investigated help-seeking behaviors specific to emerging adult immigrant groups most frequently referenced the bidimensional acculturation model (Berry, 1997; Berry & Kim, 1988; Berry, Kim, Minde, & Mok, 1987). Cultural barrier theory (Leong et al., 1995), the TRA (Fishbein & Ajzen, 1975) and the TPB (Ajzen, 1991) as related to adhering to cultural values and beliefs impacting emerging adults' help-seeking behaviors were also found. The Behavioral Model (Andersen, 1995) was adopted in prior research on emerging adult immigrant's health service use as well. The

various theoretical applications across studies suggest that the help-seeking process is a complex one.

Prior research has reported a gap in the literature that there is no unifying theory of help-seeking behavior for mental health (Eisenberg et al., 2012; Rickwood et al., 2005) or a healthcare model that adequately reflects the healthcare utilization of emerging adults of diverse backgrounds (Watkins et al., 2012). This dissertation will combine a developmental theory and conceptual model to guide the stated research questions below: emerging adulthood theory (Arnett, 2000, 2007, 2014) and the BMVP (Gelberg et al., 2000). This combined theoretical foundation of emerging adulthood theory and the BMVP was selected because they refer to the developmental context of behavioral healthcare utilization within the various systems that diverse vulnerable groups of emerging adults may navigate as they transition to adulthood.

### **Emerging Adulthood Theory**

The theoretical foundation that provides guidance for this dissertation is Arnett's (2000, 2007, 2014) theory on emerging adulthood. Arnett (2000) first coined the term 'emerging adulthood' as he argued for the need of a separate developmental life stage between late adolescence and young adulthood. The main idea of emerging adulthood theory is that the period of life between late adolescence and through the twenties, during the 18 to 29 age range, involves the greatest opportunities for identity exploration especially related to love, work, and worldviews (Arnett, 2000, 2014).

Several shifts in societal norms have led to the development of emerging adulthood theory. The developmental transformation of adolescents through the industrialization of the U.S. altered expectations and goals during the 18 to 29 age range

(Arnett, 2000, 2007, 2014; Tanner & Arnett, 2009). Changes in society including an increase in educational attainment, access and use of birth control (Isen & Stevenson, 2010), acceptance in prolonging marriage and premarital cohabitation, as well as economic changes from an industrial to more information and technology driven society (Arnett, 2000, 2007; Tanner & Arnett, 2009) have contributed to delayed traditional role completion commonly associated with adulthood (e.g. marriage, parenthood, and financial independence). Emerging adulthood theory was developed as a means to conceptualize these changing developmental characteristics (Arnett, 2000, 2007, 2014).

Arnett (2000) developed his theory by building on several prominent developmental theories. In particular, Erikson's (1968) theory of human development across the lifespan was most influential to the development of emerging adulthood theory for its ideas on role experimentation, prolonged adolescence, and psychosocial moratorium of young adults (Arnett, 2000). In contrast to Erikson's (1968) designation of identity versus role confusion as the crisis of adolescence, Arnett (2000) argues that today's youth rarely achieves identity formation upon completing high school, therefore providing reasoning for context of the emerging adulthood developmental period.

Levinson's (1978) novice phase of development during the ages of 17 to 33 as well as Keniston's (1971) theory of youth that described the development of late teens and into the twenties were also influential to emerging adulthood theory (Arnett, 2000). Drawing from these three classic developmental theories, emerging adulthood theory was established to describe the development that applies to late adolescents today as a result of our changing society (Arnett, 2000, 2014).

Emerging adulthood theory consists of five features that distinguish this developmental stage from adolescence and young adulthood: identity exploration, trying out possibilities in love and work, instability, self-focus, and feeling in between the life stages of adolescence and adulthood (Arnett, 2000, 2014). The five features occur in a gradual process that emerging adults enter and exit non-discretely over time through adulthood (Arnett, 2000, 2014). These key features reflect how 18 to 29 year olds are entering societal norms such as marriage and parenthood later in life and at different stages (Arnett, 2000, 2007). Emerging adulthood theory also portrays how young people today in their late teens and twenties view themselves as “no longer adolescent but only partly adult, emerging into adulthood but not there yet” (Arnett, 2007, p. 70). From a historical perspective, the concept of emerging adulthood has expanded beyond the teenage years and well into the twenties (Arnett, 2007, 2014). The transition to adulthood takes longer than in previous generations and has been reported to not only burden families, as a result of having to provide financial and emotional support for a longer time period, but also institutions such as universities that traditionally support students during this transition (Arnett, 2000; Settersten & Ray, 2010).

Arnett (2000, 2003) first described his theory as a proposed cultural theory that exists under certain cultural-demographic conditions related to education beyond secondary school and later entry to marriage and parenthood, which was based on studies conducted in the U.S. with predominantly White samples. Findings using foreign-born and U.S.-born ethnic minority emerging adult samples corroborated many of the key features of emerging adulthood theory found with White American samples; however, ethnic minority emerging adults reported more emphasis on family roles, norm

compliance, and role transitions (Arnett, 2003), which may reflect their bicultural identities (Arnett, 2003; Phinney, 1990). Although emerging adulthood theory is Western-based, there have been various studies conducted outside of the U.S. including Europe, South America, and Asia (e.g. Arnett & Tanner, 2006; Facio & Micocci, 2003; Nelson & Chen, 2007) that reported aspects of emerging adulthood theory are applicable globally. Three of the emerging adulthood theory features, accepting responsibility for oneself, making independent decisions, and becoming financially independent from parents, are described by many countries and cultures as the most important milestones of reaching adult status that is achieved gradually during the course of emerging adulthood (Arnett, 2007, 2011; Facio & Micocci, 2003; Mayseless & Scharf, 2003; Nelson, Badger, & Wu, 2004).

However, other researchers have claimed that these adult milestones differ significantly by immigrant generation and ethnicity compared to U.S.-born emerging adults (Rumbaut & Komaie, 2010; Suarez-Orozco, Yoshikawa, Teranishi, & Suarez-Orozco, 2011) and that the process of immigration adds complexity to the concept of emerging adulthood (Rumbaut & Komaie, 2010; Walsh et al., 2005). For some emerging adult immigrants, adulthood is associated with an increased sense of duty to support their families and greater interdependence (Fuligni & Pedersen, 2002; Suarez-Orozco et al., 2011), which may be an outcome of Arnett's (2000) idea of greater responsibility for one's roles and decisions and financial well-being during emerging adulthood (Fuligni & Pedersen, 2002). By understanding the theory of emerging adulthood and immigration contexts specific to foreign-born and U.S.-born emerging adults, social workers and other practitioners gain a better understanding of emerging adult developmental processes that

will enable them to meet the needs of emerging adults experiencing behavioral health challenges.

### **Behavioral Model for Vulnerable Populations**

The Behavioral Model of Health Services Use is the most widely used and well known comprehensive model of access to care for understanding help-seeking (Mojtabi et al., 2011; Pescosolido & Boyer, 1999; Phillips et al., 1998). One of several versions of the Behavioral Model, the Behavioral Model for Vulnerable Populations (BMVP; Gelberg et al., 2000), was selected to guide this study as the population of focus includes immigrant emerging adults living in the U.S., which is considered an underserved vulnerable population (APA, 2012; UDHHS, 2001). The BMVP has great value in providing understanding of how vulnerable populations (e.g., racial/ethnic minorities, undocumented immigrants, homeless, disabled persons) seek medical and behavioral health services (Gelberg et al., 2000).

In order to understand the contextual developments of the BMVP, it is necessary to understand the several modifications since the original Behavioral Model (Andersen, 1968) was developed. The Behavioral Model is a conceptual framework that uses a systems perspective to incorporate individual and contextual determinants of health services integrating a range of individual, environmental, and provider-related variables associated with help-seeking behaviors (Babitsch, Gohl, & von Lengerke, 2012; Phillips et al., 1998). The Behavioral Model was first established to guide research on health service utilization to account for factors related to health service use among adults (Andersen, 1968, 1995; Phillips et al., 1998). Although the original Behavioral Model has evolved through various updates and revisions over time that incorporated criticisms

from other health scholars as well as societal and health policy changes, the central components have remained the same (Aday & Awe, 1997; Andersen, 1995, 2008).

The first phase of the Behavioral Model had a sociological focus to examine why families use health services, measure access to care, and to develop policies that promote equitable access to care, which reflected the author's training in sociology (Andersen, 1968, 2008; von Lengerke, Gohl, & Babitsch, 2014). This phase developed the main component of the Behavioral Model that remained throughout its evolution: predisposing factors to using services, factors that enabled or impeded use, and need for care (Andersen, 1968, 1995). The second phase during the 1970s was developed with various colleagues (Aday & Andersen 1974; Andersen & Newman 1973; Andersen, Smedby, & Anderson 1970) and included the healthcare system with special recognition to national health policy, resources, and organization as determinants of individuals using health services as well as outcome of health service use related to consumer satisfaction with services. The third phase during the 1980s and 1990s (Andersen, Davidson, & Ganz, 1994) added health status outcomes related to perception and evaluation of health to the model. The fourth phase during the 1990s (Andersen, 1995) included feedback loops that represent the mutual influence of outcome, predisposing, enabling and need factors, and health behavior. The most recent and final phase during the early 2000s (Andersen & Davidson, 2007) led to changes that separated contextual and individual determinants and the process of medical care. In addition, the importance of evaluating specific factors that are influential to the health access and use by vulnerable populations was recognized, evolving the model further (Gelberg et al., 2000).

Figure 1 presents a description of each of the domains and factors of the BMVP. The BMVP was developed in order to explain and predict health service utilization and related health behaviors among homeless people (Gelberg et al., 2000). The BMVP has since been used in studies examining health service utilization among various populations including Latino and Asian immigrant older adults (Kim, Jang, Chiribogo, Ma, & Schonfeld, 2010), underserved African American and Latino adults (Ani et al., 2008), and diverse low-income adults (Stockdale, Tang, Zhang, Belin, & Well, 2007). The main components of health service utilization of the BMVP are grouped under population characteristics, health behaviors, and outcomes. The population characteristics (predisposing, enabling, and need factors) and health behavior are separated into traditional and vulnerable domains. The predisposing factors exist prior to the perception of illness, which include demographic characteristics (e.g. age, gender, and marital status), health beliefs (e.g. knowledge about disease and values concerning health and illness), and social structure (e.g. ethnicity/race, religion, education, employment) specific to the traditional domains. Within the vulnerable domains, predisposing factors include social structure (e.g. acculturation and immigration) and sexual orientation.

Enabling factors represent the traditional domains of personal/family resources (e.g. income, health insurance, social support, and perceived barrier to care) and community resources (e.g. place of residence and region) and the vulnerable domains of personal/family resources (e.g. public benefits and transportation for vulnerable domains) and community resources (e.g. crime rates and social service resources) that promote or impede access to healthcare services. The need factors represent the traditional and vulnerable domains of perceived health and evaluated health. A defined need for health

services is necessary since individuals without a need are less likely to consider whether or not to use services, what services to use, and when to use services (Andersen, 1995). The health behavior component represents the personal health practices and use of health services. Finally, the outcome component represents health status and satisfaction with care.

Only one study (Ting & Hwang, 2009) was located that specifically focused on help-seeking behaviors of emerging adult aged immigrants that used the Behavioral Model. Using a sample of Asian American college students, Ting and Hwang (2009) adapted the Behavioral Model (Andersen, 1995) to include cultural variables related to acculturation and acculturative stress, which made their adapted model similar to the vulnerable predisposing domain of the BMVP (Gelberg et al., 2000). Despite the BMVP implementing cultural and social factors to address the criticisms of prior Behavioral Models (Andersen, 2008; Gelberg et al., 2000), the BMVP is not without its limitations. The BMVP is not as widely used as other versions of the Behavioral Models, limiting the ability to compare findings of its application across studies and across populations (Babitsch et al., 2012). However, the BMVP is believed to be viable in a wide variety of national and international contexts for understanding the health services utilization of vulnerable populations (Gelberg et al., 2000; Stein, Andersen, & Gelberg, 2007).

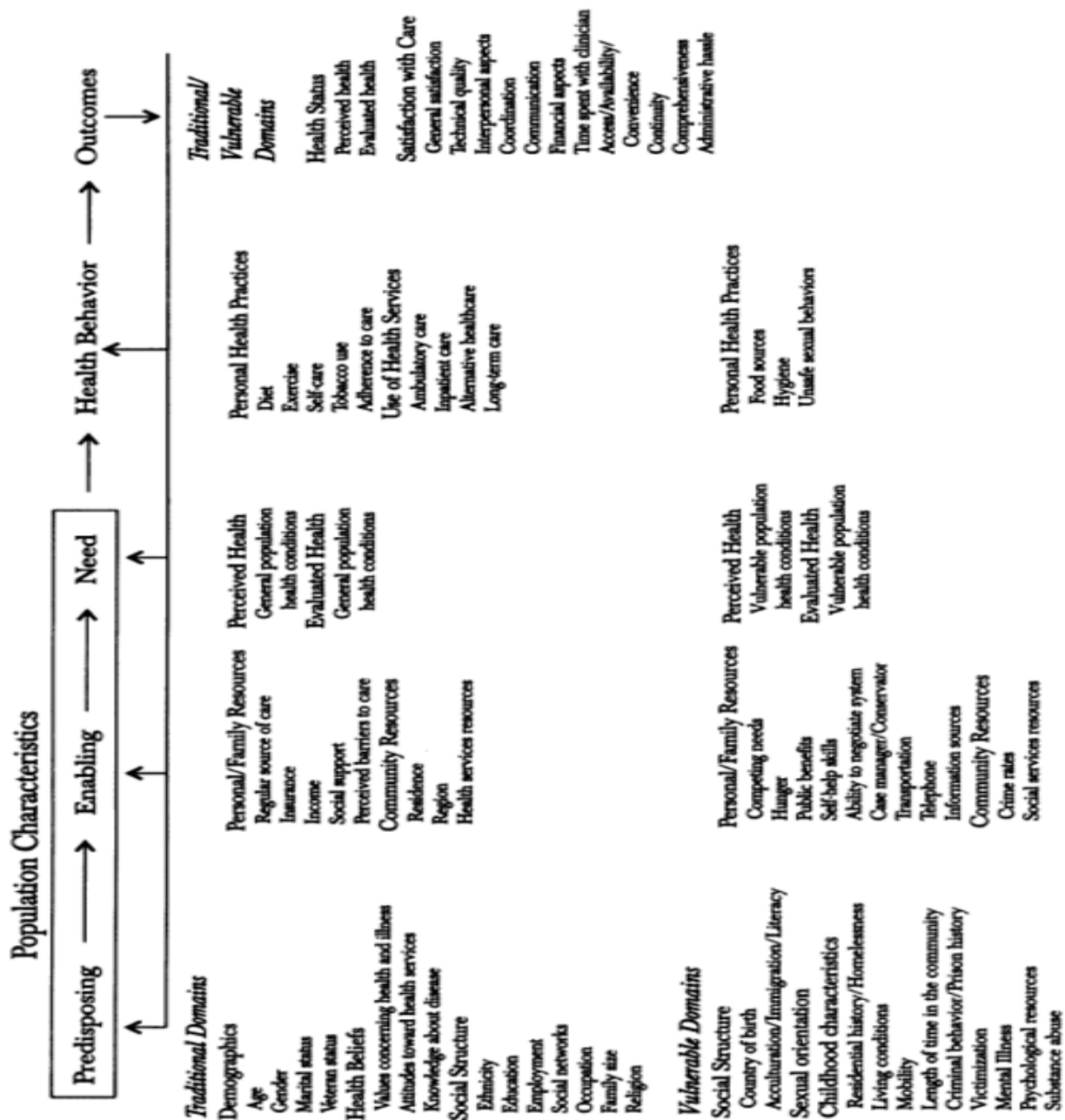


Figure 1. The Behavioral Model for Vulnerable Populations.

Reprinted from “The Behavioral Model for Vulnerable Populations: Application to Medical Care Use and Outcomes For Homeless People”, by L. Gelberg, R.M. Andersen, and B.D. Leake, 2000, Health Services Research, 34(6), p. 1278. Copyright 2000 by John Wiley & Sons Inc. Reprinted with permission.

## Conceptual Model for This Study

This study adapts the BMVP (Gelberg et al., 2000) to assess factors associated with behavioral healthcare service utilization among emerging adult populations. Variables were selected based on the theoretical foundation of emerging adulthood theory (Arnett, 2000, 2007, 2014) and the BMVP (Gelberg et al., 2000), empirical findings based on existing behavioral health services literature among immigrant and U.S.-born emerging adult populations, and variables included in the 2012 Medical Expenditure Panel Study (MEPS) data. Figure 2 represents the present study's theoretical model variables.

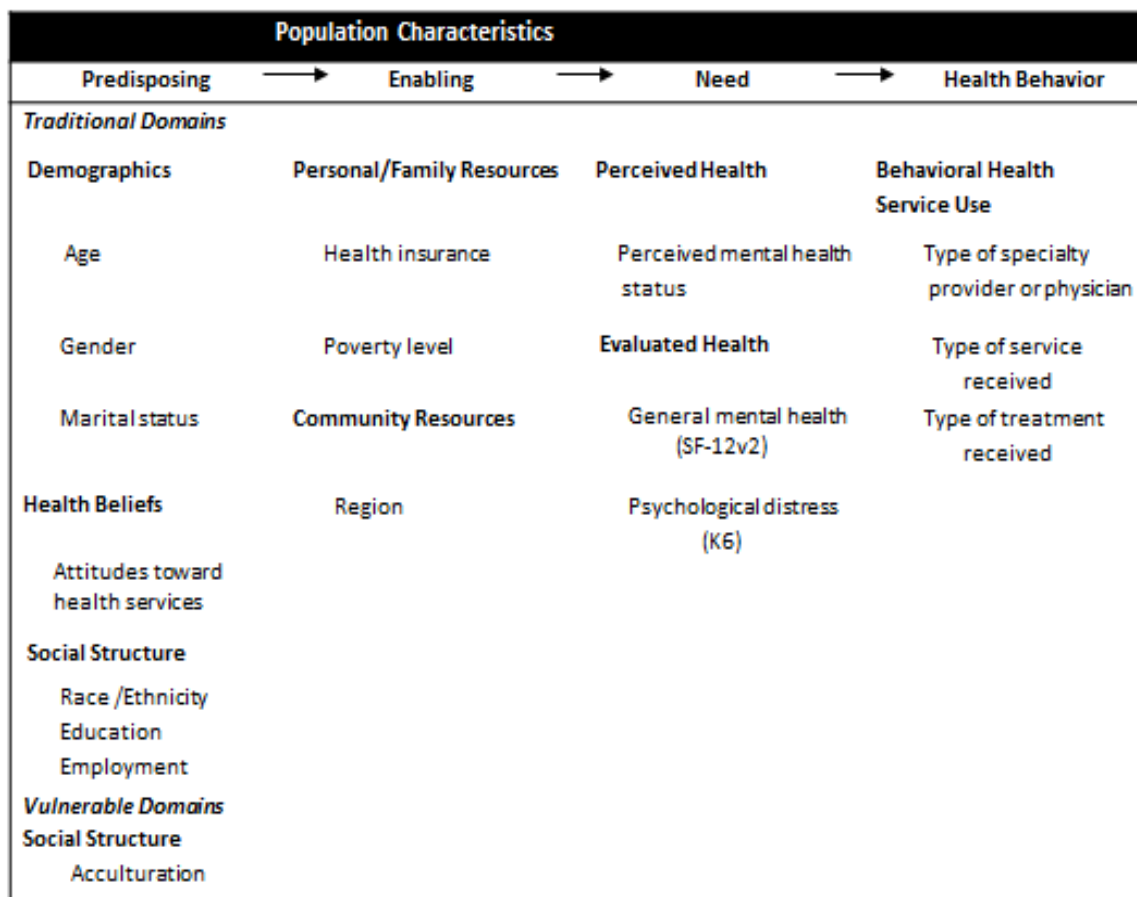


Figure 2. Conceptual Model for This Study

## **Literature Review**

In addition to the broad overview of emerging adult behavioral health and health utilization provided in the introduction, the following review of the literature provides a more specific description of findings from empirical studies organized according to the population characteristics described in the BMVP (predisposing, enabling, and need factors). Due to the limited existing research on the actual behavioral health service use of foreign-born and U.S.-born emerging adults (APA, 2012; Sullivan et al., 2007), the literature review also draws from studies that defined service utilization more broadly to include all behavioral health help-seeking behaviors with a population of foreign-born and U.S.-born emerging adults. For the purposes of this review, behavioral health help-seeking behavior was broadly defined to include attitudes, behaviors, perceived need, access to care, intentions, and/or service use associated with behavioral healthcare utilization. These help-seeking constructs have been found in the health services research literature to describe parts of the health services utilization process (Andersen, 2008; Cauce et al., 2002; Mojtabai, Eaton, & Maulik, 2012; Pescosolido & Boyer, 1999).

**Search strategy.** To locate the most relevant research studies specifically related to the behavioral healthcare utilization of foreign-born and U.S.-born emerging adults, scholarly databases were searched in June 2014 and January 2015. The search strategy included several databases and subject key terms. Databases across various disciplines were examined including education (ERIC), psychology (PsycINFO, PsycArticles, and Psychology and Behavioral Sciences Collection), social work and sociology (Social Work Abstracts and SocINDEX with Full Text), nursing and allied health disciplines (CINAHL with Full Text and MEDLINE), and multidisciplinary databases (Academic Search Premier, Race Relations Abstracts, and Social

Sciences Citation Index via Web of Science). The EBSCOhost online reference system was used to search for articles within the Academic Search Premiere, CINAHL with Full Text, ERIC, MEDLINE, PsychINFO, PsycARTICLES, Psychology and Behavioral Sciences Collection, Social Work Abstracts, and SocINDEX with Full Text databases. An intentionally broad scope of databases across numerous disciplines was selected in order to highlight the intersectionality of various factors that this study explores.

Key terms that were specific to the above databases were identified and selected prior to the search. Four categories of key terms related to participants' age, immigrant status, help-seeking behavior, and type of help-seeking were used in the search. The following describes the key terms with Boolean operators and truncation grouped into the four categories: (a) emerging adult\*, young adult\*, late adolescen\*, or college student and (b) immigrant\*, immigration, foreign-born, US-born, generation\*, or ethnic\* and (c) help-seeking behavior\*, help-seeking, help, support\*, care, access to care, health care utilization, service\*, service utilization, treatment, treatment-seeking, or treatment utilization and (d) behavioral health, behavior\*, psychological, mental health, psychotherapy\*, counseling, substance use, substance abuse, or addiction\*. A time range was applied to all searches so that only articles published after 2000 were included in the search. This time range was selected based on when the emerging adulthood theory was first established by Arnett (2000).

***Inclusion and exclusion criteria.*** To be included in this literature review, studies that investigated behavioral health help-seeking related behaviors of emerging adults had to meet the following criteria: (a) published in peer-reviewed journals, (b) written in English, (c) conducted in the United States, (d) published after 2000 when the emerging adulthood theory was

established, (e) included at least one sample of foreign-born immigrant emerging adults, and (f) included an outcome measure of behavioral health (mental health and/or substance use) help-seeking related behaviors. Studies were excluded from the review if they reported a mean age above the 18 to 29 age-range of emerging adulthood (Arnett, 2000, 2014).

***Search strategy results.*** The initial database search for this review yielded 2,058 citations based on the previously stated search terms. After 955 duplicates were removed, 1,103 articles were screened by title and abstract by the author to determine whether they met inclusion criteria of the review. Screening of records by titles and abstracts led to excluding 1,072 studies. Full texts of the remaining 31 studies were obtained for final eligibility screening. A total of nine studies met all of the inclusion and exclusion criteria and were included in the literature review.

**Literature review results.** Findings of the nine studies included in the literature review are described in detail in Appendix A. Each study used a cross-sectional research design with convenience samples of emerging adult aged college student participants. Four-year university students were surveyed across studies except for one study that included community college students (Ramos-Sanchez & Atkinson, 2009). A majority of the studies used only Asian American student samples ( $n = 6$ ; Gloria, Castellano, Park, & Kim, 2008; Kim, 2007; Kim & Omizo, 2006; Kim & Park, 2009; Miller et al., 2011; Ting & Hwang, 2009). The remaining students were Italian and Greek American (Ponterotto et al., 2001), Mexican American (Ramos-Sanchez & Atkinson, 2009), and a combination of Latinos/Hispanics, Asian/Pacific Islander, and White students (Sullivan et al., 2007). The studies' samples were predominantly female, while two studies had a more evenly distributed sample of males and females (Kim, 2007; Miller et al.,

2011). Participants in each study varied in immigrant generational background with generation status responses ranging from first-generation and 1.5-generation (referred to those who immigrated to the U.S. during their youth) American representing foreign-born to third- through sixth-generation American representing U.S.-born emerging adults.

The studies included help-seeking behaviors assessed by three related constructs: attitudes towards help-seeking, behavioral intentions or willingness to see a counselor, and actual counseling service utilization of participants. These three dependent variables were measured using different instruments that were both similar and unique across studies. The majority of the reviewed studies ( $n = 7$ ; Gloria et al., 2008; Kim, 2007; Kim & Omizo, 2006; Miller et al., 2011; Ponterotto et al., 2001; Ramos-Sanchez & Atkinson, 2009; Ting & Hwang, 2009) assessed help-seeking attitudes as their outcome using the Attitudes Toward Seeking Professional Psychological Help–Short Form instrument (ATSPPH-SF; Fischer & Farina, 1995). The ATSPPH-SF is designed to measure four dimensions of attitudes that have been reported in the literature as influencing help-seeking behavior: recognition of the need for psychological help, stigma tolerance associated with psychological help, interpersonal openness regarding personal problems, and confidence in mental health professionals' abilities to help (Fischer & Farina, 1995).

Two studies assessed the behavioral intention or willingness to see a counselor as their dependent variable; Kim and Park (2009) used the Willingness to See a Counselor (WSC; Gim, Atkinsons, & Whiteley, 1990) and Ramos-Sanchez and Atkinson (2009) used the Modified Personal Problems Inventory (MPPI; Ponce & Atkinson, 1989) in addition to the ATSPPH-SF. Finally, Sullivan et al. (2007) was the only study that used participants' actual counseling center

service utilization as their outcome measure by examining whether participants engaged in any campus counseling services. The following literature review sections describe findings on the predisposing, enabling, and need factors, as described by the BMVP, associated with the behavioral health help-seeking behaviors (help-seeking attitudes, intention/willingness to see a counselor, or actual service utilization) among foreign-born and U.S.-born emerging adults, which are summarized in Appendix B.

***Predisposing factors.*** Several predisposing factors were examined in the reviewed articles. Within the traditional domain, demographic background (gender and age), health beliefs (related to stigma tolerance and subjective norms), and social structure (ethnicity, education level related to academic year, religiosity, social supports, cultural congruity and environmental culture on campus) were explored. Within the vulnerable domain, social structure of acculturation (generational status, acculturation/enculturation values, acculturative stress, and acculturative family conflict) was examined.

Findings suggest that gender may influence emerging adults' help-seeking behaviors. Four studies (Gloria et al., 2008; Ponterotto et al., 2001; Ramos-Sanchez & Atkinson, 2009; Sullivan et al., 2007) that examined gender differences found significant differences; females reported more positive help-seeking attitudes and more use of counseling center services. However, only the Italian American females reported significantly more positive attitudes than Greek American females (Ponterotto et al., 2001) and White and Asian/Pacific Islander females reported more counseling service use than Latina/Hispanic females (Sullivan et al., 2007). There were no significant gender differences reported for the willingness to see a counselor outcome (Ramos-Sanchez & Atkinson, 2009).

Out of the four studies that examined age (Kim, 2007; Kim & Omizo, 2006; Kim & Park, 2009; Ting & Hwang, 2009) only Ting and Hwang (2009) found that older age was associated with more positive help-seeking attitudes. The authors suggested that younger emerging adult students may be more vulnerable to stigma from their peers and socially influenced about engaging in acceptable help-seeking attitudes as well as less aware of available campus resources (Ting & Hwang, 2009). Only two studies (Kim & Omizo, 2006; Kim & Park, 2009) assessed ethnicity but did not report significant associations with help-seeking attitudes.

Health beliefs related to stigma tolerance was assessed by one study (Ting & Hwang, 2009) reporting that although stigma tolerance was not directly related to help-seeking attitudes, this predisposing factor improved their model's prediction of attitudes. Subjective norms assessed by one study (Kim & Park, 2009) found that negative subject norms were associated with being less willing to see a counselor, with family members having more negative perceptions of seeking help than non-family members such as professors. In terms of social structure related factors, there were no significant associations found for ethnicity (Kim, 2007; Kim & Omizo, 2006), education as measured by academic year (Kim, 2007; Kim & Omizo, 2006), religiosity (Ramos-Sanchez & Atkinson, 2009), social support and conflict of family members (Ting & Hwang, 2009), or perceptions of cultural congruity and environmental culture on campus (Gloria et al., 2008) with help-seeking attitudes.

Findings on the predisposing factors within the vulnerable domain were inconsistent. Out of the eight studies that assessed generational status, a significant direct relationship on the help-seeking attitudes and willingness to see a counselor was found by only one study (Ramos-Sanchez & Atkinson, 2009). In their study with Mexican American community college students,

the authors found that lower generation students had more positive attitudes towards help-seeking and were more willing to see a counselor. Higher encultured students also were more willing to see a counselor. The authors stated that their results are related since foreign-born Americans tend to be more encultured; however, these results contradict previous findings (Leong et al., 1995). It is possible that the significant negative relationship is related to the sample being specific to Mexican American community college students who were also older than the average undergraduate student samples included in the other reviewed studies.

The remaining seven studies found no significant direct relationship between generation status and help-seeking behaviors for first-, second-, or higher-generation American emerging adults. These results suggest that in general, foreign-born and U.S.-born emerging adults engage in help-seeking behaviors similarly. However, when considering generation status and enculturation, one study (Gloria et al., 2008) reported that more encultured (adherence to cultural values of origin) second-generation Asian American students had less positive attitudes towards help-seeking than the foreign-born first-generation group. Further exploration is necessary to better understand the impact of enculturation on help-seeking behaviors across more diverse immigrant student populations. There were significant indirect effects associated with acculturative stress and acculturative gap family conflict on help-seeking attitudes assessed by one study (Miller et al., 2011). More specifically, higher acculturation was related to less positive help-seeking attitudes when students experienced acculturative stress.

A review on the mental health service use across racial and ethnic groups of African Americans, Asian Americans, and Latinos/as (Leong et al., 1995) predominantly considered the role of acculturation (or obtaining of European American cultural values) on help-seeking

attitudes, stating that there is a significant positive association between acculturation and help-seeking attitudes. This relationship was significant for only one (Miller et al., 2011) out of the seven studies that assessed acculturation in the current review. Instead, a majority of the reviewed studies reported a significant relationship between high enculturation and less positive help-seeking behaviors. Only one study (Kim & Omizo, 2006) did not find a significant association. It is possible that high acculturation could merely be viewed as having low enculturation; however, this may not be the case depending on the measurement used to obtain results (Kim & Omizo, 2006). The differences in findings imply the importance of acknowledging the impact of acculturation as well as considering the role of enculturation on the help-seeking behaviors of diverse ethnic emerging adult groups.

***Enabling factors.*** Enabling factors of previous counseling experience and income were included in the reviewed studies. Previous counseling experience was assessed by three studies; however, operationalization of this variable was not consistent across studies. Students were asked whether they had used counseling services for personal reasons only (Gloria et al., 2008); for academic, career, or personal reasons (Kim, 2007); or did not specify type of previous counseling (Kim & Park, 2009). Only Kim (2007) and Kim and Park (2009) reported that students with previous counseling experience had more positive help-seeking attitudes. Income was assessed by one study (Ramos-Sanchez & Atkinson, 2009) and was not significantly associated with help-seeking attitudes. There were no enabling factors assessed across studies that related to the BMVP's vulnerable domain.

***Need factors.*** Only two studies assessed need factors related to psychological problem severity and general psychological distress. The psychological problem severity factor assessed

the presence and severity of psychological symptoms using a campus counseling developed Likert scale questionnaire based on major symptoms for DSM-IV disorders (Sullivan et al., 2007). Students with severe psychological problems were twice as likely to use counseling center services compared to students with less severe problems across each ethnic group of White, Asian/Pacific Islander, and Latino/Hispanic (Sullivan et al., 2007).

General psychological distress was assessed by one study (Ting & Hwang, 2009) using the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983). The authors found that psychological distress did not predict help-seeking attitudes indicating that foreign-born and U.S.-born emerging adults' help-seeking was not related to their need for services. The authors posit that predisposing or cultural-related variables may play a greater role in impacting Asian American students' help-seeking attitudes (Ting & Hwang, 2009). Need factors specific to the BMVP vulnerable domain were not examined in any of the reviewed studies.

**Conclusions of literature review.** Research comparing the behavioral health help-seeking behaviors of foreign-born and U.S.-born emerging adults is limited for several reasons. Each of the reviewed studies focused on college student samples, which limits the extent of generalizing findings across nonstudent samples of emerging adults for several reasons. The reviewed studies may not have defined college student in the same manner since the college samples were not all traditional-aged emerging adult students. Some students were younger or older than the 18 to 29 emerging adult age-range despite having a mean that fell within this range, which is why they met inclusion criteria and were included in the review. For example, in the study involving Mexican American community college students (Ramos-Sanchez & Atkinson, 2009), the age-range was 16 to 60 years; however, the mean age was 27 years. Two

studies (Kim, 2007; Ponterotto et al., 2001) also included graduate students in their samples, which may have skewed results in an otherwise predominant undergraduate student sample. Furthermore, the university regions, sampling strategy of recruitment from specific ethnic group clubs or classes, and type of university institution can impact the generalizability of findings across studies.

The samples were also limited in ethnic diversity; therefore, conclusions from this review are limited to Asian American/Pacific Islander, Italian American, Greek American, and Latinos/as including Mexican American college students in the U.S. The majority of the research focused primarily on Asian American samples (e.g. Gloria et al., 2008; Kim, 2007; Kim & Omizo, 2006; Miller et al., 2011; Ramos-Sánchez & Atkinson, 2009, Ting & Hwang, 2009). With the Asian American population being one of the fastest growing immigrant groups in the U.S. who come from various diverse Asian countries of origin (Hoeffel, Rastogi, Kim, & Hasan, 2012; Kim & Omizo, 2006) and the higher reported rates of mental illnesses and underutilization of health services of Asian American populations (Abe-Kim et al., 2007), it is understandable why Asian American emerging adult populations were often examined in the studies. Yet, there may have been more within-group differences that were not evaluated as ethnic subgroups also differ by cultural and subjective norms (Gloria et al., 2008; Leong et al., 1995).

The different ways in which help-seeking was broadly assessed using three outcome measures (help-seeking attitudes, willingness to see a counselor, and counseling center utilization) and diverse sample characteristics across studies made it difficult to synthesize the results. However, the reviewed studies did present a few consistent findings related to specific predisposing, enabling, and need factors as described by the BMVP that were associated with

help-seeking behaviors of foreign-born and U.S.-born emerging adults. Findings generally suggest that being male, Asian, and adhering to cultural values of origin (high enculturation or lower acculturation) are associated with having less positive attitudes toward help-seeking and being less willing to see a counselor. Although these findings were not consistently significant across studies, they are in line with recent reviews of factors found to influence the health help-seeking of college students and young adults (Eisenberg et al., 2012; Rickwood et al., 2005). The discrepant findings of the current review suggest that there are many factors that impact the help-seeking behaviors among this population and some may moderate the effect of factors that were not explored in the reviewed studies.

Despite a majority of the studies including widely used instruments that were deemed valid and reliable, the acculturation and enculturation constructs are complex and may not apply universally to all ethnic and racial groups or be easily defined using a linear measure (Ponterotto et al., 2001). The one study (Sullivan et al., 2007) that used generational status in place of an existing acculturation measure expressed this very issue. The studies only assessed level of adherence to cultural values that fit within the BMVP predisposing factors vulnerable domain of acculturation and/or enculturation; however, other major acculturation variables have been reported including length of time in the U.S. and English language proficiency (Berry, 1997, 2002; Kirmayer et al., 2011; Leong et al, 1995). It is possible that since the reviewed studies included only college student samples that English language proficiency was not examined as a factor associated with behavioral health help-seeking because language proficiency was implied due to enrollment in higher education.

Evaluation of enabling and need factors was limited in comparison to the predisposing factors associated with the BMVP. Only one study (Ramos-Sanchez & Atkinson, 2009) considered income as a potential enabling factor that predicted help-seeking behaviors. Health insurance was not included in any of the studies despite insurance, among other financial indicators such as economic stability and poverty level, being a major barrier to seeking services for immigrant and young adult populations (Beronio et al., 2014; Berry, 1997; Kenney & Huntress 2012; Kessler, 2014; Perlick et al., 2010). Again, it is possible that due to the studies assessing foreign-born and U.S.-born emerging adult college students, income related factors may have been overlooked as an enabling factor towards help-seeking behaviors as most college students are financially dependent on their parents or guardians (Arnett, 2000, 2014). A majority of the predisposing, enabling, and need factors were related to the traditional domains of the BMVP compared to the vulnerable domains despite the studies assessing vulnerable groups of immigrant emerging adults. Further assessment of supportive networks, financial, and institutional barriers related to access to behavioral health services is necessary to better understand the help-seeking behaviors of among student and nonstudent emerging adults from diverse immigrant backgrounds.

**Research aims and questions.** The majority of the studies reviewed made comparisons among fairly homogenous samples of college students that did not draw comparisons to diverse ethnic or racial groups. Prior behavioral health help-seeking research examining racial and ethnic differences among younger adults has been inconsistent as prior literature reported both significant and non-significant differences among diverse groups (Adams et al., 2013); therefore, an assessment of factors associated with health care utilization with more diverse groups of

emerging adults and suggestions for future practice is necessary. There have been no known studies to date that have compared the actual behavioral health care utilization of a nationally representative sample specific to diverse groups of foreign-born and U.S.-born emerging adults (aged 18 to 29). Studies have also been limited in terms of assessing behavioral health care services by applying the BMVP constructs of predisposing, enabling, and need factors (Babitsch et al., 2012). Utilizing national data from the 2012 MEPS, the present study builds on past research by examining how diverse groups (Asian, Hispanic, Black, and White) of foreign-born and U.S.-born emerging adults differ in utilizing behavioral healthcare services. In addition, this study explores behavioral healthcare utilization differences across college student and nonstudent samples.

The review of the current literature comparing behavioral healthcare utilization of emerging adults demonstrates several limitations that this study seeks to address. Under the theoretical foundation provided by emerging adulthood theory and the adapted BMVP represented in Figure 2 as well as findings from prior literature, this dissertation is guided by three central research aims: (1) to identify and describe the factors associated with the behavioral service use among emerging adults, (2) to identify and compare predictors of behavioral health services utilization among foreign-born and U.S.-born emerging adults, and (3) to identify and compare predictors of behavioral health services utilization among currently enrolled college students and non-college student emerging adults. Based on prior research and mixed findings from the review of literature informing these research aims, it is hypothesized that a predisposing factor of race will be consistently associated with behavioral health service use across emerging adult groups. More specifically, it is hypothesized that non-White emerging adults will have less

behavioral health service use compared to White emerging adults. It is also hypothesized that having health insurance will be associated with greater service use among emerging adult groups.

In order to explore these aims, this study addresses the following three research questions:

*Research Question 1:* What factors (predisposing, enabling, and need) are associated with the behavioral health service utilization of emerging adults?

*Research Question 2:* What factors (predisposing, enabling, and need) are associated with the patterns of behavioral health service utilization among foreign-born and U.S.-born emerging adults?

*Research Question 3:* What factors (predisposing, enabling, and need) are associated with the patterns of behavioral health service utilization among currently enrolled college students and non-college students?

## Chapter 3: Methods

### Data Source

The 2012 Medical Expenditure Panel Survey (MEPS; Agency for Healthcare Research and Quality [AHRQ], 2012ab)<sup>4</sup> was used for this cross-sectional study. The MEPS was initiated in 1996 and provides longitudinal data on the healthcare utilization, expenditures, insurance coverage, sources of payment, and access-to-care measures of individuals and households in the nationally representative U.S. civilian noninstitutionalized population. The MEPS contains two major components, the Household Component and the Insurance Component, and is sponsored by the AHRQ as well as cosponsored by the National Center for Health Statistics (NCHS) and the CDC.

Data from the MEPS Household Component survey (MEPS-HC) was used for this study. The MEPS-HC respondents are asked about their own medical conditions as well as those of other family members in various sections of the computer assisted personal interview (CAPI) questionnaire. Within the MEPS-HC, data for this study were drawn from the 2012 full year consolidated, outpatient visits, and office-based medical provider visits event public use files. These files were merged in order to estimate the total number of outpatient and office-based medical provider visits related to behavioral health service use across various respondent characteristics. The outpatient and office-based medical provider visit event files include a wide-

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<sup>4</sup> The public use MEPS data are available through the AHRQ website ([http://meps.ahrq.gov/mepsweb/data\\_stats/download\\_data\\_files.jsp](http://meps.ahrq.gov/mepsweb/data_stats/download_data_files.jsp)).

range of information including the type of care provider seen and type of treatment received (i.e. psychotherapy, physical therapy, chemotherapy, etc.).

The sample from the MEPS are selected using a multistage, clustered sampling design, drawn from various households participating in the previous year's National Health Interview Survey (NHIS) conducted by the NCHS. More specifically, the MEPS were drawn from the first three calendar quarters of the corresponding year's NHIS annual sample. The MEPS provides continuous and current estimates of health care expenditures and utilization at both the person and household level across two separate but overlapping panels for each calendar year. A MEPS-HC household is described as containing one or more family units of one or more individuals. MEPS data can be analyzed using either the individual or the family as a unit of analysis. Unmarried college students (less than 24 years of age) who usually live in a sampled household but were living away at school at the time of the 2012 MEPS interview were treated as a reporting unit (RU) or person/group of persons in a sampled household dwelling unit (DU) described as a house, apartment, or group of rooms occupied by separate civilians non-institutional living quarters, which was measured separately from their parents for the purpose of data collection.

Each year of MEPS data includes a new panel of subsample of households participating in the previous year's NHIS. Two years of data for each panel is collected over five rounds of interviews. For the 2012 MEPS, data is derived from overlapping panels, Panel 16 and 17. Rounds three, four, and five are included in Panel 16 collected from 2011 through December

2012. Rounds one, two, and three are included in Panel 17 collected in 2012 ( $N = 37,182$  persons from 14,763 families)<sup>5</sup>. The overall response rate is 56.3%.

### **Weighting**

The MEPS data must be weighted in order to produce population estimates for individuals and families. Since the focus of this study is on person-level analysis, the weights specific to the Self-Administered Questionnaire (SAQ) portion of the MEPS-HC were used as suggested by AHRQ (2012a) for analyses including any of the SAQ questions included in the MEPS data. The SAQ includes questions on health status and healthcare quality of randomly selected adult respondents age 18 and older. According to the MEPS (AHRQ, 2012a), inclusion of respondents that were described as having a status of “inscope” (defined as a person that was a member of the civilian noninstitutionalized population for at least one day during data collection in 2012) and “keyness” (defined as a person linked to the NHIS sampled households or joined an NHIS household to be included in the MEPS after being “out-of-scope” at the time of the NHIS such as for serving in the military or residing outside the U.S.) can be assigned person-level weights in order to derive person-level national estimates.

### **Data Collection and Measures**

**Sample.** A subsample of 6,696 emerging adults aged 18 to 29 with a mean age of 23.45 ( $SD = 3.45$ ) were included in the 2012 MEPS. The weighted subpopulation size is estimated at approximately 48.8 million emerging adults in the U.S. There were 3,429 females (49.97%) and

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<sup>5</sup> More detailed information specific to the MEPS sampling, design, and data collection methods can be found in Ezzati-Rice, Rohde, and Greenblatt (2008) as well as AHRQ (2012a, 2012b).

3,267 males (50.03%)<sup>6</sup>. The sample included 1,427 (14.97%) foreign-born emerging adults and 5,232 (85.03%) U.S.-born emerging adults. Approximately 11% of the sample included current college students. Additional sample descriptive information can be found in Chapter 4.

**Measures<sup>7</sup>.** The conceptual model for this study is adapted from the BMVP (Gelberg et al., 2000), Figure 2 reported in Chapter 2. Variables included in the adapted model were selected according to the BMVP, literature review findings from emerging adult behavioral health services research, and identification of variables that are available in the 2012 MEPS data set. The independent variables are classified and organized based on the BVMP (Gelberg et al., 2000) population characteristic categories across traditional and vulnerable domains: predisposing factors, enabling resources, and need/illness factors. The *predisposing factors* include social demographic, social structure, and individual health beliefs variables, *enabling resources* include measures of an individual's financial and community resources, and *need factors* include measures of individuals' perceived and evaluated health that were included in the 2012 MEPS. The predisposing, enabling, and need factors are described first followed by the behavioral healthcare utilization dependent variables. Appendix C describes the variables used in this study.

### **Predisposing factors.**

**Age.** A continuous variable for age was measured in number of years.

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<sup>6</sup> Data includes weighted %.

<sup>7</sup> Variable coding was guided by prior research and preliminary data analyses including descriptive statistics and bivariate analyses.

**Gender.** Gender is coded as 1 = *male* and 2 = *female* in the MEPS data. For this study, gender was recoded as 0 = *male* and 1 = *female*.

**Race/ethnicity.** The MEPS asks a combined race/ethnicity question coded as 1 = *Hispanic*, 2 = *Non-Hispanic White only*, 3 = *Non-Hispanic Black only*, 4 = *Non-Hispanic Asian only*, and 5 = *Non-Hispanic other race or multiple race*. This variable was recoded so that 0 = *Non-Hispanic White only*, 1 = *Non-Hispanic Black only*, 2 = *Non-Hispanic Asian only*, 3 = *Hispanic*, and 4 = *Non-Hispanic other race or multiple race*.

**Marital status.** A nominal variable for marital status is included in the MEPS, which has five categories coded as 1 = *married*, 2 = *widowed*, 3 = *divorced*, 4 = *separated*, and 5 = *never married*. This study combined marital status into two categories that were labeled as 0 = *not currently married* (combining values 2, 3, and 5) and 1 = *currently married* (combining values 1 and 4).

**Education.** Education related to respondents' number of years of education completed or highest degree of education attainment was treated as continuous and was measured using 16 categories in the MEPS data ranging from 0 = *less than first grade* through 16 = *Master's, doctorate, or professional*. This variable was recoded with a range from 1 = *ninth grade or less* in order through 8 = *Master's, doctorate, or professional degree*.

**College enrollment status.** To determine the current college enrollment status of respondents, a new variable was created for this study by combining two MEPS variables, "student status" and "education". The MEPS variable, "student status", asked whether respondents (between the ages of 17 and 23 only) were students and coded as 1 = *full-time*, 2 = *part-time*, and 3 = *not a student*. This variable was recoded as 0 = *not a current student*, 1 =

*current student* (combining values 2 and 3) for this study. The MEPS “education” variable, which was recoded as described above, includes a value of 6 = *beyond high school, college (no four-year degree), associate’s*. The “college enrollment status” variable was created by joining these two variables so that 0 = *not current college student* (combining “student status” variable value 0 and “education” values other than 6) and 1 = *current college student* (combining “student status” variable value 1 and “education” value of 6).

**Employment.** Employment was asked of all respondents ages 16 and older. A nominal variable for employment status is used and coded as 1 = *currently employed*, 2 = *has a job to return to* (if did not work during reference period but has a job to return to at time of interview), 3 = *employed during the reference period* (no job at interview date but worked during the round), 4 = *not employed with no job to return to*. This variable was recoded as a binary variable so that 0 = *not currently employed* (combining values 3 and 4) and 1 = *currently employed* (combining values 1 and 2).

**Nativity status.** A dichotomous variable asking U. S. residency was used to determine whether a respondent was born in the U.S. (1 = *yes*, 2 = *no*). This variable was recoded as 0 = *no, respondent U.S.-born* and 1 = *yes, respondent foreign-born*.

**Health beliefs.** There are four questions that ask about respondents’ attitudes towards health insurance and attitudes about decisions not to purchase health insurance or not use health services. The answer options for the four questions use a 5-point Likert type scale with score values ranging from 1 (*disagree strongly*) to 5 (*agree strongly*). For this study, each question for attitudes towards health responses were reverse-coded (1 = *agree strongly*) to 5 = (*disagree*

*strongly*) and a composite score of the reverse-coded questions (range from 4 to 20) was developed, with higher scores indicating respondents having more favorable health beliefs.

**Acculturation.** The acculturation of respondents was assessed through several variables. Although the assessment of acculturation in the MEPS data is restricted to certain variables to examine the complexity of acculturation (Ponterotto et al., 2001), the use of measures such as birthplace, English language use, and time duration in the U.S. have been found to be strongly related to acculturation described as the psychological processes of adapting to the norms of the dominant European American cultural group (Berry, 1997; Berry & Kim, 1988; Kirmayer et al., 2011; Leong et al, 1995).

To assess English language use of respondents, three variables were used from the 2012 MEPS data. Language of the MEPS-HC CAPI interview (1 = *English*, 2 = *Spanish*, 3= *Both English and Spanish*, and 91 = *other*) was used. This variable was recoded as 0 = *English* and 1 = *other language* (combining values 2, 3, and 91) for this study. Language a person preferred to speak at home (1 = *English*, 2= *Spanish*, and 3= *another language*) was also included. This variable was recoded as 0 = *English* and 1 = *other language* (combining values 2 and 3) for this study. The MEPS also asks whether persons were not comfortable conversing in English (1 = *yes*, 2 = *no*), which was reversed coded (1= *no*, 2 = *yes*) then recoded (0 = *no* and 1 = *yes*) for this study. A variable was created that combines each of the MEPS language variables into one variable to measure respondents' preferred language where values of 0 = *English* (interview language = 0, language speak at home = 0, and not comfortable speaking English = 0) and values of 1 = *other* (interview language = 1, language speak at home = 1, or not comfortable speaking English = 1).

A continuous variable was also included in the MEPS that measured the duration of time in years respondents lived in the U.S. Missing data for this variable, due to respondents being skipped out of this question if they were born in the U.S., were replaced with respondents' age. This variable was transformed to percent of time living in the U.S. by obtaining a ratio of the years living in the U.S. divided by respondents' age multiplied by 100.

**Enabling factors.**

**Health insurance.** The personal/family resource of insurance is measured by a nominal variable of past year health insurance coded as 1 = *any private insurance*, 2 = *public insurance only*, and 3 = *uninsured*. Public insurance coverage includes TRICARE, Medicare, Medicaid, CHAMPVA, and other hospital/physician programs. This variable was recoded as 0 = *uninsured*, 1 = *any private insurance*, and 2 = *public insurance only*.

**Poverty level.** The MEPS created an ordinal poverty level variable based on the 2012 poverty statistics cutoff ratings developed by the Current Population Survey (CPS). Poverty level uses five categories coded as 1 = *negative/poor (less than 100%)*, 2 = *near poor (100% to less than 125%)*, 3 = *low income (125% to less than 200%)*, 4 = *middle income (200% to less than 400%)*, and 5 = *high income (greater than or equal to 400%)*.

**Region.** Whether or not the respondent lived in a metropolitan area was used to measure region to determine accessibility of health services. The MEPS created a dichotomous variable based on the 2010 Standards for Delineating Metropolitan Statistical Areas established by the Office of Management and Budget (0 = *no*, 1 = *yes*).

**Need factors.** The SAQ section of the MEPS-HC includes questions on “health status” including self-perceived mental health status, evaluated general mental health, and psychological distress.

**Perceived mental health status.** Respondents were asked a question to rate their general mental health status, which included values of 1 = *excellent*, 2 = *very good*, 3 = *good*, 4 = *fair*, and 5 = *poor*. For this study, the question was reverse-coded (1 = *poor*) to 5 = (*excellent*) and used as a continuous variable, with higher scores indicating respondents having more favorable perceived health status.

**General mental health.** The MEPS includes a 12-item version of the Short-Form Version 2 (SF-12v2; Ware, Kosinski, Turner-Bowker, & Gandek, 2002) to measure general physical and mental health. The SF-12v2 includes questions on respondents’ “general health today” and typical day “limitations in moderate activities” and “limitations in climbing several flights of stairs”. The SF-12v2 also asks whether physical and mental health issues resulted in respondents accomplishing “less than would like” or limiting “kind of work or other activities” in the past four weeks as well as whether respondents “felt calm or peaceful” and “had a lot of energy”. The MEPS provides scores for the SF-12v2 through use of algorithms to create a physical component summary (PCS) and a mental component summary (MCS), which each score results in scores between 0 to 100. A score of zero indicates the lowest level of health and a score of 100 indicates the highest level of health. For this dissertation, only the MCS score was used as a continuous variable.

**Psychological distress.** The six-item version of the Kessler Psychological Distress Scale (K6; Kessler et al., 2002) assesses the frequency with which respondents experienced symptoms

of non-specific psychological distress, including nervousness, that everything was an effort, hopelessness, restlessness, worthlessness or no good, and depressed that nothing could cheer them up during the past 30 days. This measure reflects DSM-IV diagnostic criteria for SMI, specifically of major depression and generalized anxiety disorder (Kessler et al., 2002). The K6 is comprised of a 5-point Likert type scale with score values ranging from 0 (*none of the time*) to 4 (*all of the time*). The scores are summed across all six items for a total score range between 0 and 24. Respondents were classified as having severe psychological distress (SPD) if they scored 13 or greater (Kessler et al., 2002). A dichotomous variable for psychological distress was created for this dissertation using the K6 cutoff score so that 0 = *non-serious psychological distress* for K6 scores from 0 through 12 and 1 = *serious psychological distress* for K6 scores from 13 through 24.

**Behavioral healthcare service utilization.** The behavioral health service use is the outcome variable for this study. A combined variable was created from five questions related to office-based medical provider visits: provider specialty/physician or professional medical person, main reason identified for the visit, whether drug or alcohol services were received, and whether psychotherapy or counseling was received. The nominal provider specialty/physician variable asks which type of doctor the respondent saw during their office based visit using a wide-range of specialty types (only 28 = *psychiatry/psychiatrist* was included in analyses). If respondents did not see a specialty doctor or physician, respondents are asked the nominal variable of whether respondents saw other professional or medical person that determines what type of medical person respondents spoke to during their visit (only 10 = *psychologist* and 11 = *social worker* was included in analyses). The type of care the respondent received is also asked and

coded using a wide-range of options of which only 4 = *psychotherapy/mental health counseling* was included in analyses.

In addition, there are two questions on type of treatment received related to drug/alcohol treatment (1 = *yes*, 2 = *no*) and psychotherapy/counseling treatment (1 = *yes*, 2 = *no*). The outcome variable for behavioral health service use was created for this dissertation by combining the responses to each of the five questions. A new dichotomous variable was created that combines each of the five variables and was coded as 1 = *used behavioral health services* (provider specialty was coded 28, other medical person was coded 10 or 11, type of care received was coded 4, and/or type of treatments received were coded 1) and 0 = *did not use behavioral health services* (provider specialty was not coded as 28, other medical person was not coded 10 or 11, type of care received was not coded 4, and type of treatments received were not coded 1). Appendix D provides a table describing all variable re-coding used in the dissertation.

### **Data Analysis**

A nonhuman subjects research determination from the University of Maryland, Baltimore, Institutional Review Board (IRB) was received in July 2015 because only non-identified, publically available data were used for this study. A copy of the determination letter is attached in Appendix E. All statistical analyses were performed using Stata version 14 (StataCorp, 2015b) to account for the clustered sampling design and person-level weight. Stata also has the capability to produce appropriate standard errors for estimates. The weights provided by the MEPS were used to obtain correct national estimates. In addition, variance estimation variables provided by the MEPS were used to obtain standard errors of sample estimates to account for the complex sample design.

To determine whether the current sample size is adequate to conduct this study, a power analysis was conducted (Cohen, 1988). A power analysis was performed using G\*Power version 3.1.9 (Faul, Erdfelder, Buchner, & Lang, 2007) for logistic regression indicating that for when power = .95, alpha = .05,  $R^2$  for other predictors = .3, and a small odds ratio effect size = 1.5, the current sample is an adequate sample size to conduct this study.

**Preliminary data analysis.** Sample demographic and descriptive statistics including frequencies of all variables were assessed prior to conducting analyses. Missing data were also assessed by examining missing data patterns (Tabachnick & Fidell, 2007). Preliminary data screening also involved checking for multicollinearity of study variables using the methods described by Tabachnick and Fidell (2007), which includes combining or removing variables for correlations with values of .70 or above as well as by Montgomery, Peck, and Vining (1992) that described close assessment of correlations with a more conservative value of .30 and above for redundancy of variables. Multicollinearity was detected between the K6 and Patient Health Questionnaire (PHQ-2) depression screener variable and between the behavioral health disorder diagnosis classification code variable and the behavioral health service use variable. To assess whether continuous variables were normally distributed, histograms as well as skewness and kurtosis values were used (Tabachnick & Fidell, 2007). Violation of normality was found for the education variable; this variable was re-coded by collapsing response values ((Tabachnick & Fidell, 2007) as described further in the results data screening section in Chapter 4.

**Analyses for each research question.** To determine the predictive relationship between BMVP factors (predisposing, enabling, and need) and behavioral health service use, binomial logistic regression analyses using hierarchical entry way were used for each research question.

Logistic regression was selected because the dependent variable of behavioral health service utilization is dichotomous (no/yes). Logistic regression analyses can also analyze a wide-range of predictors (e.g. categorical, continuous, and dichotomous) from complex data sets, accounts for age statistically significant variable differences, and hierarchical entry was selected as the analyses were supported by the adapted BMVP theoretical model presented in Figure 2 (Tabachnik & Fidell, 2007).

Independent variables were entered using three steps: step 1 for predisposing factors within the traditional and vulnerable domains (age, gender, race, marital status, employment status, education, health beliefs, and acculturation), step 2 for enabling factors within the traditional and vulnerable domains (health insurance, poverty level, and region), and step 3 for need factors within the traditional and vulnerable domains (perceived mental health status, evaluated mental health status from SF-12v2, and K6 psychological distress) into each logistic regression model. Perceived mental health status and evaluated mental health status from the SF-12v2 were treated as continuous variables with higher values signifying higher mental health status. Each question allowed for the comparison of the predictive value of BMVP factors on behavioral health service use among emerging adult groups (entire general population of emerging adults; foreign-born and U.S.-born emerging adults; and college students and non-college students).

***Research Question 1: What factors (predisposing, enabling, and need) are associated with the behavioral health service utilization of emerging adults?***

To examine the predictive relationship between the independent variables (predisposing, enabling, and need factors) on behavioral health service utilization among the entire emerging

adult sample included in the MEPS 2012 data, a logistic regression model was performed using the variable hierarchical entry method described above.

***Research Question 2: What factors (predisposing, enabling, and need) are associated with the patterns of behavioral health service utilization among foreign-born and U.S.-born emerging adults?***

To examine the predictive relationship between the independent variables (predisposing, enabling, and need factors) on behavioral health service utilization among foreign-born and U.S.-born emerging adults, a logistic regression model for foreign-born emerging adults and a logistic regression model for U.S.-born emerging adults were performed. All independent variables were entered hierarchically as described above.

***Research Question 3: What factors (predisposing, enabling, and need) are associated with the patterns of behavioral health service utilization among currently enrolled college students and non-college students?***

In order to examine the predictive relationship between the independent variables (predisposing, enabling, and need factors) on behavioral health service utilization among college student and non-college student populations, a logistic regression model for college student emerging adults and a logistic regression model for non-college student emerging adults were performed. All independent variables were entered hierarchically as described above.

## Chapter 4: Results

This chapter presents the results from the secondary analysis of the 2012 MEPS data. The following describes the data screening procedure, results from descriptive and bivariate analyses, and results from main analyses of logistic regression analyses for each of the three study research questions.

### Data Screening

**Missing data.** The MEPS data uses missing value codes to denote data that are not provided by respondents. The codes used are: -1 = *inapplicable*, -7 = *refused*, -8 = *don't know*, and -9 = *not ascertained*. An analysis of all missing data was conducted by assessing the patterns of missing data. Imputation methods were not performed as missing data were found to be missing at random or relatively small portion (less than 1%) compared to the total sample size (Schafer & Graham, 2002; Tabachnick & Fidell, 2007). The effects of such missing data are considered minimal and list-wise deletion was used in analyses (Schafer & Graham, 2002; Tabachnick & Fidell, 2007). Three variables (health beliefs, general mental health status, and psychological distress) from the Self-Administered Questionnaire (SAQ), a randomly administered portion of the MEPS, had missing values of approximately 14% ( $n = 807$ ). Bivariate analyses revealed that there were statistically significant differences found on baseline demographic variables of age, gender, and poverty level among emerging adults who did and did not respond to the SAQ.

**Multicollinearity and normality.** Multicollinearity was examined by conducting correlations across study variables. Appendix E provides the correlations of all study variables showing that correlation values fell below the recommended threshold level of .70 (Tabachnick

& Fidell, 2007). However, there was a correlation of .53 ( $p < .001$ ) between the K6 psychological distress variable and the Patient Health Questionnaire (PHQ-2) depression screener variable. Due to this moderate correlation, the PHQ-2 depression screener variable was excluded from all analyses to avoid multicollinearity as the variable was determined to be redundant (Montgomery et al., 1992) with the K6 psychological distress variable. There was also a moderate correlation found between the behavioral health disorder diagnosis classification code variable and the behavioral health service use variable ( $r = .52, p < .001$ ). The behavioral health disorder diagnosis variable was excluded from all analyses as recommended by Montgomery et al. (1992) for redundancy of moderate correlations.

Assessments of histograms and skewness and kurtosis values of continuous variables revealed that most variables used in the study were normally distributed. However, the assumption of normality was violated for education with high skewness value of -1.89 and kurtosis value of 9.12; therefore, this variable was re-coded by combining values between less than first grade (0) and ninth grade (9) as described above and in Appendix D. Following the re-coding of the education variable, the assumption of normality was met. Response values were explored using descriptive statistics and all values fell within the appropriate range of possible scores, including responses to perceived mental health status with values between 1 to 5, general mental health status (SF-12v2) with values between 0 to 100, and psychological distress (K6) with values between 0 to 24.

### **Descriptive Analyses**

The results from descriptive analyses are presented in this section. Independent variables were grouped based in order of the BMVP population characteristics (Gelberg et al., 2000) of

predisposing, enabling, and need factors followed by descriptive statistics for the behavioral health service utilization variables.

**Predisposing factors.** The average age of emerging adults was 23.46 ( $SD = 3.44$ , weighted  $M = 23.48$ ). The mean for education is 4.97 on a scale of 1 to 8 ( $SD = 1.66$ , weighted  $M = 5.26$ ). The sample included about an equal number of females and males ( $n = 3,429$ ; 51.21% and  $n = 3,267$ ; 48.79%, respectively). The sample included 2,184 (21.45%) Non-Hispanic Whites, 1,436 (7.06%) Non-Hispanic Blacks, 473 (32.62%) Non-Hispanic Asians, and 2,396 (35.78%) Hispanics. The sample were mostly not currently married ( $n = 5,141$ ; 76.78%), employed ( $n = 4,111$  (62.27%), non-college students ( $n = 6,060$ ; 90.50%), and born in the U.S. ( $n = 5,232$ ; 78.57%). Table 4-1 further provides descriptive information on predisposing factors with and without weights.

Table 4-1. Descriptive Statistics for Predisposing Variables

Variable		Range	Mean	$SD$
Age		18 – 29	23.46	3.44
Education		1 – 8	4.97	1.66
Health beliefs		4 – 20	14.16	3.74
Duration in the U.S. (%)		0 – 100	92.43	24.47
		Unweighted $N$ (%)		Weighted %
Gender	Male	3,267 (48.79)		50.03
	Female	3,429 (51.21)		49.97
Race/Ethnicity	Non-Hispanic White only	2,184 (21.45)		56.32
	Non-Hispanic Black only	1,436 (7.06)		13.74
	Non-Hispanic Asian only	473 (32.62)		5.76

	Hispanic	2,396 (35.78 )	21.01
	Non-Hispanic other race or multiple race	207 (3.09)	3.18
Marital Status	Not currently married	5,141 (76.78)	76.82
	Currently married	1,555 (23.22)	23.18
College Enrollment Status	Not current college student	6,060 (90.50)	89.22
	Current college student	636 (9.50)	10.78
Employment	Not currently employed	2,491 (37.73)	32.76
	Currently employed	4,111 (62.27)	67.24
Nativity status	U.S.-born	5,232 (78.57)	85.03
	Foreign-born	1,427 (21.43)	14.97
Language Prefer	English	4,769 (71.22)	83.04
	Other language	1,927 (28.78)	16.96

**Enabling factors.** Table 4-2 provides descriptive information on enabling factors with and without weights. Emerging adults more frequently reported having private health insurance ( $n = 3,281$ ; 49%), a poverty level of middle income ( $n = 1,959$ ; 29.26%), and lived in a metropolitan region ( $n = 5,936$ ; 89.28%).

Table 4-2. Descriptive Statistics for Enabling Variables

Variable		Unweighted <i>N</i> (%)	Weighted %
Health Insurance	Uninsured	2,115 (31.59)	24.27
	Private	3,281 (49.00)	62.77
	Public	1,300 (19.41)	12.96
Poverty Level	Negative/poor (less than 100%)	1,672 (24.97)	18.68
	Near poor (100% to less than 125%)	511 (7.63)	5.48
	Low income (125% to less than 200%)	1,315 (19.64)	15.56
	Middle income (200% to less than 400%)	1,959 (29.26)	32.56
	High income (greater than or equal to 400%)	1,239 (18.50)	27.71
Region	Non-metropolitan	713 (10.72)	12.63
	Metropolitan	5,936 (89.28)	87.37

**Need factors.** Descriptive information on need factors with and without weights are provided in Table 4-3. Respondents had an average perceived mental health status of 4.16 on a 5-point scale ( $SD = .94$ ) and evaluated general mental health of 51.71 on a scale of 0 to 100 ( $SD = 9.77$ ). The majority of emerging adults did not report having psychological distress ( $n = 5,501$ ; 95.77%).

Table 4-3. Descriptive Statistics for Need Variables

Variable		Range	Mean	SD
Perceived mental health status		1 –5	4.16	.94
General mental health (SF-12v2)		2.19 – 72.67	51.71	9.77
		Unweighted <i>N</i> (%)		Weighted %
Psychological distress (K6)	Non-serious distress	5,501 (95.77)		93.71
	Serious distress	243 (4.23)		6.29

**Behavioral health service use.** Tables 4-4, 4-5, and 4-6 describe the behavioral health service use across the entire sample of emerging adults, foreign-born and U.S.-born emerging adults, and college students and non-college students, respectively. Most emerging adults did not use behavioral health services in the past year ( $n = 6,470$ ; 96.62%). Out of the 226 emerging adults that used behavioral health services, U.S.-born emerging adults had more service use ( $n = 206$ ; 3.97%) compared to foreign-born emerging adults ( $n = 18$ ; 1.26%). In addition, non-college students ( $n = 206$ ; 3.39%) had more service use compared to college students ( $n = 20$ ; 3.14%). These differences in service use were statistically significant for foreign-born and U.S.-born groups ( $\chi^2=24.70$ ,  $p<.001$ ) but not for the college and non-college student groups ( $\chi^2=.11$ ,  $p<.73$ ). The use of multivariate analyses of hierarchical logistic regression as discussed below accounts for significant model variable differences.

Table 4-4. Descriptive Statistics for Behavioral Health Care Service Use by All Emerging Adults

Variable		Unweighted <i>N</i> (%)	Weighted %
Service use	No	6,470 (96.62)	95.66
	Yes	226 (3.38)	4.34

Table 4-5. Descriptive Statistics for Behavioral Health Care Service Use by Nativity Status

Variable		U.S.-Born		Foreign-Born	
		Unweighted <i>N</i> (%)	Weighted %	Unweighted <i>N</i> (%)	Weighted %
Service use	No	5,026 (96.06)	81.01	1,409 (98.73)	14.64
	Yes	206 (3.97)	4.02	18 (1.26)	.33

Table 4-6. Descriptive Statistics for Behavioral Health Care Service Use by College Enrollment Status

Variable		Non-College Student		Current College Student	
		Unweighted <i>N</i> (%)	Weighted %	Unweighted <i>N</i> (%)	Weighted %
Service use	No	5,854 (90.47)	85.45	616 (96.85)	10.21
	Yes	206 (3.39)	3.77	20 (3.14)	.57

## Main Analyses

Binomial logistic regressions were conducted to test which factors (predisposing, enabling, and need) are predictive of seeking behavioral health services among emerging adult groups (entire population of emerging adults, foreign-born and U.S.-born emerging adults, and college and non-college students). Factors were included in the logistic regression model in steps according to the adapted BMVP (Gelberg et al., 2000). Predisposing factors (age, gender,

race, education, marital status, employment status, health beliefs, and acculturation) were entered in the first step, enabling factors (health insurance status, poverty level, metropolitan region) were entered in the second step, and need factors (perceived mental health status, general mental health from the SF-12v2, and psychological stress status from the K6) were entered in the last step of each model. Results are discussed by examining model fit indices and interpreting odds ratios and confidence intervals for each logistic regression model. Since model fit indices of likelihood ratio test, Hosmer-Lemeshow goodness of fit test, McFadden pseudo  $R^2$ , and overall model classification rate are not provided for person-level weighted logistic regression models by Stata (StataCorp, 2015a), these indices were obtained from each logistic regression without including weights.

***Research Question 1: What factors (predisposing, enabling, and need) are associated with the behavioral health service utilization of emerging adults?***

The sample size for the final model was 5,566 (population size = 48,760,908) after listwise deletion of cases with missing data. The final model including all predisposing, enabling, and need variables was statistically significant ( $\chi^2_{(22)} = 383.47, p < .001$ ). The final model correctly classified 96.4% of the sample with a pseudo  $R^2$  of .22, showing a good overall fit to the data in predicting behavioral health service use among the total population of emerging adults. Results of the analysis are summarized in Table 4-7.

Table 4-7. Binary Logistic Regression Model for Predicting Behavioral Health Service Use among Emerging Adults ( $n = 5,566$ )<sup>a</sup>

Variable	Step 1		Step 2		Step 3					
	OR	95% CI		OR	95% CI					
		(H)	(L)	(H)	(L)	(H)	(L)			
<u>Predisposing</u>										
Age	1.04	.99	1.09	1.05	.99	1.11	.98	.93	1.05	
Female	1.35	.94	1.95	1.23	.85	1.79	1.07	.74	1.56	
Race/Ethnicity (ref = White)										
Black	<b>.33***</b>	.20	.54	<b>.30***</b>	.18	.51	<b>.40**</b>	.23	.71	
Asian	.65	.25	1.66	.60	.23	1.59	.57	.20	1.59	
Hispanic	.78	.44	1.40	.75	.41	1.38	.90	.48	1.69	
Other, Multiple	.73	.35	1.51	.70	.34	1.42	.62	.25	1.51	
Married	<b>.52*</b>	.29	.93	<b>.54*</b>	.30	.99	.57	.30	1.09	
Education	1.02	.89	1.17	1.03	.89	1.19	1.14	.97	1.34	
Employment status (ref = not employed)	<b>.58**</b>	.40	.85	<b>.64*</b>	.44	.94	.78	.53	1.14	
Health beliefs	1.04	.99	1.09	1.04	.99	1.09	1.01	.96	1.07	
Acculturation-Language Prefer (ref = English)	<b>.42*</b>	.21	.85	<b>.44*</b>	.22	.89	<b>.49*</b>	.24	1.01	
Acculturation-Duration in U.S.	1.04	.99	1.02	1.01	.99	1.02	1.00	.99	1.02	
<u>Enabling</u>										
Health insurance (ref = Uninsured)										
Private				<b>2.23*</b>	1.18	4.18	<b>3.48***</b>	1.77	6.84	
Public				<b>2.34*</b>	1.19	4.62	<b>2.49*</b>	1.20	5.15	
Poverty level (ref = Poor)				.62	.26	1.47	.73	.29	1.81	

	Low income				.92	.52	1.62	.98	.51	1.81
	Middle income				<b>.51**</b>	.28	.92	.56	.31	1.00
	High income				.56	.30	1.02	.69	.38	1.27
Metropolitan Region					1.54	.81	2.92	1.78	.93	3.44
<u>Need</u>										
	Perceived mental health status							<b>.52***</b>	.43	.62
	General mental health							<b>.94***</b>	.93	.96
	Psychological distress (ref = yes)							1.29	.70	2.36
Model Evaluation		$\chi^2$	df	<i>p</i>	$\chi^2$	df	<i>p</i>	$\chi^2$	df	<i>p</i>
Hosmer-Lemeshow		2.62	8	.96	6.32	8	.61	8.78	8	.36
McFadden Pseudo-R <sup>2</sup>		.07			.08			.22		

*Note.* Ref = reference group; OR = odds ratio; CI = confidence interval. a. Reference group for behavioral health service use = yes. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Emerging adults who identified as Black, being married, employed, and preferred to communicate in languages other than English language were significant in the first two steps of the model. However, the significant associations of these variables with behavioral health service use remained only for identifying as Black and communicating in other languages than English preference when need factors were included in the final step of the model. The second step also had significant associations with enabling factors of having private or public insurance

and being in the middle income poverty level group; however, only having private or public insurance maintained significance when need variables were entered in the final model. In the final model, Black emerging adults were less likely to use services than White emerging adults (OR = .40). Emerging adults who preferred to communicate in other languages were less likely to use services than those who preferred English (OR = .49). Emerging adults with public or private insurance had approximately 2 to 3 times the odds of using services than uninsured emerging adults, respectively. In addition, perceived mental health status and evaluated general mental health scores from the SF-12v2 were significant in the final model. Higher self-perceived mental health and higher evaluated mental health ratings from the SF-12v2 were associated with lower behavioral health service use (OR = .52 and OR = .94, respectively).

***Research Question 2: What factors (predisposing, enabling, and need) are associated with the patterns of behavioral health service utilization among foreign-born and U.S.-born emerging adults?***

Two binomial logistic regression models were performed to examine the relationship between factors (predisposing, enabling, and need) and nativity status of being foreign-born and U.S.-born. Independent variables were entered into each of the models by steps as described above. Results are discussed by assessing each model fit and interpreting odds ratios and confidence intervals.

**Foreign-born model.** Although there were 121 near poor foreign-born emerging adults in the sample, none used services and therefore this group was omitted from the poverty level variable in the foreign-born logistic regression model. The sample size for the final model was 1,044 after listwise deletion (population size = 6,664,433). The final model including all

predisposing, enabling, and need variables was statistically significant ( $\chi^2_{(18)} = 70.70, p < .001$ ).

The final model correctly classified 98.86% of the sample with a pseudo  $R^2$  of .40, showing a good overall fit to the data in predicting behavioral health service use among foreign-born emerging adults. Results of the analysis are summarized in Tables 4-8.

Table 4-8. Binary Logistic Regression Model for Predicting Behavioral Health Service Use among Foreign-born Emerging Adults ( $n = 1,044$ )<sup>a</sup>

Variable	Step 1			Step 2			Step 3			
	OR	95% CI		OR	95% CI		OR	95% CI		
		(H)	(L)		(H)	(L)		(H)	(L)	
<u>Predisposing</u>										
Age	.98	.78	1.23	.98	.78	1.23	.82	.65	1.04	
Female	<b>3.23*</b>	1.10	9.53	<b>3.53*</b>	1.37	9.08	2.11	.68	6.57	
Race/Ethnicity (ref = White)	Black	.10	.01	1.33	.12	.01	1.88	.38	.02	7.89
	Asian	.19	.02	1.71	.18	.20	.02	.28	.023	3.42
	Hispanic	.57	.09	3.51	.69	.09	5.18	1.53	.44	5.28
	Other, Multiple	.37	.03	4.71	.54	.72	.04	.66	.03	14.09
Marital status (ref= not married)	<b>.08*</b>	.01	.77	<b>.05*</b>	.003	.82	.12	.004	3.22	
Education	1.41	.81	2.45	1.43	.93	2.21	1.66	.94	2.92	
Employment status (ref = not employed)	.27	.06	1.09	.23	.05	1.20	<b>.25*</b>	.07	.84	
Health beliefs	1.00	.823	1.21	.98	.83	1.17	.91	.19	1.83	
Acculturation- Language Prefer (ref = English)	.44	.08	2.30	.76	.18	3.26	1.02	1.00	1.04	

Acculturation-Duration in U.S.	1.02	.99	1.04	1.02	.99	1.04	6.24	.81	47.92
<u>Enabling</u>									
Health insurance (ref = Uninsured)				3.16	.47	21.07	.16	.02	1.23
				2.39	.43	13.20	.29	.03	2.33
Poverty level (ref = Poor)				-	-	-	-	-	-
				.35	.03	3.43	.21	.03	1.25
				.79	.07	8.72	.92	.09	9.15
				1.67	.12	23.45	2.25	.18	28.72
Metropolitan region (ref = no)							.17	.01	3.22
<u>Need</u>									
Perceived mental health status							.53*	.28	.98
General mental health							.91*	.84	.99
Psychological distress (ref = no)							4.62	.84	25.41
<u>Model Evaluation</u>	$\chi^2$	df	<i>p</i>	$\chi^2$	df	<i>p</i>	$\chi^2$	df	<i>p</i>
Hosmer-Lemeshow	6.77	8	.56	10.53	8	.23	13.08	8	.11
McFadden Pseudo-R <sup>2</sup>	.19			.22			.40		

*Note.* Ref = reference group; OR = odds ratio; CI = confidence interval. a. Reference group = behavioral health service use = yes. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Gender and marital status had significant associations with behavioral health service use in the first and second steps of the model but did not maintain significance when need factors were included in the final step of the model. Employment status, perceived mental health status, and mental health scores from the SF-12v2 had significant associations in predicting behavioral health service use in the final model. Foreign-born emerging adults who were employed were less likely to use services compared to those who were unemployed (OR = .25). Higher self-perceived mental health and higher evaluated mental health ratings from the SF-12v2 were associated with less behavioral health service use (OR = .53 and OR = .91, respectively).

**U.S.-born model.** The sample size for the model was 4,412 after listwise deletion (population size = 41,617,030). The final model including all predisposing, enabling, and need variables was statistically significant ( $\chi^2_{(21)} = 313.30, p < .001$ ). The final model correctly classified 95.54% of the sample with a pseudo  $R^2$  of .21, showing a good overall fit to the data in predicting behavioral health service use among the total population of emerging adults. Stata excluded the acculturation variable of duration in the U.S. from the model because of collinearity. Results of the analysis are summarized in Tables 4-9.

Table 4-9. Binary Logistic Regression Model for Predicting Behavioral Health Service Use among U.S.-born Emerging Adults ( $n = 4,412$ )<sup>a</sup>

Variable	Step 1		Step 2		Step 3					
	OR	95% CI		OR	95% CI					
		(H)	(L)		(H)	(L)				
<u>Predisposing</u>										
Age	1.05	.99	1.11	1.05	.99	1.12	1.00	.93	1.06	
Female	1.32	.89	1.94	1.19	.80	1.77	1.06	.72	1.58	
Race/Ethnicity (ref = White)	Black	<b>.34***</b>	.21	.57	<b>.31***</b>	.18	.52	<b>.40***</b>	.23	.70
	Asian	.90	.35	2.35	.90	.35	2.33	.78	.25	2.38
	Hispanic	.78	.45	1.35	.73	.41	1.29	.86	.46	1.62
	Other, Multiple	.71	.34	1.48	.65	.32	1.35	.57	.23	1.37
Marital status (ref = not married)		.57	.31	1.05	.60	.32	1.12	.63	.32	1.23
		.99	.86	1.5	1.01	.86	1.17	1.11	.93	1.31
Education										
Employment status (ref = not employed)	<b>.62*</b>	.41	.92	.68	.46	1.01	.83	.56	1.22	
Health beliefs	1.05	1.00	1.10	1.04	.99	1.10	1.02	.97	1.08	
Acculturation- Language Prefer (ref = English)	<b>.37*</b>	.15	.89	<b>.37*</b>	.15	.92	.41	.15	1.10	
Acculturation- Duration in U.S.	-	-	-	-	-	-	-	-	-	
<u>Enabling</u>										
Health insurance (ref = Uninsured)	Private			<b>2.21*</b>	1.13	4.34	<b>3.47***</b>	1.68	7.14	
	Public			<b>2.39*</b>	1.13	5.04	<b>2.56*</b>	1.16	5.68	

Poverty level (ref = Poor)	Near Poor	.67	.28	1.62	.79	.32	1.98
	Low income	.99	.55	1.79	1.08	.57	2.04
	Middle income	<b>.51*</b>	.28	.93	.56	.30	1.02
	High income	<b>.53*</b>	.29	.98	.67	.36	1.23

Metropolitan region (ref = no)		1.71	.92	3.18	<b>2.01*</b>	1.06	3.82
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Need

Perceived mental health status					<b>.52***</b>	.43	.62
General mental health					<b>.94***</b>	.93	.96

Psychological distress (ref = no)					1.31	.68	2.51
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<u>Model Evaluation</u>	$\chi^2$	df	p	$\chi^2$	df	p	$\chi^2$	df	p
Hosmer-Lemeshow	10.66	8	.22	10.67	8	.22	8.37	8	.40
McFadden Pseudo-R <sup>2</sup>	.05			.06			.21		

*Note.* Ref = reference group; OR = odds ratio; CI = confidence interval. a. Reference group = behavioral health service use = yes. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

There were significant associations between identifying as Black, employment status, and language preference and behavioral health service use in the first step of the model containing only predisposing factors. Significant associations were found between Black racial group, communicating in other languages than English preference, having health insurance, and poverty levels of middle and high income in the second step of the model. However, when need factors

were added into the final model, only Black racial group and having health insurance maintained a significant association with behavioral health service use. Black U.S.-born emerging adults were less likely to use services compared to White U.S.-born emerging adults (OR = .40). Compared to uninsured U.S.-born emerging adults, those that had either private or public health insurance had 2 to 3 times the odds of using services, respectively. In addition, metropolitan region, perceived mental health status, and evaluated mental health from the SF-12v2 were significantly related to U.S.-born emerging adults' behavioral health service use in the final model. U.S.-born emerging adults living in metropolitan areas were more likely to use services compared to those living in non-metropolitan areas (OR = 2.01). Higher self-perceived mental health and higher evaluated mental health ratings from the SF-12v2 were associated with less behavioral health service use (OR = .52 and OR = .94, respectively).

***Research Question 3: What factors (predisposing, enabling, and need) are associated with the patterns of behavioral health service utilization among currently enrolled college students and non-college students?***

Two binomial logistic regression models were performed to examine the relationship between factors (predisposing, enabling, and need) and college enrollment status of being current college students and non-college students. Independent variables were entered into each of the models by steps as described above. Results are discussed by assessing each model fit and interpreting odds ratios and confidence intervals.

**College student model.** Two variables, marital status and metropolitan region, had zero cell sizes and therefore Stata omitted these variables from the model. College students who were married ( $n = 32$ ) and lived in non-metropolitan regions ( $n = 41$ ) did not seek behavioral health

services. Although there were 75 Asian college students in the sample, none used services and therefore this group was omitted from the race/ethnicity variable. College students with public insurance ( $n = 75$ ) also did not seek services and this group was dropped from the health insurance variable. The education variable was also omitted by Stata as it identified collinearity with the college student status subpopulation variable.

The sample size for the final model after listwise deletion was 384 (population size = 4,763,994). The final model including all predisposing, enabling, and need variables was statistically significant ( $\chi^2_{(17)} = 38.80, p = .002$ ). The final model correctly classified 95.83% of the sample with a pseudo  $R^2$  of .25, showing a good overall fit to the data in predicting behavioral health service use among the current college student population of emerging adults. Results of the analysis are summarized in Tables 4-10.

Table 4-10. Binary Logistic Regression Model for Predicting Behavioral Health Service Use among College Student Emerging Adults ( $n = 384$ )<sup>a</sup>

Variable	Step 1			Step 2			Step 3			
	OR	95% CI		OR	95% CI		OR	95% CI		
		(H)	(L)		(H)	(L)		(H)	(L)	
<u>Predisposing</u>										
Age	1.30	.97	1.75	1.15	.84	1.58	.94	.59	1.48	
Female	.93	.25	3.40	.88	.23	3.31	.50	.14	1.80	
Race/Ethnicity (ref = White)	Black	.64	.20	2.07	.78	.19	3.12	1.31	.30	5.69
	Asian	-	-	-	-	-	-	-	-	-
	Hispanic	.26	.05	1.28	.27	.05	1.44	.21	.03	1.44
	Other, Multiple	.64	.06	7.31	.67	.05	9.04	.69	.02	20.61

Marital status (ref= not married)	-	-	-	-	-	-	-	-	-
Education	-	-	-	-	-	-	-	-	-
Employment status (ref = not employed)	1.18	.36	3.91	1.24	.34	4.52	1.55	.38	6.30
Health beliefs	.95	.84	1.08	.93	.83	1.05	.90	.76	1.06
Acculturation- Language Prefer (ref = English)	.78	.17	3.58	1.16	.18	7.31	2.04	.14	28.74
Acculturation- Duration in U.S.	.99	.95	1.03	.97	.94	1.00	<b>.96*</b>	.93	1.00
<u>Enabling</u>									
Health insurance (ref = Uninsured)	Private			<b>8.48*</b>	1.29	55.60	<b>14.67*</b>	1.44	149.30
	Public			-	-	-	-	-	-
Poverty level (ref = Poor)	Near Poor			.68	.07	6.04	.96	.12	7.56
	Low income			.44	.08	2.46	.36	.08	1.68
	Middle income			.32	.06	1.68	<b>.14*</b>	.03	.73
	High income			<b>.13*</b>	.02	.90	<b>.08*</b>	.01	.76
Metropolitan region (ref = no)				-	-	-	-	-	-
<u>Need</u>									
Perceived mental health status							.66	.32	1.34
General mental health							<b>.92*</b>	.85	.99

Psychological distress (ref = no)							2.33	.16	34.56
<u>Model Evaluation</u>	$\chi^2$	df	<i>p</i>	$\chi^2$	df	<i>p</i>	$\chi^2$	df	<i>p</i>
Hosmer-Lemeshow	12.35	8	.14	2.00	8	.98	1.87	8	.98
McFadden Pseudo-R <sup>2</sup>	.06			.12			.25		

*Note.* Ref = reference group; OR = odds ratio; CI = confidence interval. a. Reference group = behavioral health service use = yes. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

There were no significant associations between predisposing factors and behavioral health service use among college student emerging adults in the first or second step of the model. When enabling variables were entered in the second step of the model, there were significant associations found for health insurance and poverty level. When need variables were entered in the final model, predisposing variable of duration in the U.S. as well as enabling variables of health insurance and poverty level and need variable of evaluated mental health from the SF-12v2 were significantly related to behavioral health service use. College students who spent more time living in the U.S. were less likely to use behavioral health care services (OR = .96). For each year spent living in the U.S., college students had a 4% decrease in the odds of using behavioral health services. Students who had private insurance were more likely to use services compared to uninsured students (OR = 14.67); however, the confidence interval shows a weak effect with a wide range (1.44 – 149.30) indicating that the estimate is not very precise and should therefore be interpreted with caution. College students from middle income and high income backgrounds were less likely to use services than students from poor income backgrounds (OR = .14 and OR = .08, respectively). Higher mental health ratings from the SF-12v2 were associated with lower odds of using services (OR = .92).

**Non-college student model.** The sample size for the final model was 5,019 after listwise deletion (population size = 43,416,448). The final model including all predisposing, enabling, and need variables was statistically significant ( $\chi^2_{(22)} = 375.49, p < .001$ ). The final model correctly classified 96.53% of the sample with a pseudo  $R^2$  of .24, showing a good overall fit to the data in predicting behavioral health service use among the non-college student population of emerging adults. Results of the analysis are summarized in Tables 4-11.

Table 4-11. Binary Logistic Regression Model for Predicting Behavioral Health Service Use among Non-College Student Emerging Adults ( $n = 5,019$ )<sup>a</sup>

Variable	Step 1		Step 2		Step 3					
	OR	95% CI		OR	95% CI		OR	95% CI		
		(H)	(L)		(H)	(L)		(H)	(L)	
<u>Predisposing</u>										
Age	1.04	.98	1.10	1.04	.98	1.11	.99	.92	1.06	
Female	1.42	.96	2.09	1.29	.86	1.93	1.20	.79	1.80	
Race/Ethnicity (ref = White)										
Black	<b>.29***</b>	.17	.5	<b>.27***</b>	.16	.47	<b>.35***</b>	.20	.63	
Asian	.87	.34	1.63	.81	.31	2.15	.73	.24	2.16	
Hispanic	.89	.48	1.63	.86	.45	1.62	1.07	.55	2.08	
Other, Multiple	.76	.36	1.58	.72	.35	1.49	.62	.26	1.48	
Marital status (ref = not married)	<b>.54*</b>	.30	.98	.57	.31	1.03	.60	.32	1.15	
Education	1.03	.89	1.18	1.04	.89	1.21	1.14	.96	1.34	
Employment status (ref = not employed)	<b>.53**</b>	.36	.77	<b>.58**</b>	.39	.87	.73	.48	1.08	
Health beliefs	<b>1.05*</b>	1.00	1.11	1.05	.99	1.11	1.02	.97	1.09	
Acculturation- Language										

Prefer (ref = English)	<b>.38*</b>	.18	.80	<b>.39*</b>	.18	.83	<b>.42*</b>	.19	94
Acculturation-Duration in U.S.	1.01	.99	1.03	1.01	.99	1.03	1.01	.99	1.02
<u>Enabling</u>									
Health insurance (ref = Uninsured)				1.86	.95	3.63	<b>2.93**</b>	1.45	5.92
				<b>2.37*</b>	1.17	4.76	<b>2.48*</b>	1.18	5.19
Poverty level (ref = Poor)				.60	.22	1.65	.69	.23	2.02
				1.04	.55	1.96	1.11	.56	2.20
				.58	.31	1.08	.68	.37	1.25
				.73	.41	1.32	.97	.54	1.77
Metropolitan region (ref = no)				1.36	.70	2.64	1.50	.77	2.94
<u>Need</u>									
Perceived mental health status							<b>.50***</b>	.41	.61
General mental health							<b>.94***</b>	.92	.96
Psychological distress (ref = no)							1.28	.69	2.39
<u>Model Evaluation</u>	$\chi^2$	df	<i>p</i>	$\chi^2$	df	<i>p</i>	$\chi^2$	df	<i>p</i>
Hosmer-Lemeshow	4.74	8	.78	7.87	8	.45	13.41	8	.10
McFadden Pseudo-R <sup>2</sup>	.07			.09			.24		

*Note.* Ref = reference group; OR = odds ratio; CI = confidence interval. a. Reference group = behavioral health service use = yes. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

There were significant associations for several predisposing factors including Black racial group, marital status, employment status, health beliefs, and communicating in other languages than English preference and non-college students' service use in the first step of the model. Significant associations only remained for Black racial group, employment status, and communicating in other languages than English preference when enabling factors were included in step two of the model. In addition, having public health insurance was significantly associated with service use in step two of the model. When need factors were added into the final model, Black racial group, communicating in other languages than English preference, and having health insurance maintained a significant association with behavioral health service use. Black non-college students were less likely to use services compared to White non-college students (OR = .35). Non-college students who preferred to communicate in other languages were less likely to use services than those who preferred English (OR = .42). Compared to uninsured non-college students, those that had either private or public health insurance had approximately 2 to 3 times the odds of using services, respectively. In addition, perceived mental health status and evaluated mental health from the SF-12v2 were significantly related to non-college students' behavioral health service use in the final model. Non-college students with higher perceived mental health and general mental health ratings from the SF-12v2 were less likely to use services (OR = .50 and OR = .94, respectively).

### **Summary of Results**

The statistical significance of model predictors (predisposing, enabling, and need factors) varied across logistic regression models for each research question. However, there are important patterns of significance to note across the models of emerging adult groups. Table 4-

12 provides a summary of results from each of the five final models (all emerging adults, foreign-born emerging adults, U.S.-born emerging adults, college student emerging adults, and non-college student emerging adults).

Table 4-12. Summary of Results from Each Final Logistic Regression Model

Variable		EA	FB	USB	CS	NCS
<b><u>Predisposing</u></b>						
Age		NS	NS	NS	NS	NS
Female		NS	NS	NS	NS	NS
Race/Ethnicity (ref = White)	Black	<b>.40**</b>	NS	<b>.40***</b>	<b>.40***</b>	<b>.35***</b>
	Asian	NS	NS	NS	-	NS
	Hispanic	NS	NS	NS	NS	NS
	Other, Multiple	NS	NS	NS	NS	NS
Married (ref = not married)		NS	NS	NS	-	NS
Education		NS	NS	NS	-	NS
Employment status (ref = not employed)		NS	<b>.25*</b>	NS	NS	NS
Health beliefs		NS	NS	NS	NS	NS
Acculturation- Language Prefer (ref = English)		<b>.49*</b>	NS	NS	NS	<b>.42*</b>
Acculturation- Duration in U.S.		NS	NS	-	<b>.96*</b>	NS
<b><u>Enabling</u></b>						
Health insurance (ref = Uninsured)	Private	<b>3.48***</b>	NS	<b>3.47***</b>	<b>14.67*</b>	<b>2.93**</b>
	Public	<b>2.49*</b>	NS	<b>2.56*</b>	-	<b>2.48*</b>
Poverty level (ref = Poor)	Near Poor	NS	-	NS	NS	NS

	Low income	NS	NS	NS	NS	NS
	Middle income	NS	NS	NS	<b>.14*</b>	NS
	High income	NS	NS	NS	<b>.08*</b>	NS
Metropolitan region (ref = no)		NS	NS	<b>2.01*</b>	-	NS
<u>Need</u>						
	Perceived mental health status	<b>.52***</b>	<b>.53*</b>	<b>.52***</b>	NS	<b>.50***</b>
	General mental health	<b>.94***</b>	<b>.91*</b>	<b>.94***</b>	<b>.92*</b>	<b>.94***</b>
	Psychological distress (ref = no)	NS	NS	NS	NS	NS

*Note.* NS = Nonsignificant results.

<sup>a</sup>Entire emerging adult model (EA); <sup>b</sup>Foreign-born model (FB); <sup>c</sup>U.S.-born model (USB); <sup>d</sup>College student model (CS); Non-college student model (NCS)

Predisposing factors related to race, employment status, and acculturation significantly predicted behavioral health service use. Black emerging adults were less likely to use services compared to White emerging adults even when adjusting for other factors across groups except for the foreign-born group. Being employed was associated with lower odds of service use among foreign-born emerging adults. Acculturation related to language preference was associated with lower odds of service use for those who preferred to communicate in languages other than English for the entire emerging adult sample and non-college student sample. Acculturation related to duration in the U.S. was associated with lower odds of service use for college students who spent more time living in the U.S.

In terms of enabling factors, having health insurance was significantly related to using behavioral health services even when adjusting for other factors, across groups except for foreign-born emerging adults. The entire emerging adult sample, U.S.-born, and non-college student groups that had either private or public health insurance had approximately 2 to 3 times the odds of using services. Poverty level was significant in only the college student model; students from middle income and high income backgrounds were less likely to use services compared to students from poor backgrounds. Region was only found to be a significant predictor for the U.S.-born emerging adults; those living in metropolitan areas were more likely to use services compared to those living in non-metropolitan areas (OR = 2.01). Across each of the models, need factors were associated with behavioral health service use. More specifically, emerging adults with higher perceived mental health status (all groups except for college students) and higher general mental health status were less likely to have used behavioral health services. Psychological distress ratings from the K6 were not significantly related to service use across all emerging adult groups.

## **Chapter 5: Discussion**

This study examined whether or not specific factors (predisposing, enabling, and need) of the adapted BVMP (Gelberg et al., 2000) were associated with behavioral health service use among emerging adults. More specifically, this study examined the patterns of behavioral health service use among groups of emerging adults including foreign-born, U.S.-born, college student, and non-college student emerging adults. This chapter reviews the study's main findings and compares findings to the existing literature on behavioral health service use among emerging adults. Interpretation of findings is discussed according to the adapted BMVP (Gelberg et al., 2000) and is followed by a discussion on the strengths and limitations of the study, implications of the study, and conclusion.

### **Factors Associated with the Behavioral Health Service Utilization among Emerging Adults**

**Predisposing factors.** Race, employment status, and acculturation significantly predicted behavioral health service use for certain emerging adult groups. Non-Hispanic Black emerging adults were less likely to use services compared to non-Hispanic White emerging adults across groups except for foreign-born emerging adults. This finding supports previous studies using national data on health services research that reported lower mental health care utilization among non-White adult populations including non-Hispanic Black adults (Adams et al., 2013; Wang et al., 2005). The lack of significant association between other racial/ethnic emerging adult groups with service use may be due to national data not always including information on within ethnic group differences. Treating ethnic groups such as African American/Black adults as homogenous samples without consideration for ethnic differences such

as coming from Caribbean backgrounds may not sufficiently reveal important within group differences (Perron et al., 2009), which may be related to cultural values and norms concerning health care service use.

In addition, being employed was associated with less likelihood of service use for only the foreign-born emerging adults. This finding may be related to foreign-born adults' having lower-wage jobs that do not provide access to treatment services through insurance coverage (Kenney & Huntress, 2012) or may indicate that they work substantial hours that can hinder their ability to seek services. Although health beliefs and subjective norms related to healthcare use were reported to influence health service use (Andersen, 1995; Gelberg et al., 2000; Kim & Park, 2009) this was not found in the present study. Possible reasons for the lack of significant association between health beliefs and behavioral health service use may be due to the MEPS measurement of health beliefs. The MEPS includes questions on attitudes towards healthcare (attitudes towards health insurance, decisions not to purchase health insurance or not use health services) that may not adequately assess health belief related issues of emerging adults in the sample or may be questions that do not necessarily matter to emerging adults especially if their health insurance is provided through their parents' healthcare policy coverage as a result of the ACA healthcare dependent coverage.

Two variables were used in this study to examine the relationship between acculturation and behavioral health service use, language preference and duration in the U.S. Although these variables do not fully operationalize acculturation, they have been found to strongly relate to acculturation among immigrants in the U.S. (Gordon, 1964; Berry, 1980; Berry & Kim, 1988). Acculturation related to language preference was associated with increased likelihood of service

use for those who prefer English language compared to other languages for the entire emerging adult model and non-college student model. In addition, acculturation related to duration in the U.S. was predictive of service use for college students who spent more time living in the U.S. were less likely to use services. This finding may not support the idea of a healthy immigrant effect (Akresh & Frank, 2008; Cunningham, Ruben, & Narayan, 2008). It is possible that the healthy immigrant effect appears different for college student emerging adults as was suggested in another study (Schwarz et al., 2011) and that spending less time living in the U.S. is associated with more perceived need for services in terms of adjusting to the American college environment.

There was no age effect among emerging adults in the study, which is consistent with the review of the literature described above. Gender differences were initially found in only the foreign-born model but did not maintain significance in the final model when need variables were included. Other study models did not reveal significant associations between gender and health service use at any point in the models. Gender differences reported in the literature review have found that more females used services or had more positive attitudes toward treatment compared to males (Gloria et al., 2008; Ponterotto et al., 2001; Ramos-Sanchez & Atkinson, 2009); however, these studies used samples from specific ethnic groups (Greeks, Asians, and Mexicans) that make these findings less generalizable to other ethnic or racial groups of emerging adults. Sullivan et al. (2007) found significant gender differences among White and Asian/Pacific Islander female college students and greater patterns of counseling service use than Latina/Hispanic female college students but did not include Black emerging adults in their sample, which may have impacted results.

Marital status and education were not significantly associated with behavioral health service use. Studies included in the literature review did not assess marital status as a potential predisposing factor related to service use possibly because most emerging adults are unmarried (Arnett, 2014; Howe & Strauss, 2003; U.S. Census Bureau, 2014). Instead, emerging adults' relationships with their parents/guardians or close family members merit consideration on emerging adults' service utilization especially as more emerging adults marry at a later age and live with a parent/family through emerging adulthood (Arnett, 2014; Howe & Strauss, 2003; U.S. Census Bureau, 2014). Education was also not associated with service use, which may be due to emerging adults today largely being more educated than previous generations (Arnett, 2014; Howe & Strauss, 2003; U.S. Census Bureau, 2014). Although the currently enrolled college sample was relatively small (10.78%), the majority of the emerging adult sample (75%) had at least a GED/high school diploma or higher education degree. Further investigation of the association of age, gender, parental/familial relationships, education, employment status, and acculturation is needed to confirm findings with more ethnically and racially diverse samples of emerging adults and larger cell sizes across study variables to detect potentially significant differences on patterns of service use across groups.

**Enabling factors.** Two out of the three enabling factors were significantly related to service use. Having health insurance and poverty level were associated with specific groups of emerging adults, whereas metropolitan region was not significantly related to patterns of service use among groups. Health insurance was related to greater patterns of service use for all emerging adult groups except for the foreign-born group. There was also a stronger effect for having private insurance over public insurance in predicting service use, which is in support of a

recent SAMHSA (2013) report that treatment costs or services have shifted away from public to more private insurance since the enactment of the ACA. The significant finding of health insurance and increased service use reflects SAMHSA's (2013) report that increased access to insurance coverage leads to more mental health treatment use for emerging adults due to the ACA dependent care health insurance expansion for dependent children up to age 26. If these trends continue, relieving emerging adults of treatment barriers associated with costs and access can continue to significantly increase service use. However, this may not be relevant to foreign-born emerging adults as the present study did not find significant associations with health insurance and service use. Despite foreign-born adults having high employment rates, they often work lower-wage jobs that may not provide access to employment-based health insurance compared to U.S.-born adults (Kenney & Huntress, 2012). The MEPS data does not provide information on citizenship status but it is also possible that health insurance was not a significant factor in predicting service use among foreign-born emerging adults due to their citizenship status and inability or limited access to health services. It is important to note that the ACA does not cover health insurance access to the undocumented foreign-born population living in the U.S. and there are certain eligibility criteria (i.e. lawfully present residents of U.S. or green card holders) for obtaining access to healthcare subsidies or tax credits and healthcare exchanges; therefore, the ACA provided access to care is not universal to everyone living in the U.S.

Poverty level was significant in only the college student model; students from middle income and high income backgrounds were less likely to use services compared to students from poor backgrounds. Financial stressors of rising college education expenses and student loan debts as well as depending on parents financially exacerbate emerging adult college students'

behavioral health (Sweet et al., 2013; Walsemann et al., 2015), which may be related to why present study findings found significance between middle and higher income groups who may not have access to educational financial-assistance programs. It is possible that emerging adults from lower income groups have more resources available to them compared to emerging adults from higher income groups. This finding could also potentially be a mismatch between supply and demand where lower-income groups have a greater demand for services based on having greater behavioral health needs compared to higher income groups (Santiago, Kaltman, & Miranda, 2013). The relationship between income and attitudes toward health service use was assessed by only one of the reviewed studies that examined Mexican American college students (Ramos-Sanchez & Atkinson, 2009), which was not significant. Further investigation on the impact of socioeconomic factors should be conducted especially considering the growing population of emerging adults living in poverty (Howe & Strauss, 2003; U.S. Census Bureau, 2014) and large population of immigrant emerging adult college students with lower socioeconomic backgrounds (Suárez-Orozco et al., 2011; U.S. Department of Education, 2012).

**Need factors.** Across each of the models, need factors were associated with behavioral health service use. More specifically, emerging adults with higher perceived mental health status (all groups except for college students) and higher general mental health status were less likely to have used behavioral health services. However, only a small percentage of emerging adults in the sample (4.34%) reported behavioral health service use, suggesting that regardless of having a behavioral health need, emerging adults are unlikely to use services. Reported explanations for lack of behavioral health service use regardless of need among emerging adults may be attributed to the high stigma associated with seeking behavioral healthcare (Adams et al., 2013; Eisenberg

et al., 2012) and differences in more culturally related values and norms such as individualism (prioritizing one's needs over family) or collectivism (prioritizing the needs of other's over self needs) (Schwartz, et al., 2011, 2013).

Although the Kessler Psychological Distress Scale (K6; Kessler et al., 2002) is a validated measure for the emerging adult population (Bessaha, 2015), the K6 ratings were not significantly predictive of service use across all emerging adult groups in the present study. This finding is in line with prior research that examined psychological distress and attitudes towards service use among foreign-born and U.S.-born Asian college students (Ting & Hwang, 2009) as well as a meta-analysis of help-seeking attitudes and intention among college students (Nam et al., 2013). It is possible that predisposing or cultural-related variables that were not assessed in the present study played a greater role in impacting help-seeking behaviors (Ting & Hwang, 2009). It is also possible that self-perceived and general mental health status variables were better at assessing emerging adults' mental health and captured most of the variance in the study models. Another issue is that only about 4% of the emerging adult study sample reported psychological distress, which may indicate that emerging adults underreported their psychological distress given prior research on the high rates of behavioral health problems among emerging adults (Kessler, Chiu, et al., 2005; Perlick et al., 2010; Sussman & Arnett, 2014).

### **Limitations and Strengths of the Study**

**Limitations.** This study has limitations that must be considered. The 2012 MEPS data is limited by its cross-sectional design that does not allow the determination of time precedence or causal inferences between health service utilization and related factors (predisposing, enabling,

and need). The data is based on self- or family-reported proxy responses related to behavioral health and service use, which may be underreported and biased. Current student status was only asked in the MEPS data for respondents aged 17 through 23, which affects the generalizability of findings by limiting the ability to determine group differences in behavioral healthcare use among older emerging adult students. Due to small cell sizes in certain variables, they were omitted from logistic regression models, which did not allow for complete testing of the proposed theoretical model in all analyses. Sample sizes across emerging adult groups were not equal; however, the large overall study sample size ( $n = 6,696$ ) allowed for sufficient statistical power to detect significant relationships between variables. Statistically significant differences on baseline demographic variables for those that did and did not take the SAQ as well as on behavioral health service use for emerging adult groups were found, which may have resulted in potential response biases. However, multivariate analyses of logistic regression were used in the main analyses accounting for significant differences among model variables.

Using secondary data analysis limits the ability to fully assess all of the constructs included in the BMVP (Gelberg et al., 2000) especially related to acculturation, culturally related health beliefs, and health outcomes. Although the MEPS includes measures of birthplace, duration in the U.S., and English language use, which have been found to be strongly related to acculturation (Berry, 1997; Kirmayer et al., 2011; Leong et al, 1995), the assessment of acculturation used in the present study is restricted. The dynamic and complex bidimensional approach of acculturation (Berry, 1997; Berry & Kim 1988) cannot be fully measured through secondary data available in the MEPS as no detailed information is provided especially in relation to cultural values and health outcomes. Furthermore, the MEPS data does not provide

information on generational or documentation status of emerging adult respondents, which has been reported to impact the various systems including access to healthcare and education that undocumented emerging adults often face (Suarez-Orozco et al., 2011). The MEPS data did not include a variable on English language proficiency, which has been linked to acculturation; however, other language use variables of language at home, interview language, and language preference were all included in the MEPS data, which have been associated with acculturation (Berry, 1997; Kirmayer et al., 2011; Leong et al., 1995). For these reasons, the operationalization of the adapted BMVP (Gelber et al., 2000) model is limited in some ways.

The data is also limited in that it does not provide information on informal related supports (e.g. friends, environment) or more contextual factors that influence formal help-seeking behaviors of behavioral healthcare service utilization related to stigma, subjective norms, or motivation (Ajzen, 1991; DiClemente & Prochaska, 1982; Fishbein & Ajzen, 1975). When analyzing MEPS events data from outpatient and office-based visits, it is important to consider that persons may have behavioral health conditions such as anxiety, depression, or substance abuse that were not captured in any of these sections. It is possible that respondents underreported need-related factors and so MEPS data cannot be regarded as completely exhaustive.

**Strengths.** Although there are limitations to this study, there are also many strengths. This study builds on previous findings that examined the behavioral health service utilization of emerging adults. Previous research confirmed that younger adults are less likely to engage in behavioral health treatment compared to any other adult age group (Wang et al., 2005); however, few studies focused specifically on factors associated with behavioral health service utilization

among the emerging adult immigrant population. The few studies that focused on emerging adult populations predominantly used university student populations whereas the current study utilized a large sample size of national level data that is more representative of the general emerging adult population. This study also allowed for the comparison of behavioral health service utilization findings across college student and nonstudent samples.

Additionally, the review of literature found no studies within social work research literature that addressed emerging adult behavioral health services use within the U.S. population. This study also used a strong theoretical foundation that is based on factors related to help-seeking (Gelberg et al., 2000) with consideration of emerging adulthood characteristics described by Arnett (2000, 2007, 2014). Findings from this study add to the social work and behavioral health knowledge base on behavioral health service use by applying a well-known version of the Behavioral Model of health services utilization, the BMVP (Andersen, 2008; Gelberg et al., 2000) to explore data from a random sample representative of the U.S. emerging adult population. This study used several factors to assess the behavioral health service needs of emerging adults including self (perceived mental health) and evaluated (general mental health from the SF-12v2 and psychological distress from the K6) need factors.

Although there are a few studies that have used past years of MEPS data to look at behavioral health service use, there are no studies that used MEPS data to investigate behavioral health service utilization specific to emerging adults. In acquiring a better understanding of the factors that are associated with greater help-seeking behaviors among vulnerable emerging adults through research, practitioners can use these findings to inform their practice. Practitioners who are informed of the various risk and protective factors related to emerging adults' behavioral

health issues may help lead efforts to normalize stigma concerns associated with using counseling services (Eisenberg et al., 2012). Utilizing the MEPS for a secondary data analysis specifically optimizes resources that have been committed from a previous study on a national level to advance the state of research especially considering the limitations in prior studies of mainly using homogenous convenience samples of college students. The MEPS data allows for the examination of differences in behavioral healthcare service utilization among college and non-college student samples. Furthermore, secondary data analysis reduces the amount of burden placed on vulnerable populations such as foreign-born emerging adults.

### **Study Implications**

There are several implications for social work practice, policy, and research resulting from this study. Included below are suggestions for future directions to be considered in the field of social work and other behavioral health related professions. Social work practice implications are highlighted first followed by policy and research implications.

**Implications for social work practice.** Although healthcare expansion through the ACA is promising in expanding access to behavioral health service use among the emerging adult population, expanding health insurance access is not sufficient enough to increase treatment as found in this study and others (Adams et al., 2013; Eisenberg et al., 2012). Development of other interventions that target increasing the awareness of behavioral health challenges during the transition to adulthood are necessary especially considering prevalence of behavioral health problems and emerging adults' great need for behavioral health services and their reluctance or negative attitudes towards seeking help (Kessler, Chiu, et al., 2005; Wang et al., 2005; Yu et al., 2008). Since the majority of emerging adults in the current study reported no

psychological distress, this supports the idea that emerging adults may be unaware in identifying behavioral health issues or unwilling to seek treatment for their behavioral health concerns further suggesting the importance of educating emerging adults on how to recognize and acknowledge behavioral health need factors.

A major point for intervention is changing emerging adults' perceptions about behavioral health problems and treatments as a first step in the treatment process in order to increase treatment use (Narendorf & Palmer, 2016). Interventions that focus on de-stigmatizing help-seeking when there is a perceived need as well as behavioral health literacy related programs that promote positive help-seeking attitudes (Eisenberg et al., 2012; Gulliver, Griffiths, Christensen, & Brewer, 2009; Schwartz et al., 2011) and peer educational interventions (Milestone & Coming, 2005) may be effective in promoting help-seeking resources on and off college campuses. Implications of procrastination in treatment utilization should also be considered when developing future practice initiatives as procrastination is correlated with mental health behaviors and risks including substance use (Eisenberg & Druss, 2015).

Study findings can also inform the development of psychoeducation initiatives to increase formal and informal support systems that destigmatize seeking help from support networks located on and off college campuses. Psychoeducation initiatives such as workshops on overcoming test anxiety and other stressors should be made universal across targeted college programs such as higher education opportunity programs that serve economically and/or disadvantaged emerging adult college students who often are children from immigrant families and first-generation college students. Higher education opportunity programs work alongside with other college supportive services that can be a way to facilitate communication about help-

seeking and making direct referrals to supportive service departments, which may increase the chances of retention and successful degree completion. The use of mobile health tools such as text-based mobile phone applications targeted at youth have shown promising results in terms of promoting communication of healthcare needs (Reid et al., 2012), which considering the prominent use of technology and social media among emerging adults (Arnett, 2000; 2014) may be a growing trend in increasing perception of behavioral health need and access to care. Technological interventions can promote self-monitoring of behavioral health and foster more communication of behavioral health concerns with healthcare providers (Reid et al., 2012). Developing comprehensive collaborative care models such as Youth Partners in Care (YPIC; Asarnow et al., 2005) that are targeted at older youth groups that include screenings, treatment supervision, psychoeducation especially in primary care settings as integration of mental and physical healthcare becomes more prominent through the ACA (Kessler, 2014), can also be an initiative that increases treatment use and retention among emerging adults. With approximately 67% employed emerging adults in the current study sample, workplace initiatives that consider the health of their young employees should be considered. Workplace initiatives such as employee assistant programs (EAP) that promote healthy behaviors, offer comprehensive health insurance coverage, and improvements in workplace safety and climate provide another source of care provision for young workers (Ocasio et al., 2014) especially for those who do not have access to dependent parental health insurance or college-based counseling services.

Research-based education that provides clarity on the diverse cultural values impacting clients' decisions to seek help can promote social workers' awareness of how personal values may influence the client assessment process in supporting their development and successful

transition into adulthood. Study findings imply that training of future behavioral health clinicians should encompass an awareness for diverse cultural health beliefs and cultural values. Social work education and other related health specializations should continue to promote cultural competency and humility to advocate on behalf of emerging adult populations especially for vulnerable populations of immigrant and racial and ethnic minority emerging adults who often experience additional cultural and structural challenges to seeking services (Schwartz et al., 2011). More interventions that include immigrant families in treatment services and develop collaborative relationships in care services is also warranted as these types of intervention strategies have been found to increase service retention (Suarez-Orozco, Rhodes, & Milburn, 2009). Including involvement of parents and/or guardians of immigrant emerging adult clients during counseling considers recent findings that emerging adults tend to engage in health confrontations with their parents (Weiner, Roloff, & Pusateri, 2014), which may be associated with cultural health beliefs (Sue & Sue, 2012). Additionally, study findings can inform training of the healthcare workforce expansion plans, as stated in the ACA reform initiatives (Beronio, Glied, & Franks, 2014; Kessler, 2014), on the factors associated with greater help-seeking behaviors among vulnerable emerging adult populations especially related to language proficiency barriers and limited healthcare access.

**Implications for policy.** One of the main objectives of the ACA was to address the lack of access to healthcare as a cause of untreated or delayed behavioral health treatment use (Beronio, Glied, & Franks, 2014; Kessler, 2014). With the ACA changes and initiatives, institutional barriers that may have previously prevented emerging adults from accessing services have been impacted. As a result of the ACA, there have been significant increases in

service use among emerging adults since its passage (SAMHSA, 2013); however, additional changes to the behavioral health treatment systems in the U.S. are necessary especially among immigrant emerging adult populations who may experience restrictions to healthcare access related to their citizenship status. Despite expanded health insurance coverage through the extension of dependent care coverage until age 26, offering subsidies and tax credits for those up to 400% of the federal poverty level, and Medicaid expansion in a few states, there are still vulnerable emerging adults that have limited access to behavioral healthcare (Kessler, 2014). Unfortunately, emerging adults who live where Medicaid was not expanded, cannot receive dependent parental healthcare coverage for those older than 26, or do not have employment-based insurance coverage remain uninsured and have been found to use less behavioral health services (Kaiser Family Foundation, 2013).

Various systematic issues such as fragmented services and eligibility criteria across healthcare systems are challenges that emerging adults often face (Pottick et al., 2008). In addition, when emerging adults age out of systems that supported their development during their youth they are often limited to using adult services that may not have the capacity to support their needs (Meara et al., 2014). Current data are necessary to assess the impact of recent changes in behavioral health delivery systems and to guide behavioral healthcare policy initiatives and reforms to recognize the unique developmental characteristics of emerging adult populations (Adams et al., 2013). In terms of organizational initiatives, new policies should invest in primary care interventions that increase service delivery of behavioral health preventive services and integration of user-friendly and brief clinical assessment screening tools targeted for the emerging adult population (Ozer, Urquhart, Brindis, Park, & Irwin, 2012). Wraparound

services especially when transitions from various institutional service delivery systems such as college, foster care, criminal justice, and military (Ozer et al., 2012) are essential in making sure there are no disruptions in care provision of emerging adults. College campus initiatives such as the Question, Persuade, Refer and the Mental Health First Aid programs should become mandatory nation-wide higher education policies to provide gatekeeper training in behavioral health screening and referrals (Eisenberg et al., 2011). Such college-wide programs have found significant increases in gatekeepers' ability to recognize signs of health related concerns and promote communication among college students, which can lead to referrals to supportive services (Eisenberg et al., 2011). On a national level, the consideration of increasing the ACA expansion of dependent care health insurance further from age of 26 to 29 to cover the entire emerging adult age-range is recommended especially as more emerging adults are financially dependent on their parents as well as pursue graduate education (Arnett, 2000, 2014) that may not always cover healthcare costs. Lastly, it is important to consider the role of confidentiality for those emerging adult dependents on parental care and the connection of fear or stigma of disclosing use of behavioral health services to parents or guardians.

**Implications for research.** This study provides beginning information on the patterns of service use among the emerging adult population as a whole as well as across different groups based on their nativity status and college enrollment status. Future research should continue this work using longitudinal data that follows the patterns and can establish causal relationships between study variables and behavioral health service use among emerging adults post enactment of the ACA. Identifying patterns of behavioral health service use over time will allow

for better understanding of factors that predict service use, which can inform future interventions targeting the needs of emerging adults.

Future studies should also include qualitative research methods to further understand the needs of specific emerging adult groups especially those that may experience additional cultural stressors such as immigrant and ethnic and racial minority groups. Qualitative studies may allow for less response bias and underreporting of need for behavioral health service use that could provide insight into the needs of specific groups of emerging adults. Implications of adapting to American culture while maintaining the cultural values and norms of one's native cultures on behavioral health service use could be more easily understood through qualitative interviews especially in relation to stigma and barriers to service use.

Additionally, future studies examining behavioral health service use differences among more ethnically diverse groups of emerging adults should be performed especially as differences in factors predicting service utilization have been found for Mexican American and Greek American emerging adult populations (Ponterotto et al., 2001; Ramos-Sanchez & Atkinson, 2009). Other models of acculturation should also be explored with data that allows for evaluation of various model constructs. Exploring how the bidimensional model (Berry, 1980; Berry, 1997; Berry & Kim, 1988) or interactive acculturation model (Bourhis, Moise, Perreault, & Senecal, 1997) is associated with service use among emerging adults will allow for greater understanding of the needs of more ethnically and racially diverse groups and their beliefs related to health and stigma leading to more informed practice interventions and policy initiatives.

## **Conclusion**

Findings clearly portray the need for greater awareness and consideration of factors related to emerging adult behavioral health service use. Although certain factors were consistently predictive of behavioral health service use, or lack thereof (Black racial group, having health insurance, perceived mental health status, and evaluated mental health status), among most of the emerging adult groups examined in this study, there were differences that necessitate further research. It cannot go unnoticed that access to health insurance plays a major role in the ability of emerging adults to utilize behavioral health services. The results from this study can help guide future behavioral healthcare policy and higher education program initiatives related to promoting self-care and destigmatizing help-seeking behaviors. The increase in diversity of the U.S. population means that all healthcare professionals are more likely to engage with ethnically and racially diverse populations; therefore, a better understanding of various factors especially in terms of help-seeking behaviors is warranted. It is important to consider and acknowledge the heterogeneity of emerging adults in order to best serve their behavioral health needs and support their successful transition into adulthood.

## Appendix A: Studies of Literature Review

Study ID Author(s) Publication Year	Research Question or Aims	Independent variables	Dependent variables	Theory	Sample Size/ Charac teristics	Analytic Method	Findings
<b>S01</b>  Gloria, A. M., Castellanos, J., Park, Y. S., & Kim, D. (2008)	Examine whether there are differences and relationships of Asian values adherence, cultural congruity, perception of the university environment, and help-seeking attitudes for Korean American undergraduate students.	Gender  Generation status  Previous use of personal counseling  Enculturation - (Asian Values Scale, AVS; Kim et al., 1999)  University cultural fit- Cultural congruity (Cultural Congruity Scale, CCS; Gloria & Robinson Kurpius, 1996)  Perceptions of university environment include faculty/staff support, cultural diversity, and social support- (University Environment Scale, UES; Gloria & Robinson Kurpius, 1996)	<b>Help-seeking attitudes (Attitudes Towards Seeking Professional Psychological Help Scale-Shortened Form, ATSPPHS-SF; Fischer &amp; Farina, 1995)</b>	Cultural barrier theory (Leong et al., 1995)	228 ( <i>M</i> = 20.81; age range 18-30 years old)  Korean American college students  Students majority female (54.6%); Foreign-born (1 <sup>st</sup> generation) = 39.3%,  US-born: (2nd-gen) 60.7%; and 17% had prior counseling.  Urban university in West coast.	Correlation, Chi-square, ANOVA, MANOVA, Series of hierarchical regression analyses	<ul style="list-style-type: none"> <li>• Significant main effect for gender; Korean American women reported more cultural congruity and more positive help-seeking attitudes than men.</li> <li>• No significant interaction with gender by generation across study variables.</li> <li>• Adherence to Asian values and help-seeking attitudes were significantly correlated for women and second-generation students only; Decreased adherence to cultural values was predictive of increased help-seeking attitudes for women and second-generation Korean Americans.</li> <li>• Cultural congruity and university environment not predictive of help-seeking attitudes by gender or generation.</li> </ul>

Study ID Author(s) Publication Year	Research Question or Aims	Independent variables	Dependent variables	Theory	Sample Size/ Charac- teristics	Analytic Method	Findings
S02  Kim, B. S. K. (2007).	Examine Asian American college students' attitudes toward seeking profession- al psycholog- ical help in the context of enculturati- on and acculturati- on to cultural values.	Demographic s (age, gender, ethnicity, academic level)  Generation status  Previous use of counseling (academic, career, or personal)  Values enculturation- (Asian Values Scale, AVS; Kim et al., 1999)  Values acculturation- (European American Values Scale for Asian Americans, EAVS-AA; Wolfe, Yang, Wong, & Atkinson, 2001)	<b>Help- seeking attitudes (Attitudes Towards Seeking Professional Psychologi- cal Help Scale- Shortened Form, ATSPPHS -SF; Fischer &amp; Farina, 1995)</b>	Accultu- ration model (Berry & Kim, 1988)	146 ( <i>M</i> = 19.82; age range 18-36 years old) Asian Americ- an college students  Student s majority female (66%);  Foreign- born (1 <sup>st</sup> generati- on): <i>n</i> = 67 (45.9%) , US- born: <i>n</i> = 70 (47.9%) 2nd- generati- on , <i>n</i> = 9 (6.5%) 3rd- generati- on or higher; and 49.3% had prior counseli	Correlation s, T-tests, Hierarchica- l regression, and multiple regression	<ul style="list-style-type: none"> <li>• Having counseling experience related to more positive help-seeking attitudes; no significant demographic variables, analyses on sample as whole.</li> <li>• Enculturation to Asian cultural values, while controlling for acculturation to European American values, was inversely related to attitudes toward seeking help, above and beyond that of previous counseling.</li> <li>• Asian Americans' help- seeking attitudes are associated with their loss of traditional Asian cultural norms, rather than the acquisition of European- American culture norms. The active ingredient in determining help- seeking attitudes is values enculturation rather than values acculturation.</li> <li>• Interaction between</li> </ul>

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ng.	enculturation and acculturation to cultural values did not predict help-seeking attitudes; did not support Berry model.
Ethnic backgrounds were majority : Chinese (23.3%) , Asian Indian (18.5%) Korean (18.5%) Filipino (9.6 %) and Japanese (7.5%).	

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Study ID Author(s) Publication Year	Research Question or Aims	Independent variables	Dependent variables	Theory	Sample Size/ Characteristics	Analytic Method	Findings
S03 Kim, B. S. K. & Omizo, M. M. (2006).	Examine Asian American college students' behavioral acculturation to U.S. cultural norms and behavioral enculturation to Asian cultural norms and their relationships to ratings of cognitive flexibility, general self-efficacy, collective self-esteem, acculturation stress, and attitudes toward seeking professional psychological help.	Demographics (age, gender, ethnicity, academic level) Generation status Behavioral Acculturation & Enculturation -Asian American Multidimensional Acculturation Scale (AAMAS; Chung, Kim, & Abreu, 2004), used acculturation and enculturation subscales separately	<b>Help-seeking attitudes (Attitudes Towards Seeking Professional Psychological Help Scale ATSPPHS-SF)</b>	Acculturation model (Berry & Kim, 1988).	156 ( <i>M</i> = 19.30; age range 18-24 years old) Asian American college students.  Students majority female (62%); Foreign-born (1st generation): <i>n</i> = 54 (34.6%),  US-born: <i>n</i> = 86 (55.1%) 2nd-gen, <i>n</i> = 16 (10.3%) 3rd-generation or higher;  Ethnic backgrounds were majority: Chinese (29.5%), Korean (19.2%) Filipino (14.1 %)  West coast.	Intercorrelations, Series of multiple regression analyses  Bonferroni correction to overall alpha level against Type I error	<ul style="list-style-type: none"> <li>• No significant differences between DVs and generation status/ and demographic variables so main analyses were conducted on the sample as a whole.</li> <li>• Non-significant results regarding attitudes toward professional psychological help-seeking. Authors state unable to draw conclusions on this finding because not statistically significant.</li> <li>• Authors report “a trend” on relation between high behavioral enculturation and positive attitudes toward seeking professional psychological help.</li> <li>• Partial support for Berry’s model regarding positive mental health benefits related to one’s behavioral acculturation and enculturation.</li> </ul>

Study ID Author(s) Publication Year	Research Question or Aims	Independent variables	Dependent variables	Theor y	Sample Size/ Charac teristics	Analytic Method	Findings
S04  Kim, P. Y., & Park, I. J. K. (2009).	Explore the help- seeking beliefs, attitudes, and intent among Asian American college students by adapting the theory of reasoned action.  A multiple mediation model was tested to see if the relation between Asian values and willingnes s to see a counselor was mediated by attitudes toward seeking profession al psycholog ical help and subjective norms.	Demographic s (age, gender)  Generation status  Previous use of counseling  Values Enculturation - Asian American Value Scale– Multidimensi onal (AAVS– M; Kim et al., 2005; used new version compared to others)  <b>Help-seeking attitudes (mediator)- (Attitudes Towards Seeking Professional Psychologica l Help Scale- Shortened Form, ATSPPHS- SF; Fischer &amp; Farina, 1995)</b>  Subjective norms (mediator)- Normative beliefs related to seeing a counselor assessed with 6 items Likert scale (see	<b>Behavioral intention- Willingnes s to See a Counselor (WSC; Gim, Atkinson, &amp; Whiteley, 1990).</b>	Theory of Reason ed Action (TRA; Ajzen & Fishbei n, 1980)	110 ( <i>M</i> = 19.15) Asian Americ an college students .  Student s majority female (59%); Foreign -born (1st – 1.5 generati ons): 38%,  US- born: 52% 2nd- generati on, 8% 3rd- generati on or higher; and 21% had prior counseli ng.  Ethnic backgro unds were majority Korean ( <i>n</i> =26), Chinese	Correlations  Bootstrap mediation method used to test multiple mediation model and to overcome potential problems caused by unmet assumptions (normality and small <i>n</i> ).  Post-hoc analyses using Scheffe method.	<ul style="list-style-type: none"> <li>• Previous counseling correlated with help-seeking attitudes and gender with enculturation; were controlled in analyses; more counseling led to more positive attitudes; men had more Asian values.</li> <li>• Asian Americans with strong Asian values held fewer positive attitudes about help-seeking and were less willing to see a counselor for personal- and health-related problems.</li> <li>• Total indirect effect of Asian values on willingness to see a counselor through help-seeking attitudes and subjective norm was not statistically significant</li> <li>• Specific indirect effect with Subjective norms was the sole significant mediator of the effect of Asian</li> </ul>

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social influences.

Study ID Author(s) Publication Year	Research Question or Aims	Independent variables	Dependent variables	Theor y	Sample Size/ Charac teristics	Analytic Method	Findings
S05  Miller, M. J., Yang, M., Hui, K., Choi, N., & Lim, R. H. (2011)	To test partially indirect effects acculturati on and enculturati on model of Asian American college students' mental health and attitudes toward seeking profession al psycholog ical help.  Also to test a generation al status moderator hypothesis to determine whether differences in model- implied relationshi ps emerged across U.S.- and foreign- born students.	Generation status  Values enculturation- The Asian Values Scale— Revised (AVS-R; Kim & Hong, 2004)  Values acculturation- The European American Values Scale for Asian Americans— Revised (EAVS-R; Hong, Kim, & Wolfe, 2005)  Behavioral acculturation/ enculturation- Modified Acculturation Rating Scale for Mexican Americans (ARSMA-II; Cuellar, et al,1995)  The Riverside Acculturation Stress Inventory (RASI; Benet & Haritatos, 2005)  Acculturation gap family conflict- The Asian American	<b>Help- seeking attitudes (Attitudes Towards Seeking Professional Psychologi cal Help Scale- Shortened Form, ATSPPHS -SF; Fischer &amp; Farina, 1995)</b>	Accult uration theory (Berry et al., 1987)	296 ( <i>M</i> = 20.83) Asian Americ an students . Student s majority males (55%); Foreign -born (1 <sup>st</sup> – 1.5 generati ons): <i>n</i> = 107 (36.2%) , US- born: <i>n</i> = 182 (61.5%) 2nd- generati on, <i>n</i> = 3 (1.0%) 3rd- generati on or higher;  Ethnic backgro unds were majority : Asian India (22.3%) , Chinese (24.7%) ,	Correlations, Satorra- Bentler scaled Chi- square  Latent variable path analysis  Bootstrap analysis to test for indirect effects of model (used with ATSPPHS and MHI as dependent variables)  Multisample confirmator y analysis & likelihood ratio tests for generational status moderation of model.	<ul style="list-style-type: none"> <li>Foreign-born (1-1.5 generation) and US-born (2<sup>nd</sup> generation and higher) students into two groups for generational analysis: foreign-born reported more behavioral enculturation and acculturative stress; the US-born reported more behavioral acculturation.</li> <li>Significant relationship differences in structural coefficients for generational status: behavioral acculturation &amp; help-seeking attitudes; were larger for foreign-born.</li> <li>Only values (acculturation and enculturation) were related to help-seeking attitudes; Higher values acculturation and lower values enculturation related to more positive help-seeking attitudes.</li> <li>Higher behavioral</li> </ul>

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Family  
Conflicts  
Scale (FCS;  
Lee et al.,  
2000)

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universi  
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acculturation and  
higher values  
acculturation  
related to less  
positive help-  
seeking attitudes  
indirectly  
through positive  
relationship with  
acculturative  
stress.

- Findings show complex way acculturation and enculturation factors relate to mental health and help-seeking attitudes.

Study ID Author(s) Publication Year	Research Question or Aims	Independent variables	Dependent variables	Theory	Sample Size/ Charac- teristics	Analytic Method	Findings
<b>S06</b>  Ponterotto , J. G., Rao, V., Zweig, J., Rieger, B. P., Schaefer, K., Michelako u, S., . . . Goldstein, H. (2001).	Exploratory study to examine the relationship of acculturation and gender to attitudes and preferences for counseling among Italian and Greek American college students.	Gender  Generation status  Previous use of counseling  Values acculturation- Acculturation Rating Scale for Mexican Americans (ARSMA; Cuellar et al., 1980) modified for Italian and Greek American population.  A 1-item commitment to cultural values question (authors did not use in analyses)	<b>Help- seeking attitudes- (Attitudes Towards Seeking Professional Psychologi- cal Help Scale- Shortened Form, ATSPPHS -SF; Fischer &amp; Farina, 1995)</b>	None specific	232 ( <i>M</i> = 23.00; age range 17-66 years old, median 21) Italian and Greek American college students  Student s majority female (80%): 6 Italian American men, 81 Italian American women, 52 Greek American men, and 53 Greek American women;  Foreign -born (1 <sup>st</sup> gene- ration): 24%  US- born:	Correlati- ons, Chi- square, t- tests, ANOVA, factorial MANOVA	<ul style="list-style-type: none"> <li>• Group demographic differences (Italians were more female, had more counseling experience, more acculturated) so, Italian and Greek samples were analyzed separately.</li> <li>• Main effect-gender and attitudes, Italian American women had a greater recognition of personal need than did men.</li> <li>• Interaction effects-acculturation level and gender on help-seeking attitudes for Greek Americans, higher acculturated Greek women were more open about their personal concerns than men; however, for lower acculturated students, no gender differences found.</li> </ul>

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Study ID Author(s) Publication Year	Research Question or Aims	Independent variables	Dependent variables	Theory	Sample Size/ Charac- teristics	Analytic Method	Findings
S07  Ramos-Sánchez, L., & Atkinson, D. R. (2009).	To examine the relationship between gender and two components of cultural barrier theory, acculturation and traditional Mexican values, with Mexican American college students' attitudes towards and willingness to use mental health services.	Demographic variables (gender, income)  Generation status  Behavioral acculturation/enculturation -  Acculturation Rating Scale of Mexican Americans-II subscales of Mexican Orientation and American Orientation (ARSMII; Cuellar, Arnold, & Maldonado, 1995)  Enculturation -Multiphasic Assessment of Cultural Construct (MACC-SF; Cuellar et al., 1995)  Religiosity Index (Neff & Hoppe, 1993)	<b>Help-seeking attitudes-Towards Seeking Professional Psychological Help Scale-Shortened Form, ATSPPHS-SF; Fischer &amp; Farina, 1995)</b>  <b>Willingness to seek help-Modified Personal Problems Inventory (MPPI; Ponce &amp; Atkinson, 1989)</b>  Spanish versions of each measure developed / revised/verified 3 times by research team.	Cultural barrier theory (Leong et al., 1995)	262 ( <i>M</i> = 27.00; age range 16-60 years old) Mexican American community college students  Students majority female (69%);  Foreign-born (1st generation): <i>n</i> =168 (64.1%)  ,  US-born: <i>n</i> = 61 (23.3%) 2nd-generation, <i>n</i> = 33 (7.5%) 3rd-generation or higher;  Student	Correlations, MANOVA, Hierarchical regression analyses	<ul style="list-style-type: none"> <li>• Gender and generation significantly correlated with ATSPPH-SF and MPPI scores; both entered as covariates as well as income in regression.</li> <li>• As Mexican Americans lose their culture of origin and increase their generational status, their attitudes toward help seeking and willingness to seek help are less favorable; lower generation students had greater willingness to see a counselor.</li> <li>• Gender difference with help-seeking attitude only; Mexican American women have a more positive attitude towards help-seeking.</li> <li>• Adherence to traditional Mexican culture and values (more encultured) may actually</li> </ul>

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s were recruited from ESL courses (n=129) and social science courses (n=133) from three central California colleges

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encourage help-seeking.

- Findings contradict cultural barrier theory as an explanation for underuse of mental health services by Mexican Americans.

Study ID Author(s) Publication Year	Research Question or Aims	Independent variables	Dependent variables	Theory	Sample Size/ Charac- teristics	Analytic Method	Findings
<b>S08</b>  Sullivan, K.T., Ramos- Sanchez, L., & McIver, S. D. (2007)	To identify predictors of counselin g center use among Asian/Pac ific Islander, Latino/His panic, and White college students.  Determine the extent to which within- group variables (i.e. problem severity, gender, and generation al status) could account for use of counselin g services in various ethnic groups on campus.	Demographic variables (gender, ethnicity, age)  Generation status (as means of measuring acculturation; authors report existing acculturation/ culture measures do not have adequate psychometric properties)  Psychological problem severity- (campus counseling developed Likert scale questionnaire based on major symptoms for DSM-IV disorders)	<b>Counseling Center Service Utilization (1 item question asking whether used campus counseling services (i.e. individual counseling, group counseling, crisis services, drop-in relaxation sessions, workshops , and phone consultatio n)</b>  Psychologi cal problem severity scale used as DV for interaction effects analysis across gender, ethnicity, generation status.	None specifie d	2,307 ( <i>M</i> = 21.9 Latinos; 24.9 Asian/P I; 25.9 White) students . .  Student s majority female across ethnic groups;  Foreign -born across ethnic groups (1 <sup>st</sup> generati on): 7% White, 55% Asian, 14% Latinos  US- born across ethnic groups: 2 <sup>nd</sup> - generati on 2% White, 23% Asian, 55% Latinos;  3 <sup>rd</sup> - generati	Chi- square, ANOVA , Tukey's post-hoc analysis, MANOV A, Forward stepwise regressio n	<ul style="list-style-type: none"> <li>• Age entered as covariate due to significant age differences between ethnic groups; Latinos were younger than Asian and White students.</li> <li>• Significant generation status differences found; varied numbers of 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> generation students among ethnic groups so regression analyses were run separately for each ethnic group.</li> <li>• Generational status was not a significant predictor of counseling use for any ethnic group; authors believe may be due to cultural disparity.</li> <li>• Greater problem severity and gender (more females) predicted more counseling center use for Whites and Asian/Pacific Islanders, but only greater problem severity predicted more</li> </ul>

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<p>on: 91%  White,  22%  Asian,  31%  Latinos;  &amp; 15%  previou  s  counseli  ng.</p>	<p>use for  Latino/Hispanic  students.</p>
<p>Ethnicit  y-  White  (n=  1,264)  Non-  White:  Asian  (n=743)  Latino  (n=300)</p>	
<p>College  in  Norther  n  Californ  ia.</p>	

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Study ID Author(s) Publication Year	Research Question or Aims	Independent variables	Dependent variables	Theory	Sample Size/ Charact eristics	Analytic Method	Findings
S09 Ting, J.Y & Hwang, W.C. (2009)	To determine whether the Sociobeha vioral Model (Andersen , 1995) generalize s to Asian American college students and to determine whether the inclusion of culture- related variables (level of acculturati on and stigma tolerance) help improve understan ding of help- seeking attitudes above and beyond the cultural- general variables of the SBM.	<i>Predisposing factors:</i> Demographic (gender, age)  Social support and conflict- Social Interactions Scale (SIS; Kessler et al., 1994)  <i>Need factor:</i> General distress- Brief Symptom Inventory (BSI- Derogatis & Melisaratos, 1983)  <i>Cultural influenced factors:</i> Acculturation - Vancouver Index of Acculturation (VIA; Ryder et al., 2000)  Stigma tolerance- subscale of the ATSPPHS- SF (Fischer & Turner, 1970)	<b>Help- seeking attitudes- (Attitudes Towards Seeking Profession al Psychologi cal Help Scale- Shortened Form, ATSPPHS -SF; Fischer &amp; Farina, 1995)</b>	Theory of planned behavio r (TPB: Ajzen, 1991);  Modifie d the Sociobe haviroal Model of health services use (Anders en, 1995)	107 ( <i>M</i> = 21.09) Asian America n college students  Students were majority female ( <i>n</i> = 71);  Foreign- born (1 <sup>st</sup> gener ation): <i>n</i> = 43 (40%),  US-born: <i>n</i> = 64 (60%);  Largest Asian America n groups: Chinese 19%, Vietname se 19%, Japanese 14%, Taiwanes e 11%, Korean 9% .  Students were contacted via registrar' s office list of students.	t-tests, Levene's Test for equality of variance, correlatio ns, hierarchic al linear regression	<ul style="list-style-type: none"> <li>• Partial SBM model was significantly associated with help-seeking attitudes:</li> <li>• Stigma tolerance predicted help-seeking attitudes above and beyond traditional variables associated with help-seeking.</li> <li>• No significant gender differences found on help-seeking attitudes.</li> <li>• Age and stigma tolerance were positively correlated with help-seeking attitudes.</li> <li>• Acculturation, psychological distress, gender, social support and conflict were not associated with attitudes.</li> <li>• Older age predictive of more positive attitudes.</li> </ul>

## Appendix B: Literature Review Summary of Factors Associated with Help-Seeking Behaviors

Dependent Variables	
Independent Variables	Use of Counseling Center Services
<p>Help-Seeking Attitudes (ATSPHS-SF)</p>	<p>Willingness to See a Counselor (NIPPI)</p> <p>(WSC)</p>
<p><i>Predisposing Factors:</i></p>	
<p>Demographic</p>	
<p>Gender</p>	<p><b>S:</b> Main effect, women had more positive help-seeking attitudes <math>F_{(1,210)} = 15.47, p \leq .01, \eta^2 = .07</math> (S01)</p> <p><b>NS:</b> Gender not predictive of willingness to see a counselor (S07)</p> <p>Main effect, only Italian American women had more positive attitudes, Wilks's <math>F(4, 113) = 8.77, p &lt; .0001</math> (S06)</p> <p>Mexican American women have more positive attitudes toward help-seeking (<math>B = 1.60, t = 2.72, p &lt; .05</math>) (S07)</p> <p><b>NS:</b> Gender not associated with attitudes (S02, S03, S04, S09)</p>
	<p><b>S:</b> More women reported counseling use for Whites (<math>\beta = .70, p &lt; .001</math>) &amp; Asian/Pacific Islanders (<math>\beta = 1.06, p &lt; .001</math>), only (S08)</p>

Age	<p><b>S:</b> Older age predictive of more positive attitudes (<math>\beta = .32, p &lt; .01</math>) (<b>S09</b>)</p> <p><b>NS:</b> Age not associated with attitudes (<b>S02, S03, S04</b>)</p>
Health Beliefs	
Stigma Tolerance	<p><b>S:</b> Stigma tolerance improved model's prediction of attitudes <math>F(1,98) = 17.68, p &lt; .001, R^2 = .28, \Delta R^2 = .13</math> but was not predictive of attitudes (<b>S09</b>)</p>
Subjective Norms	<p><b>S:</b> Indirect effect, Negative subjective norms associated with less WSC (Bootstrap estimate = .27, <math>p &lt; .05</math>) (<b>S04</b>)</p> <p>Significant effect of salient referents on subjective norm scores <math>F_{(5,654)} = 11.72, p &lt; .001</math>, family and extended family had more negative social norms to WSC (<b>S04</b>)</p>
Social Structure	
Ethnicity	<p><b>NS:</b> Ethnicity not associated with attitudes (<b>S02, S03</b>)</p> <p><b>NS:</b> No academic year differences reported with attitudes (<b>S02, S03</b>)</p>
Education: Academic Year	
Social Support and Conflict	<p><b>NS:</b> Not predictive of attitudes (<b>S09</b>)</p>

**S:** See Gender results

Religiosity	NS: Religiosity not predictive of attitudes (S07)	NS: Religiosity not predictive of willingness to see a counselor (S07)	NS: Acculturation (as measured using generation status) did not predict counseling use across ethnic groups (S08)
Cultural Congruity with University Culture	NS: Not predictive of attitudes by gender or generation status (S01)		
Perceptions of University Environmental Culture	NS: Not predictive of attitudes by gender or generation status (S01)		
<i>Vulnerable Domain</i> <i>Social Structure</i> Acculturation	S: High values acculturation only related to more positive attitudes ( $r = .21, p < .01$ ) (S05)  No main effect with acculturation, but interaction effect between acculturation x gender, only high acculturated Greek American females had positive attitudes related to Openness-subscale $F(1, 100) = 5.91, p < .05$ (S06)	NS: Acculturation not predictive of willingness to see a counselor (S07)	
	NS: Acculturation not predictive of attitudes (S02, S03, S07, S09)		

Enculturation	S: High enculturation (Asian values adherence) predicted less positive attitudes for women ( $\beta = -.28, t = -3.17, p < .01$ ) and for second-generation only ( $\beta = -.37, t = -4.35, p < .001$ ) (S01)	NS: Enculturation not predictive of willingness to see a counselor (S07)	S: Indirect effect of enculturation (Asian values) on WSC through subjective norms (mediator), high Asian values associated with negative subject norms to seeking help (Bootstrap estimate = $-.23, p < .05$ ) (S04)
High enculturation (Asian values adherence), while controlling for European American values, predicted less positive attitudes ( $\beta = -.23, t = -2.90, p < .01$ ) (S02)	High values (Asian values adherence) enculturation related to less positive attitudes ( $r = -.28, p < .01$ ) (S05)	NS: Indirect effect, Asian values on WSC through help-seeking attitudes is NS as confidence intervals contained 0; however direction follows higher Asian values negatively associated with attitudes (S04)	
High behavioral enculturation related to less positive attitudes ( $r = -.16, p < .01$ ) (S05)	High enculturation (Mexican values adherence) predicted more positive attitudes ( $B = 1.19, t = 2.20, p < .05$ ) (S07)		
	NS: Enculturation not predictive of attitudes (S03)		

<p>Generational Status</p>	<p><b>S:</b> For foreign-born sample only: low behavioral acculturation (Bootstrap estimate = <math>-.11, p &lt; .05</math>), low value acculturation (Bootstrap estimate = <math>-.087, p &lt; .05</math>), high behavioral enculturation only (Bootstrap estimate = <math>.077, p &lt; .05</math>), and high acculturation gap family conflict (Bootstrap estimate = <math>-.07, p &lt; .05</math>) associated with more positive attitudes indirectly through acculturative stress (<b>S05</b>)</p> <p>Lower generation Mexican Americans have a more positive attitude towards help-seeking (<math>B = -1.04, t = -3.20, p &lt; .01</math>) (<b>S07</b>)</p>	<p><b>S:</b> Lower generation Mexican Americans had greater willingness to see a counselor (<math>B = -.35, t = -3.99, p &lt; .05</math>) (<b>S07</b>)</p>	<p><b>NS:</b> See Acculturation(<b>S08</b>)</p>
<p>Acculturative Stress</p>	<p>Generational status not associated with attitudes (<b>S02, S03, S04, S06</b>)</p> <p><b>S:</b> Indirect effects for total sample, High behavioral acculturation (Bootstrap estimate = <math>-.05, p &lt; .05</math>) and high values acculturation (Bootstrap estimate = <math>-.07, p &lt; .05</math>) associated with less positive attitudes indirectly through acculturative stress (<b>S05</b>)</p>		

<p>Acculturative Family Conflict</p>	<p><b>S:</b> Indirect effect for total sample, High acculturation gap family conflict related to more positive attitudes indirectly through positive acculturative stress (Bootstrap estimate = .099, <math>p &lt; .05</math>) <b>(S05)</b></p>
<p><i>Enabling Factors</i></p>	
<p>Previous Counseling Experience</p>	<p><b>S:</b> Students with counseling experience had more positive attitudes (<math>\beta = .20</math>, <math>t_{(143)} = 2.49</math>, <math>p = .015</math>) <b>(S02)</b></p> <p>Students with counseling experience associated with more positive attitudes (<math>r = .23</math>, <math>p &lt; .05</math>) <b>(S04)</b></p>
<p>Income</p>	<p><b>NS:</b> Previous counseling not predictive of attitudes <b>(S01)</b></p> <p><b>NS:</b> Income not predictive of attitudes <b>(S07)</b></p> <p><b>NS:</b> Income not predictive of willingness to see a counselor <b>(S07)</b></p>

<i>Need Factors</i>	
Psychological Problem Severity	<p><b>S:</b> Greater problem severity predicted more counseling center use across each group of White (<math>\beta = .59, p &lt; .001</math>), Asian/Pacific Islanders (<math>\beta = .69, p &lt; .001</math>), &amp; Latino/Hispanic students (<math>\beta = .54, p &lt; .01</math>) (<b>S08</b>)</p>
General Psychological Distress	<p><b>NS:</b> Psychological distress not predictive of attitudes (<b>S09</b>)</p>

*Note:* S = significant; NS = Not significant. ATSPPH-SF = Attitudes Toward Seeking Professional Psychological Help – Short Form; WSC = Willing to See a Counselor; MPPI = Modified Personal Problems Inventory for willingness to see a counselor for personal problems. S01 = Gloria, Castellano, Park, & Kim (2008); S02 = Kim, 2007; S03 = Kim & Omizo (2006); S04 = Kim & Park (2009); S05 = Miller, Yang, Hui, Choi, & Lim (2011); S06 = Ponterotto et al. (2001); S07 = Ramos-Sanchez & Atkinson (2009); S08 = Sullivan, Ramos-Sanchez, & McIver (2007); S09 = Ting & Hwang (2009).

## Appendix C: Variables Used in this Dissertation from the 2012 Medical Expenditure Panel

### Survey (MEPS)

Measure	Variables	Codebook Variable #	Coding for Analyses	
Predisposing factors	Age	AGE42X	Continuous	
	Gender	SEX	Dichotomous	
	Marital Status	MARRY12X	Nominal	
	Race	RACE THX	Nominal	
	Education	Education Status:	FTSTU12X	Nominal
		Education Attainment:	EDRECODE	Ordinal
	Employment	Employment Status:	EMPST53	Nominal
	Acculturation	Interview Language:	INTVLANG	Nominal
		Preferred Language at Home:	LANGHM42	Nominal
		Preferred Language Converse:	ENGSPK42	Dichotomous (no/yes)
	Nativity Status	Years in the U.S.:	USLIVE42	Continuous
		USBORN42		Dichotomous (no/yes)
	Health Beliefs	Attitudes About Health:	ADINSA42 ADINSB42 ADRISK42 ADOVER42	Nominal
Enabling factors	Insurance	INSCOV12	Nominal	
	Poverty Level	POVCAT12	Ordinal	
	Region	Metropolitan Region:	MSA12	Dichotomous (no/yes)
Need factors	Perceived Health	Perceived Mental Health Status:	MNHLTH42	Continuous, total score (1 to 5)
	Evaluated Health	Short-Form 12 Version 2 (SF-12v2):	MCS42	Continuous, total score (0 – 100)
		Psychological Distress (K6):		Continuous, total score

	Perceived Health	Perceived Mental Health Status: MNHLTH42	Continuous, total score (1 to 5)
	Evaluated Health	Short-Form 12 Version 2 (SF-12v2): MCS42	Continuous, total score (0 – 100)
		Psychological Distress (K6): K6SUM42	Continuous, total score (0 – 24)
Service utilization	Provider Specialty	DRSPLTY or MEDTYPE	Nominal
	Type of Service Received	VSTCTGRY	Nominal
	Type of Treatment Received	DRUGTRT and PSYCHOTH	Dichotomous

*Note:* A dichotomous variable for psychological distress need factor, K6, was created using the K6 cutoff score of 13 so that 0 = non-serious psychological distress for K6 scores from 0 through 12 and 1= serious psychological distress for K6 scores from 13 through 24. Additional modifications to study variables are described in the text. For full versions of the 2012 MEPS Documentation and Codebook for the MEPS-HC full year consolidated, outpatient visits, and office-based medical provider visits files see:

[http://meps.ahrq.gov/mepsweb/data\\_stats/download\\_data\\_files\\_detail.jsp?cboPufNumber=HC-155](http://meps.ahrq.gov/mepsweb/data_stats/download_data_files_detail.jsp?cboPufNumber=HC-155)

[http://meps.ahrq.gov/mepsweb/data\\_stats/download\\_data\\_files\\_detail.jsp?cboPufNumber=HC-152F](http://meps.ahrq.gov/mepsweb/data_stats/download_data_files_detail.jsp?cboPufNumber=HC-152F)

[http://meps.ahrq.gov/mepsweb/data\\_stats/download\\_data\\_files\\_detail.jsp?cboPufNumber=HC-152G](http://meps.ahrq.gov/mepsweb/data_stats/download_data_files_detail.jsp?cboPufNumber=HC-152G)

## Appendix D: Re-coding of Variables in the Dissertation

Variable	Coding	Type
<i>Predisposing</i>		
Age	Range: 18-29	Continuous
Gender	(0) Male (1) Female	Categorical
Race/Ethnicity	(0) Non-Hispanic White only (1) Non-Hispanic Black only (2) Non-Hispanic Asian only (3) Hispanic (4) Non-Hispanic other race or multiple race	Categorical
Marital Status	(0) Not currently married (1) Currently married	Categorical
Education	(1) 9 <sup>th</sup> grade or less (2) 10 <sup>th</sup> grade (3) 11 <sup>th</sup> grade (4) 12 <sup>th</sup> grade, No HS diploma or GED (5) GED or HS Graduate (6) Beyond HS, College (no four-year degree), Associate's (7) Four-year college degree, bachelor's (8) Master's, doctorate, professional	Continuous
College enrollment status	(0) Not current college student (1) Current college student	Categorical
Employment	(0) Not currently employed (1) Currently employed	Categorical
Nativity status	(0) No- U.S.-born (1) Yes- Foreign-born	Categorical
Health beliefs	Range: 4 – 20	Continuous
Acculturation		Categorical
Interview Language	(0) English (1) Other language	

Language at home	(0) English (1) Other language	Categorical
Not comfortable speaking English	(0) No (1) Yes	Categorical
% Duration in U.S.	Range: 0 – 100	Continuous
<i>Enabling</i>		
Health insurance	(0) Uninsured (1) Private (2) Public	Categorical
Poverty level	(1) Negative/poor (less than 100%) (2) Near poor (100% to less than 125%) (3) Low income (125% to less than 200%) (4) Middle income (200% to less than 400%) (5) High income (greater than or equal to 400%)	Ordinal
Region	(0) Non-metropolitan area (1) Metropolitan area	Categorical
<i>Need</i>		
Perceived mental health status	Range: 1 – 5	Continuous
General mental health (SF-12v2)	Range: 0 – 100	Continuous
Psychological distress (K6)	(0) Non-serious psychological distress (1) Serious psychological distress	Categorical
<i>Health Behavior</i>		
Behavioral Health Service Use	(0) No (1) Yes	Categorical

## Appendix E: IRB Determination Letter



University of Maryland, Baltimore  
Institutional Review Board  
Phone: (410) 706-5037  
Fax: (410) 706-4189  
Email: [hrpo@som.umaryland.edu](mailto:hrpo@som.umaryland.edu)

### NOT HUMAN RESEARCH DETERMINATION

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Date: May 27, 2015

To: Llewellyn Cornelius  
RE: HP-00064549

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This letter is to acknowledge that the UMB IRB reviewed the information provided and has determined that the submission does not require IRB review. This determination has been made with the understanding that the proposed project does not involve a systematic investigation designed to develop or contribute to generalizable knowledge **OR** a human participant (see definitions below).

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these activities are human subject research in which the organization is engaged, please submit a new request to the IRB for a determination.

#### Definitions –

**Human Research:** Any activity that either:

- Is “Research” as defined by DHHS and involves “Human Subjects” as defined by DHHS (“DHHS Human Research”); or
- Is “Research” as defined by FDA and involves “Human Subjects” as defined by FDA (“FDA Human Research”).

**Research as Defined by DHHS:** A systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge.

**Research as Defined by FDA:** Any experiment that involves a test article and one or more human subjects, and that meets any one of the following:

- Must meet the requirements for prior submission to the Food and Drug Administration under section 505(i) of the Federal Food, Drug, and Cosmetic Act meaning any use of a drug other than the use of an approved drug in the course of medical practice;
- Must meet the requirements for prior submission to the Food and Drug Administration under section 520(g) of the Federal Food, Drug, and Cosmetic Act meaning any activity that evaluates the safety or effectiveness of a device; **OR**
- Any activity the results of which are intended to be later submitted to, or held for inspection by, the Food and Drug Administration as part of an application for a research or marketing permit.

**Human Subject as Defined by DHHS:** A living individual about whom an investigator (whether professional or student) conducting research obtains (1) data through Intervention or Interaction with the

individual, or (2) information that is both Private Information and Identifiable Information. For the purpose of this definition:

- **Intervention** means physical procedures by which data are gathered (for example, venipuncture) and manipulations of the subject or the subject's environment that are performed for research purposes.
- **Interaction** means communication or interpersonal contact between investigator and subject.
- **Private Information** means information about behavior that occurs in a context in which an individual can reasonably expect that no observation or recording is taking place, and information which has been provided for specific purposes by an individual and which the individual can reasonably expect will not be made public (for example, a medical record).
- **Identifiable Information** means information that is individually identifiable (i.e., the identity of the subject is or may readily be ascertained by the investigator or associated with the information).

**Human Subject as Defined by FDA:** An individual who is or becomes a subject in research, either as a recipient of the test article or as a control. A subject may be either a healthy human or a patient. A human subject includes an individual on whose specimen (identified or unidentified) a medical device is used.

Please keep a copy of this letter for future reference. If you have any questions, please do not hesitate to contact the Human Research Protections Office (HRPO) at (410) 706-5037 or [HRPO@som.umaryland.edu](mailto:HRPO@som.umaryland.edu).

## Appendix F: Correlation Analyses Results

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
<b><u>Predisposing</u></b>															
1. Age															
2. Female	.08***														
3. Race Ethnicity	-.06***	-.01													
4. Married	.38***	.09***	-.03**												
5. Education	.35***	.06***	-.17***	.11***											
6. Employed	.25***	-.03*	-.06***	.11***	.25***										
7. Health beliefs	.01	.19***	-.01	.01	-.02	-.06***									
8. Lang. prefer <sup>a</sup>	-.03*	-.04**	.55***	.02	-.19***	-.07***	-.01								
9. Duration U.S.	-.15***	.01	-.29***	-.14***	.11***	.001	.001	-.50***							
<b><u>Enabling</u></b>															
10. Insurance	-.13***	.15***	-.09***	-.04**	-.07***	-.13***	.15***	-.16***	.16***						
11. Poverty level	.08***	-.10***	-.13***	.08***	.32***	.27***	-.01	-.11***	.03	-.09***					
12. Region	-.01	-.01	.14***	-.06***	.06***	.01	.001	.13***	-.08***	-.01	.08***				
<b><u>Need</u></b>															
13. Perceived mhl <sup>b</sup>	-.03*	-.02	.02	.01	.13***	.11***	-.07***	.02	-.05***	-.05***	.14***	.06***			
14. General mhl <sup>c</sup>	-.04***	-.11***	.02	.01	.02	.07***	-.07***	.04**	-.05***	-.04*	.09***	.03**	.37***		
15. Psy distress <sup>d</sup>	.01	.02	-.01	-.02	-.05***	-.06***	.05***	-.02	.05***	.03*	-.07***	-.02	-.25***	-.48***	
<b><u>Service Use</u></b>	-.01	-.01	-.08***	-.03*	-.01	-.04**	.03*	-.07***	.06***	.07***	-.01	.08	-.19***	-.24***	.20***

Note. a. Language preferred; b. Perceived mental health status; c. General mental health; d. Psychological distress.

\* $p < .05$ , \*\* $p < .001$ , \*\*\* $p < .001$

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