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EDUCATION

Ph. D. University of Maryland, Baltimore, School of Social Work, May 2015

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MSSA Case Western Reserve University, Cleveland, Ohio, May 2010

Master of Science in Social Administration, concentration in Mental Health

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Bachelor of Art in Social Work

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RESEARCH EXPERIENCE

RRSR (Recognizing and Responding to Suicide Risk) Training: Randomized control Trial, University of Maryland

Graduate Research Assistant, 2012- present

- Conducted literature review on training modules for mental health professionals and theory of intention
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National Trends of Workplace Critical Incident and Response, University of Maryland

Project Manager, 2012 - present

- Developed a process for data cleaning and trained research team members
- Developed and maintained a database using Excel and SPSS
- Assisted in completing the final report and professional presentations
- Developing manuscript based on the final report (in preparation)

Health and Productivity of the U.S. Department of Energy, University of Maryland

Graduate Research Assistant, 2011- present

- Assisted in completing the final report and co-authored a research article based on the report
- Analyzed data using SPSS software and Mplus
- Conducted literature review on relationships between chronic health conditions and

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National Study of Changing Workforce, University of Maryland

Graduate Research Assistant, 2011- present

- Analyzed data using SPSS software & Mplus
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Qualitative Study on Low-income Breast Cancer Survivors, University of Maryland

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Prevalence and Experiences of Domestic Violence Survivors, Seoul YWCA Welfare Center

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Frey, J. J., Osteen, P., Patricia, A., Jinnett, K., & **Ko, J.** (2015). Predicting the impact of chronic health conditions on workplace productivity and accidents: Results from two U.S. Department of Energy national laboratories. *Journal of Occupational and Environmental Medicine, 57*(4), 436-444.

Osteen, P. J., Frey, J. J., & **Ko, J.** (2014). Advancing training to identify, intervene, and follow up with individuals at risk for suicide through research. *American Journal of Preventive Medicine, 47*(3), 216-221.

Kim, K., & **Ko, J.** (2013). Attitudes toward interprofessional health care teams scale: A confirmatory factor analysis. *Journal of Interprofessional Care, 28*(2), 149-154.

Ahn, H., Roll, S., Zeng, W., Frey, J. J., & Reiman, S., & **Ko, J.** (revisions submitted).
Impact of income inequality on workers' life satisfaction in the U.S.: A longitudinal
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PRESENTATIONS

Ko, J. (2015, January). Stigma toward mental health treatment: Do predisposing factors
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Ko, J. (2014, October). Subjective needs for mental health help-seeking among Asian
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Ko, J. (2014, April). Using the Kessler psychological distress scale (K6) in adults with suicidal
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Association of Suicidology Conference. Los Angeles, CA.

Ko, J., Frey, J. J., Osteen, P., & Ahn, H. (2014, June). Job satisfaction and immigrant employees:
Moderating effects of immigrant status on determinants of job status. Paper presented at
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Frey, J. J., **Ko, J.**, Osteen, P., & Jinnett, K. (2014, June). The cost of chronic health conditions
among employees working at U.S. National Laboratories: Implications for the work/life
field. Paper presented at the 2014 Work and Family Research Network, New York, NY.

Swanberg, J., Vanderpool, R., **Ko, J.**, & Marsh, K. (2014, June). Working poor breast cancer
survivors: Managing the Cancer-Work Interface. Paper presented at the 2014 Work and
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Ko, J., Bailey-Kloch, M., & Kim, K. (2013, November). Interprofessional education and attitudes
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Kim, K., & **Ko, J.** (2013, November). Validation of attitudes toward health care team scale for
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Social Work Education Conference, Dallas, TX.

Frey, J. J., Osteen, P., **Ko, J.**, & Ahn, H. (2013, November). Revised model of the benefits and
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Poster presented at the American Public Health Association Annual Conference, Boston,
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Jacobson, J. M, Osteen, P., **Ko, J.**, Liccardo, R., & Shipe, S. (2013, April). Critical incident response in the workplace: Current research and customer voices. Presented at the Employee Assistance Society for North America Annual Conference. Chicago, IL.

Cohen-Callow, A., Jacobson, J. M., Osteen, P., & **Ko, J.** (2012, November). Health, productivity and safety in the workforce: Does age make a difference? Poster presented at the Annual Gerontological Society of America Conference, San Diego, CA.

Jacobson, J. M., Jinnett, K., Osteen, P., Cohen-Callow, A, & **Ko, J.** (2012, March). Pilot study using health and productivity questionnaire at the DOE. Presented at Occupational Medicine Conference, Washington, DC.

PROFESSIONAL EXPERIENCE

Psychiatric Social Worker, Jamaica Hospital Medical Center, New York, NY
November 2010- July 2011

- Developed a discharge plan in the inpatient psychiatric unit
- Worked with family members to address their needs after discharge

Case Manager, Korean American Community Center of New York, New York, NY
May 2010 – October 2010

- Provided benefits counseling and acculturation support for Korean immigrants in the U.S.
- Developed and ran the programs to address acculturation needs among Korean immigrants

Counselor/Manager, Korea National Housing Corporation, Kyong-ki, South Korea
April 2004~ January 2007

- Provided counseling services to residents (low-income families) in public housing
- Interviewed residents to determine their eligibility for public housing

January 2007~ July 2008

- Supervised management office staff in public housing for low-income family
- Developed and evaluated programs to enhance community solidarity for the residents of public housing

PRACTICUM/ INTERNSHIP

Therapist, the Free Clinic of Greater Cleveland, Cleveland, OH
(24 hours/week) August 2009- May 2010

- Conducted behavioral health intakes for diverse populations (diagnostic and psychosocial assessment)
- Provided individual clinical counseling; developed and implemented treatment plans

Counselor/Social Worker, Magnolia Clubhouse, Cleveland, OH
(24hours/week) August 2008- May 2009

- Coordinated daily activities for the clubhouse members who have severe mental illness
- Developed and reviewed individual treatment plans and recovery goals

Program Assistant/Counselor, Seoul YWCA Welfare Center, Seoul, South Korea
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- Assisted crisis intervention programs for domestic violence survivors
- Provided individual and family therapy services for domestic violence survivors

Program Assistant, Tehwa Fountain House, Seoul, Korea

(8 hours/week) March - June 2002

- Assisted in supported employment programs for clients who have severe mental illness
- Assisted in daily activities for the clubhouse members who have severe mental illness

Residential Program Assistant, Camphill Community, Wexford, Ireland

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- Provided physical care and medication management for residents with developmental disabilities
- Coordinated daily activities and recreational programs for residents and live-in volunteers

HONORS AND AWARDS

- **Student Travel Fellowship**, American Association of Suicidology, 2014
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- **Dean's Scholarship**, Case Western Reserve University, 2008-2010
- **President Award for Top Graduation**, SungKyunKwan University, 2004
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LICENSE

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Abstract

Title of Dissertation: Help-seeking Behavior among Working-age Adults with Suicidal Ideation: An integration of the Andersen Model of Health Care Utilization and the Three-stage Model of Mental Health Help-seeking

Jungyai Ko, Doctor of Philosophy, 2015

Dissertation Directed by: Donna Harrington, Ph. D., Professor and Jodi Jacobson Frey, Ph. D., Associate Professor, School of Social Work, University of Maryland Baltimore

Despite a high suicide rate among working-age adults, there is a significant lack of empirical evidence on suicide help-seeking among working-age adults. This dissertation examined help-seeking behavior among working-age adults between 26 and 65 years old who reported suicidal ideation in the past year ($n = 1,414$). Data were drawn from the 2011 and 2012 National Survey on Drug Use and Health (NSDUH) to examine three research questions: (1) What factors are related to help-seeking among adults with suicidal ideation; (2) Does the combined model of help-seeking fit for adults with suicidal ideation; and (3) What are the reasons for not receiving mental health treatment among the subset of adults with suicidal ideation who did not receive mental health treatment? Findings from multinomial logistic regression suggested that male gender, younger age, being non-white, being employed full-time, lower levels of mental health need, and not having health insurance were associated with not seeking help. The results also indicated where in the help-seeking pathway each risk factor is related to. Results from structural equation modeling analyses demonstrated that the combined model of

help-seeking behavior fit reasonably well among the current sample. The examination of the relationships between predisposing/need/enabling factors and help-seeking behavior showed that each factor affects help-seeking behavior through its direct effects on help-seeking behavior and/or indirect effects on other factors. Among the subsample who reported unmet needs for mental health treatment, a burden of treatment cost, not knowing where to look for services, and negative attitudes toward treatment were most frequently reported reasons for not receiving treatment. The results provide a foundation for future help-seeking interventions and imply that health professionals need to continuously assess and respond to suicide risk among their clients. Efforts should be made to reach working-age adults with suicidal ideation but without a diagnosis of mental disorders as they are less likely to be in the mental health care system. Future studies should examine the role of suicidal ideation in the help-seeking pathway and how employment status and work environment impact help-seeking behavior among working-age adults with suicidal ideation.

Help-seeking Behavior among Working-age Adults with Suicidal Ideation:
An integration of the Andersen Model of Health Care Utilization and the Three-stage
Model of Mental Health Help-seeking

by
Jungyai Ko

Dissertation submitted to the Faculty of the Graduate School of the
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Chapter 1: Introduction

Although practitioners believe help-seeking behavior to be a strong factor in suicide prevention, research on suicide help-seeking, particularly with working-age adults, is lacking. Studies on suicide help-seeking, for people of all ages, are limited, partly resulting from a lack of models and theories that have been empirically supported (National Action Alliance for Suicide Prevention: Research Prioritization Task Force [RPTF], 2014). Despite a high suicide rate among working-age adults and low rate of mental health utilization, the main focus of suicide help-seeking literature has focused on adolescents and young adults (Caine, 2013). Thus, in this dissertation, I examined help-seeking behavior among working-age adults, defined as those aged between 26 and 64, with suicidal ideation. I analyzed data from the 2011 and 2012 National Survey on Drug Use and Health (NSDUH) to identify factors associated with help-seeking, examine the reasons for not seeking help after recognizing a need for mental health services, and test the model of suicide help-seeking that I developed for this dissertation by combining Andersen's (2008) health behavior model and the three-stage model of mental health help-seeking by Cauce et al. (2002). The structure of this dissertation is as follows: 1) identify problems related to help-seeking among working-age adults with suicidal ideation, 2) review literature on theories and empirical studies on help-seeking behavior among adults, 3) describe the method that was used for this dissertation, 4) present results, and 5) discuss the results and implications for social work practice and research.

Problem Statement and Background

Suicide is a major public health problem. Worldwide, one million people die from suicide every year, causing one death every 40 seconds; in the last 45 years, suicide rates have increased by 60% worldwide (World Health Organization [WHO], 2013). In the United States (U.S.), according to the Centers for Disease Control and Prevention (CDC), suicide is the 10th leading cause of death overall, with 39,518 reported suicide deaths in 2011 (CDC, 2014); suicide is the fourth leading cause of death for adults between the ages of 18 and 65 years in the U.S. (American Foundation for Suicide Prevention [AFSP], 2012). The suicide rate per 100,000 is highest in the ages 45-54 (19.3), followed by 55-64 (16.7) and 35-44 (16.1) (AFSP, 2012). Furthermore, from 1999 to 2008, the suicide rate for persons aged 45-64 years increased from 13.2 to 17.6 per 100,000 (CDC, 2012b). The National Strategy for Suicide Prevention (U.S. Department of Health and Human Services [DHHS], 2012) indicates that in the past two decades, suicide rates among middle adulthood increased whereas it decreased or remained stable for other age groups, suggesting more attention is necessary for suicide prevention among working-age adults. Finally, 8-25 non-fatal suicide attempts are estimated for every suicide death (AFSP, 2012), suggesting that a substantially larger number of people suffer from suicide-related thoughts and behavior than the number people who die by suicide.

In addition to loss of life, suicide among working-age adults has substantial costs to society in terms of medical costs and lost work time. According to the WHO (2013), suicide worldwide was estimated to represent 1.8% of the total global burden of disease in 1998 and will increase to 2.4% in 2020. The U.S. Surgeon General's report on mental health pointed out that mental illness and suicide ranks second in the burden of disease in

established market economies such as the U.S. (DHHS, 1999). According to CDC's (2012a) cost estimates, based on the suicide rates of 2005, total combined cost for suicides among persons aged 10 years and older are estimated as \$26.7 billion. For each suicide prevented, the U.S. could save \$3,056 in medical costs and \$815,963 in work loss costs on average.

The National Strategy on Suicide Prevention (DHHS, 2012) affirms that suicide is often preventable by combining treatments for mental health conditions and strategies that directly address suicide risk. The body of literature on suicide supports this. For example, psychotherapies, such as dialectical behavior therapy and cognitive behavioral therapy, are effective in reducing risk for suicidal thoughts and behaviors (Stanley, Brodsky, Nelson, & Duilt, 2007; Tarrier, Taylor, & Gooding, 2008). In addition, pharmacological care has demonstrated evidence for its effectiveness in reducing suicidal behaviors for patients with schizophrenia and mood disorder (Dolgin, 2012; Kasckow, Felmet, & Zisook, 2011). At the community level, the U.S. Air Force Suicide Prevention Program has been shown to be effective in reducing suicide rates in the U.S. Air Force through a multilayered approach that strengthens social support and increases effective help-seeking behavior (Knox et al., 2010).

Despite these promising findings, a substantial number of people with suicidal ideation do not seek treatment. In a cross-sectional study based on a nationally representative sample, Ahmedani et al. (2012) found that among U.S. adults with suicidal thoughts or history of suicide attempts, less than two-thirds received any behavioral health treatment in the previous year. In a recent longitudinal study on individuals of all ages who died by suicide, Ahmedani et al. (2014) found that only half of those who died

by suicide made any medical visits within the four weeks prior to their death. This pattern of not seeking help is common outside the U.S. as well. For example, in Australia, among adults who attempted suicide, 36% did not receive any treatment from a hospital, general practitioner, mental health professional, or telephone support line prior to their suicide attempt (Milner & De Leo, 2010). In a worldwide sample, only 19.4% of adults with suicidal ideation sought mental health care; when general medical services were included, only 31.1% received any health care services in the year prior to suicidal ideation (Bruffaerts et al., 2011)¹. The high rate of untreated suicidal ideation suggests that having suicidal ideation may not increase help-seeking behavior among some individuals. In the general mental health literature, various factors are known to be associated with not seeking mental health treatment; these factors include male gender (Judd, Komiti, & Jackson, 2008), ethnic minorities (Sue, Cheong, Saad, & Chu, 2012), negative attitudes toward mental health services (Rickwood, Deane, Wilson, & Ciarrochi, 2005), and cultural beliefs that stigmatize help-seeking (Cauce et al., 2002).

Attempts have been made to explain the mechanisms describing how these factors influence mental health service utilization. For example, the body of literature on mental health treatment utilization suggests that the gender difference in help-seeking may be associated with different problem recognition. Judd et al. (2008) found that compared to women, men may be less likely to report or recognize a problem rather than necessarily experiencing less depression. However, other studies suggest that women experience higher rates of depression and anxiety (Levinson & Ifrah, 2010). Similarly, prior studies

¹ These are any kinds of health services received prior to suicidal ideation or attempts and are not specifically received to treat suicidal ideation.

identified stronger stigma, reluctance to reveal a mental health problem, and cultural beliefs as some of the reasons for low treatment utilization among ethnic minorities (Leong & Lau, 2001; Sue et al., 2012). Although it is possible that help-seeking for suicidal ideation parallels the context of help-seeking for general mental health, studies have yet to assess how these factors are related to help-seeking behavior among adults with suicidal ideation. It is possible that different factors are related to help-seeking with presence of suicidal ideation, in addition to general mental health needs.

In fact, studies among younger adults showed that some individuals with suicidal ideation are less likely to seek help for mental health care, compared to individuals without suicidal ideation but with mental health needs. For example, Deane, Wilson, and Ciarrochi (2001) found that college students who experienced suicidal ideation have lower levels of intention to seek help from both formal and informal support sources, compared to students without suicidal ideation. Similarly, Wilson, Deane, and Ciarrochi (2005) found that suicidal ideation was negatively correlated with intentions to seek help from both formal and informal sources in high school and college students, suggesting that among youth populations, suicide thoughts and feelings may act as barriers to seeking mental health service utilization, thus serving as a significant obstacle to effective suicide prevention (Barnes, Ikeda, & Kresnow, 2001). This phenomenon has not been examined among working-age adults, but the low percentage of help-seeking among this group suggests that the same mechanism may interfere with the decision-making process among working-age adults with suicidal ideation.

Despite the need for research and intervention to encourage help-seeking, there is a significant lack of empirical evidence on suicide help-seeking among working-age

adults. Suicide prevention efforts have been largely limited to school settings; of 16 evidence-based suicide prevention programs registered at the Substance Abuse and Mental Health Services Administration (SAMHSA, 2015), 12 programs are for adolescents or college students and only 4 programs involve adult populations (i.e., American Indians, military families of service members, gatekeeper training, and the U.S. Air force). The high suicide rate among working-age adults indicates the substantial need for prevention efforts for this age group (CDC, 2012b). In order to gather collective efforts to solve this disproportionality in the field of suicide prevention, more evidence on help-seeking among working-age adults is crucial to design effective suicide prevention programs for this population. This study addressed this problem by examining help-seeking behavior among working-age adults with suicidal ideation.

Suicide and Help-Seeking among Working-age Adults

Vulnerability among working-age adults regarding suicide and mental health help-seeking has been acknowledged. For example, the National Strategy on Suicide Prevention (DHHS, 2012) identified men in midlife as one of the groups with increased suicide risk. Stigma related to mental illness and help-seeking is a global problem; however, it is more problematic in some groups, including working-age adults (Bernstein, 2007; Jang, Kim, Hansen, & Chiriboga, 2007; Staal & Hughes, 2002). The public awareness campaign “Real Men Real Depression” was developed to decrease stigma against mental health help-seeking among men, based on the recognition that a positive attitude toward mental health help-seeking is the key to increase help-seeking among men (Rochlen, Whilde, & Hoyer, 2005). Under the slogan of “it takes courage to ask for

help,” this campaign was designed to change the belief that asking for help is a sign of weakness and thus counter to the rules that govern traditional masculinity (National Institute of Mental Health, n.d.). Studies have yet to examine the effectiveness of this campaign, but it is an example of efforts to increase help-seeking based on understanding of what interferes with help-seeking among this group. To increase such efforts, the aspects of help-seeking that are unique to working-age adults need to be further examined.

Help-seeking among working-age adults with suicidal ideation can be different from other age groups because it can be impacted by work-related factors. With the current lack of research on suicide help-seeking behavior among this group, drawing from the literature on work-related stressors and general mental health on working-age adults may provide a foundation to understand suicide help-seeking among working-age adults. Negative work characteristics or environmental factors are related to increased suicide risk; high work stress is the most frequently investigated work-related factor in association with increased suicide risk (Ostray et al, 2007; Tsutumi et al., 2007). Also, adverse working conditions, such as monotonous work, increased responsibility, and client contacts, as well as nonstandard employment, such as part-time work, temporary work, and daily work, have been shown to be associated with suicidal ideation (Schneider, 2011; Woo & Postolache, 2008). In addition, being unemployed and retired (Schneider, 2011; Yoshimasu et al., 2008) and having concern over work prospects (Almasi et al., 2009) are also known to be associated with increased suicide risk. These studies suggest that whether employed or unemployed, working-age adults may be put in vulnerable situations because of worries about their jobs or stresses from the jobs.

Alternative Sources of Help

Although the help-seeking literature among adults with suicidal ideation has largely focused on mental health service utilization as a primary source of help, some studies broadened the outcome of interest to examine alternative sources for help-seeking, including informal help (e.g., help from friends or family members) and/or non-health care professionals/sources (e.g., religious counselors/healers, alternative medicine, telephone hotline, online support group). For example, Cedereke and Ojehagen (2007) examined formal and informal help received after a suicide attempt among adults in Finland. Formal help was defined as the help that was received from health services; informal help was the level of support from friends or family. Those who attempted suicide reported high levels of unmet needs for social interaction whereas their healthcare-related needs were adequately met.

Studies suggest that a considerable number of adults with suicidal ideation receive help from alternative, or informal, sources. For example Encrenaz et al. (2012) examined the service received from health professionals versus other alternative sources among French adults; alternative sources included friends, relatives, non-healthcare organizations, or hotlines. Only 20% of participants sought help from health professionals; 40% talked to their close friends or family members and 1 sought help from a helpline or other non-healthcare organization²; 50% did not seek help from any of these sources. In the U.S., Chu, Hsieh, and

² Responses to each category are not mutually exclusive; therefore, the total sums to more than 100%.

Tokas (2011) found that more than 19% of Asian American and 23% of Latino adults with suicidal ideation sought help from religious or spiritual advisors or healers, and 13.1% of Asian Americans and 18.2% of Latinos sought help from nonprofessional sources, defined as online support groups, self-help groups, or hotlines. These studies suggest that despite the current lack of knowledge on the function of these alternative sources of help, many individuals with suicidal ideation tend to seek help from alternative sources.

Relevance to Social Work Practice

Social workers in mental health settings are often responsible for assessing suicidal risk and regularly work with those who report suicidal ideation. A study conducted with a national sample of mental health social workers demonstrated that 52.5% of the social workers experienced either fatal or non-fatal clients' suicidal behavior (Jacobson, Ting, Sanders, & Harrington, 2004). Social workers work with diverse populations in various settings, but their clients are likely to have increased suicidal risk because of their traumatic experience, minority stress, and other vulnerabilities (Feldman & Freedenthal, 2006).

Traditionally, working-age adults may not be considered a vulnerable population in the social work field when it comes to suicide and mental health help-seeking; however, their vulnerability increases because their access to mental health services is limited by concerns about stigma and the potential effects on their jobs (Bernstein, 2007; DHHS, 2012; Staal & Hughes, 2002). Furthermore, work stress and employment status may place working-age adults in a chronically stressful situation because many of them spend more time in the workplace than anywhere else (Almasi et al., 2009; Ostry et al.,

2007; Schneider et al., 2011; Tsutsumi, Kayaba, Ojima, Ishikawa, & Kawakami, 2007). Shneider et al. (2011) pointed out that during times of economic uncertainty and crisis, the relationship between work-related factors and risk of suicide strengthens. In addition, breaking up from a relationship or marriage are life-event related factors that increase the vulnerability of working-age adults for suicidal ideation (Evans, Scourfield, & Moore, 2014; Liu et al., 2006). Hence, preventing suicide among working-age adults should be considered as an important social work goal because of the increased vulnerability of this population and the frequency that social workers work with adults with suicidal ideation (DHHS, 2012; Sanders, Jacobson, & Ting, 2008).

Empirical evidence on help-seeking among working-age adults with suicidal ideation will provide the groundwork for developing and implementing evidence-based interventions for suicide help-seeking. Interventions to increase help-seeking for mental health problems have been shown to be effective in increasing positive help-seeking attitudes for depression, anxiety, and general psychological distress (Gulliver, Griffith, Christensen, & Brewer, 2012). As such, by examining factors associated with suicide help-seeking based on a theoretical framework, namely the combined model of the three-stage model of mental health help-seeking (Cauce et al., 2002) and the Andersen (2008) healthcare utilization model, this study can contribute to encouraging future intervention studies to enhance help-seeking among working-age adults with suicidal ideation. Identifying risk factors will help indicate where prevention efforts should be targeted and inform public health approaches for increasing awareness of help-seeking.

Theoretical Frameworks

This dissertation integrated the three-stage model of mental health help-seeking (Cauce et al., 2002) and the Andersen (2008) model of health care utilization to examine help-seeking among working-age adults with suicidal ideation. In this section, after addressing each of these two models, the combined model of suicide-help-seeking will be introduced.

The Andersen Model of Health Care Utilization

Andersen's (2008) health care utilization model, also called the behavioral model, suggests that individual factors as well as environmental factors are associated with the decision to utilize or not utilize medical care. The initial model (Andersen, 1968) suggested that the use of health services is determined by health service users' predisposing factors, enabling factors, and need factors. In addition to these basic components, the external environment, as well as personal health practices such as diet, exercise, and self-care were recognized as contributing factors as the model developed over time (Andersen, 2008). The final model, as presented in Figure 1-1, was extended to include health status outcomes and to emphasize contextual characteristics in addition to individual determinants.

The main components of the Andersen (2008) model that I used for this dissertation are individual characteristics, including predisposing, enabling, and need factors. Predisposing factors include demographic characteristics, social structure, and health beliefs (Andersen, 2008). Demographic factors are biological imperatives such as age and gender. Social structure, measured by education, occupation, and ethnicity, indicates the status of a person in the community as well as coping resources and physical

environment. Health beliefs are attitudes, values, and knowledge that people have about health and health services. Next, enabling factors include the personal, family, and community level resources required for the utilization of health services (Andersen, 2008). It is suggested that income, health insurance, and a regular source of care are some of the measures of enabling factors. Lastly, need factors include two dimensions of health needs: perceived and evaluated. Perceived need is largely explained by social structure and health beliefs whereas evaluated need is closely related to the amount and types of treatment received.

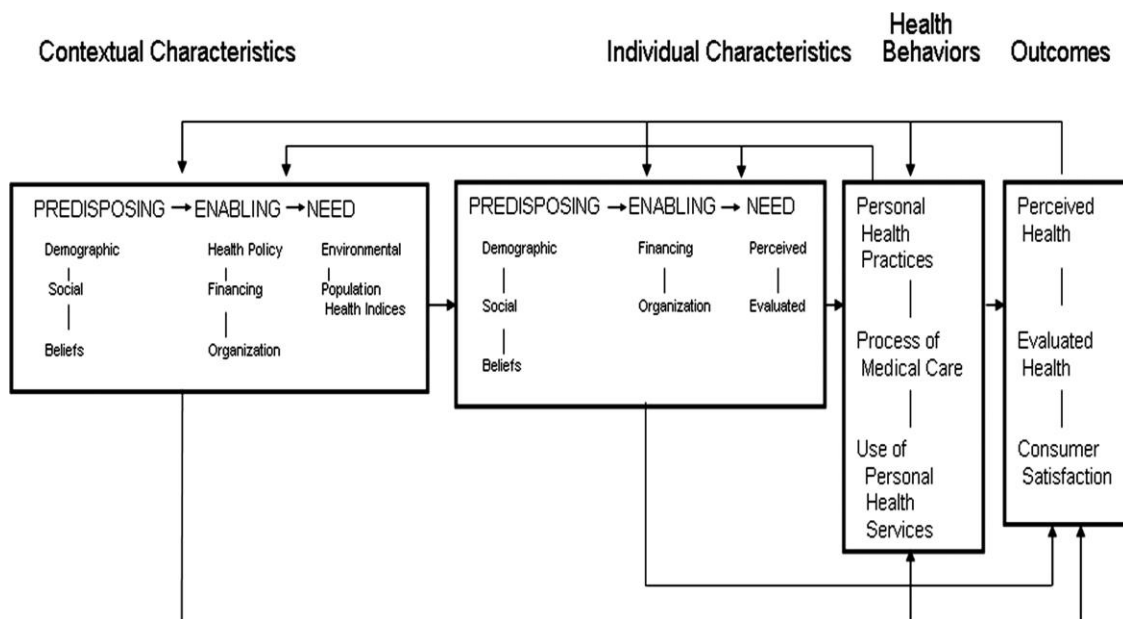


Figure 1-1. Andersen’s Model of Health Care Utilization³

It is hypothesized that certain predisposing, enabling, and need factors can predict the type of services utilized to different degrees (Andersen, 1995, 2008). For example, hospital services received for serious problems would primarily be explained by need and demographic characteristics, whereas dental services considered as more discretionary

³ Figure reprinted with permission of publisher.

would more likely be explained by social structure, beliefs, and enabling factors. This suggests that when adapted to explain mental health help-seeking, more severe mental health problems, such as psychotic disorders and major depressive episodes that require inpatient psychiatric care might be less affected by enabling or social dimensions of predisposing factors whereas outpatient care is more strongly related to such factors.

The Andersen (1995, 2008) model of health care utilization has been adapted throughout the mental health help-seeking literature (Diala et al., 2000; Eisenberg, Golberstein, & Gollust, 2007; Snowden, 1999; Vasiliadis, Lesage, Adair, & Boyer, 2005), but only two published studies could be located that examined suicide-related help-seeking based on this model. Freedenthal (2007) adapted this model to compare rates and predictors of mental health service utilization among youth with suicidal ideation. The results supported the hypotheses that Hispanic and African American youth are less likely to use mental health services after controlling for need and enabling factors and that need factors predict service use not as strongly among Black and Hispanic youth. In another study, Law, Wong, and Yip (2010) investigated characteristics of those who died by suicide without receiving psychiatric treatment based on the hypothesis that utilization of such service is determined by predisposing, enabling, and need variables. The results from this psychological autopsy study conducted in Hong Kong demonstrated that having non-psychotic disorder, unmanageable debt, being employed at the time of death, and having higher levels of social problem-solving ability are related to suicide death without seeking treatment. In both studies, predisposing, enabling, and need factors were examined as possible independent or control variables for suicide help-seeking, suggesting the potential for the model to be adapted to suicide help-seeking.

Three-stage Model of Mental Health Help-seeking

This study is based on the broad definition of help-seeking and the perspective that views help-seeking as a process, using the framework adapted from *the three-stage model of mental health help-seeking* (Cauce et al., 2002). Cauce et al. suggested that a help-seeking pathway for mental health problems starts with problem recognition, moves to the decision to seek help, and ends with the selection of a treatment service or provider. The help-seeking pathway suggested by this model is presented in Figure 1-2. Cultural or contextual factors can affect the relationships between need for help-seeking and help-seeking behavior at each stage of this pathway. Under this framework, help-seeking cannot begin unless a problem is recognized. Problem recognition, however, does not necessarily result in the decision to seek help. The decision to seek help, which includes both coercive and voluntary processes, leads to the next stage, namely service selection. Based on this perspective, this study examined help-seeking behavior that is related to problem recognition, seeking help, and service selection.

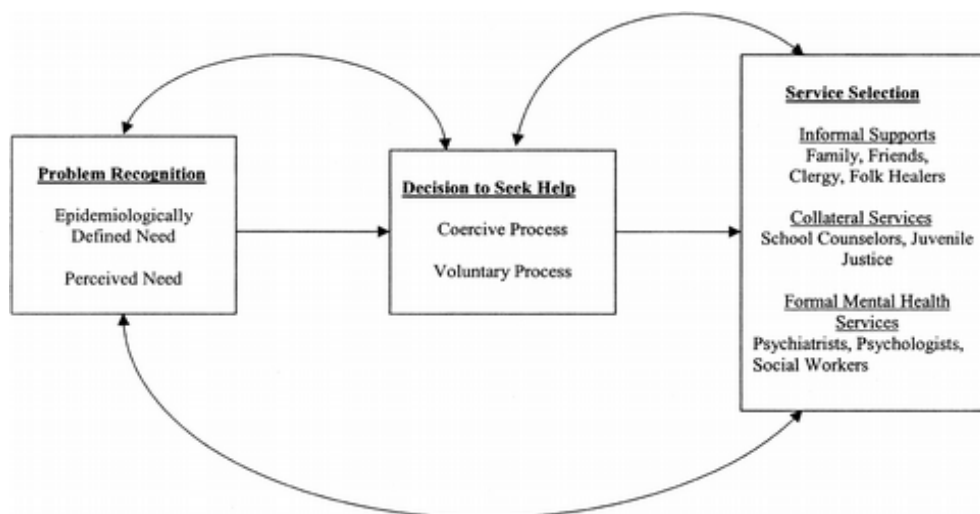


Figure 1-2. A Model for Mental Health Help-seeking by Cauce et al. (2002)⁴

⁴ The publisher does not require permission for the reproduction of this figure.

Originally developed for mental health help-seeking among ethnic minority youth populations, this model was adapted in studies examining help-seeking and treatment utilization among adolescents and adults with suicidal ideation, as well as in studies examining help-seeking for other mental-health related problems among adult populations. Goldston et al. (2008), for example, examined the cultural context of youth suicidal behavior among different ethnic groups based on this model. Chu et al. (2011) adapted this model in their examination of help-seeking behaviors in Asian American and Latino adults with suicidal ideation and attempts by analyzing cross-sectional data from a nationally representative sample; based on this model, factors associated with perceived need for help, help-seeking behavior, and number of help sources were examined. The results suggested different factors were related to different stages of the help-seeking pathway.

The three-stage model (Cauce et al., 2002) was also adapted in a number of studies on adult help-seeking behavior associated mental health problems. Liang, Goodman, Tummala-Narra, and Weintraub (2005) suggested a theoretical framework for understanding help-seeking behavior among survivors of intimate partner violence (IPV) based on the three-stage model as well as other help-seeking models and suggested the help-seeking processes among IPV survivors are problem definition and appraisal, followed by decision to seek help, and selection of a help-provider. In another study, Schiff and Pat-Horenczyk (2013) used the three-stage model to examine perceived need for psychosocial service among the survivors of political violence among 904 Israeli mothers of young children aged 2-4. The results indicated that those who reported a need

for psychosocial services had higher level of exposure to political violence, and more emotional problems in their children.

Although it has not been rigorously tested for help-seeking behavior among people with suicidal ideation, literature on suicide and help-seeking suggests the importance of understanding help-seeking behavior as a pathway, in which a number of decision-making processes are involved, in addition to the binary outcome of whether or not they utilized mental health treatment. For example, prior studies have supported individual differences in recognition of mental health problems; the studies demonstrated that help-seeking among ethnic minorities are influenced by their subjective definition of depression, suicidal ideation, and their tendency of not revealing the problems (Chu et al., 2011; Freedenthal, 2007; Morrison & Downey, 2000). Similarly, gender differences in problem recognition are known to be associated with different health beliefs in the mental health help-seeking literature (Galdas, Cheater, & Marshall, 2005; Judd, Komiti, & Jackson, 2008).

Furthermore, the decision to seek help does not necessarily result in utilization of mental health services. Studies on suicide help-seeking among adults have largely focused on utilization of services, rather than the process of help-seeking. However, Michelmore and Hindley (2012), based on their systematic review of help-seeking for suicidal thoughts and self-harm in young people, concluded that the majority of young people with suicidal ideation may have attempted to seek help but ended up not receiving professional help for a variety of reasons, such as concerns about stigma and a lack of accessibility. Moreover, suicidal ideation can affect the types or sources of help individuals choose to utilize. Goodwin, Mocariski, Marusic, and Beautrais (2013) reported

that youth with and without self-harm have different patterns of help-seeking; those with thoughts of self-harm, compared to those with depression but without thoughts of deliberate self-harm⁵, were more likely to seek help from friends and health professionals but less likely to seek help from parents. Therefore, adapting this model to the current research provided a framework for examining different aspects of the decision making process in suicide help-seeking.

Moreover, examining help-seeking behavior in consideration of different stages of the decision making process can elicit more practical and important implications for the field of suicide prevention. For example, if adults with suicidal ideation do not utilize mental health services because they did not recognize suicidal ideation as a serious problem that needs help, the implication will be that suicide literacy needs to be increased among this group. On the other hand, if they did not receive mental health services after they perceived having a problem, barriers to mental health care need to be examined to increase help-seeking among this group. Likewise, if working-age adults with suicidal ideation tend to seek help from a certain source of help, the effectiveness of this source of help and the potential that they need to be redirected to other sources should be examined and promoted.

Integration of the Two Models: The Combined Model of Suicide Help-seeking

The Andersen (2008) model of health care utilization provides a foundation from which possible factors involved in suicide help-seeking can be examined. Although the three-stage model (Cauce et al., 2002) broadens the scope of the help-seeking process

⁵ The authors denoted that self-harm ideation is used to describe “thoughts of harming oneself that may or may not include suicidal ideation”. The examples of deliberate self-harm behaviors include cutting, burning, scratching, and overdose.

beyond the service utilization, the model does not identify what factors explain each stage of help-seeking. The Andersen model, on the other hand, provides a framework for understanding what factors would explain each stage of the decision making process.

Although the outcome used in the Andersen (2008) model is utilization of health services, two other stages of the decision making process are implied in the model; need factors are understood both by evaluated and perceived need (comparable to “problem recognition” in the three-stage model) and different service types can be explained by predisposing and enabling factors to the different degree (comparable to “selection of services” in the three-stage model). Thus, these two models complement each other, providing the potential to be combined into a more comprehensive model for mental health and suicide help-seeking.

The two models are similar in their claims that recognizing a need for help should precede help-seeking behavior. The Andersen (2008) model recognizes that perceived needs are affected by social values and should precede the utilization of healthcare. The three-stage model (Cauce et al., 2002) defines problem recognition as the first step in the help-seeking process. Regarding the last stage of help-seeking defined by the three-stage model, Andersen (2008) recognizes the importance of predisposing and enabling factors in explaining the type of services sought. The three-stage model focuses more on contextual influences on choosing types of help.

Important distinctions between the two models are that the outcome in the Andersen model (2008) is limited to formal health care utilization whereas the three-stage model (Cauce et al., 2002) includes informal services as a part of help-seeking behavior. In this study, I adapted the broad scope of the help-seeking behavior defined by the three-

stage model. This decision is based on the recognition that informal sources of help can also be useful sources of support for adults with suicidal ideation and that revealing suicidal ideation or mental health issues to alternative sources of help can be followed by seeking help from health professionals. Next, because the Andersen (2008) model was developed for general healthcare utilization, other factors that are unique or more strongly related to mental health service utilization should be taken into consideration. Most importantly, the significance of mental health problems and suicidal ideation might be defined more subjectively than other physical health problems. Therefore, in the combined model, need factors (e.g. symptoms, prior diagnoses) and recognition of needs (problems) are separated in order to distinguish between symptoms experienced and the perceived need for help-seeking. The combined model of suicide help-seeking is presented in Figure 1-3.

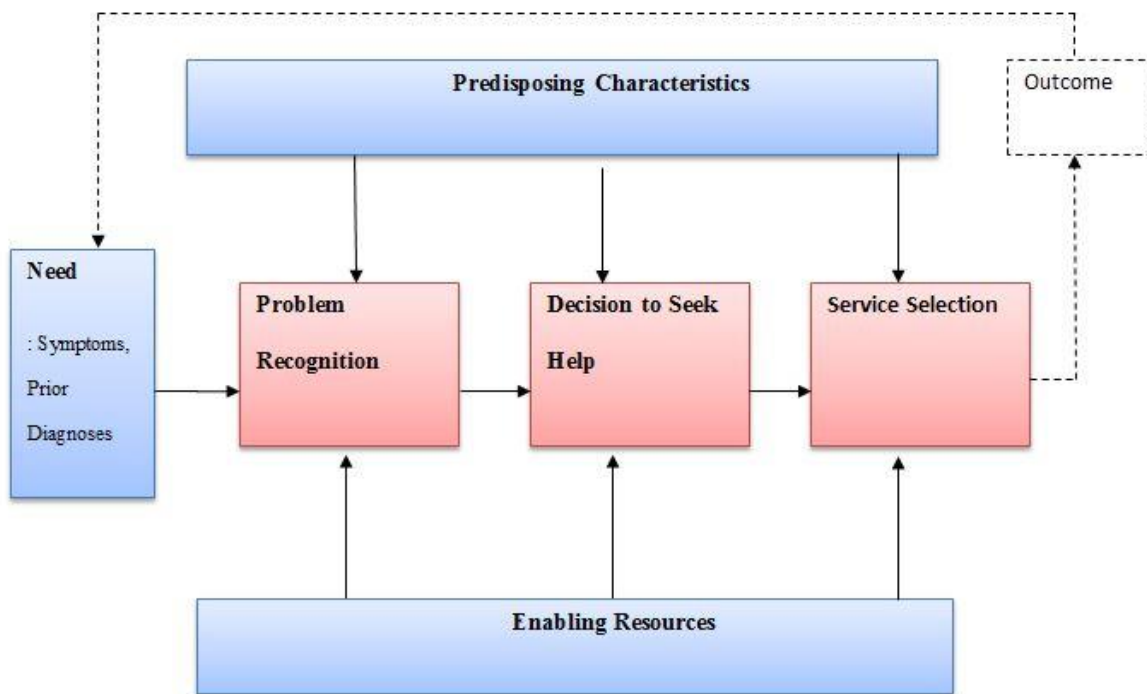


Figure 1-3. Combined Model of Suicide Help-seeking

Cauce et al. (2002) explained that contextual factors influence each stage of mental health help-seeking. Beyond contextual factors, other factors can influence each stage of help-seeking. For example, prior studies on mental health help-seeking support that predisposing factors such as age, gender, and ethnicity (Judd et al., 2008; Levinson & Ifrah, 2010), as well as enabling factors such as income and insurance (Steel, Dewa, & Lee, 2007) are related to mental health help-seeking. It should be noted that social status, as measured by occupation, education, and/or ethnicity are considered predisposing factors in the Andersen (2008) model. Although cultural and other society-level factors such as health policy and availability or quality of mental health services are important factors, these factors should be examined in cross-cultural or cross-regional studies by measuring at some aggregate level, as suggested by Andersen (2008). As these other factors are beyond the scope of this study, I used individual characteristics from the Andersen (2008) model and adapted the broad definition of predisposing factors.

The combined model of suicide help-seeking assumes that suicide help-seeking is characterized by inequitable access. The Andersen (2008) model distinguishes equitable access from inequitable access by the role of social status and enabling factors. Equitable access occurs “when demographic and need variables account for most of the variance in utilization,” whereas inequitable access occurs “when social structure, health beliefs, and enabling resources determine who gets medical care” (Andersen, 2008, p. 651). The combined model assumes that enabling factors as well as social structure influence the overall process of the help-seeking decision making process in addition to demographic and need factors.

In conclusion, the combined model of suicide help-seeking was developed by combining major components of the Andersen (2008) model of health care utilization and three-stage model of mental health help-seeking (Cauce et al., 2002). The combined model also accounts for unique characteristics of suicide help-seeking by emphasizing the role of predisposing and enabling factors at each stage of help-seeking process. The next chapter, a literature review on help-seeking behavior among adults, was organized based on this combined model of suicide help-seeking.

Chapter 2: Review of Literature

This chapter presents a review of the literature that examined help-seeking behavior among adults with suicidal ideation. Studies that examined at least one of the three stages of the help-seeking pathway were included here. The factors associated with the help-seeking behavior were organized using the framework of the Andersen (2008) model, including predisposing, need, and enabling factors. In addition, how each study defined the scope of help-seeking was compared. Implications and limitations of literature are also discussed.

Search Strategies

The literature search was conducted electronically using databases provided at the University of Maryland, Baltimore Health Sciences and Human Services Library (HSHSL). The researcher consulted with a librarian from the HSHSL to determine the most relevant databases for the topic: PsycINFO, Medline, SocIndex, and Social Work Abstracts. Searches were conducted with one database at a time, using Boolean operators. For search terms, suicide risk was expanded to include “suicide or suicidal” as key words in EBSCOhost databases (SocIndex and Social Work Abstracts). These terms were mapped as “suicide or suicidal ideation or attempted suicide” in PsycINFO and as “suicide or suicidal ideation or suicide, attempted” in Medline. Help-seeking was expanded to include “help-seeking or mental health service* or mental health treatment or mental health care utilization” in SocIndex and Social Work Abstracts. These terms were mapped as “Health care seeking behavior or mental health services or help-seeking behavior or health care utilization” in PsycINFO and as “mental health services or

community mental health services” in Medline. The initial search was conducted during June, 2013 and an additional search was conducted in February, 2014.

Inclusion and Exclusion Criteria

This review only included studies published in peer-reviewed journals. The samples in the included studies were adults aged 18 and older. Because most studies that investigated help-seeking among adults did not exclude young adults between the ages of 18 and 25, these studies were reviewed to inform the examination of help-seeking behavior among working-age adults. Studies that were conducted outside of the U.S. were included if they were written in English. Studies that included only veterans or prisoners were also excluded from the review because of differences in help-seeking pathways for these populations (Diamond, Magaletta, Harzke, & Baxter, 2008; Iversen et al., 2010).

Factors Related to Help-seeking Pathways among Adults with Suicidal Ideation

The results of the reviewed studies are summarized in Appendix A, including independent and dependent variables, as well as statistical significance and the magnitude of the effects. In this section, the reviewed studies are grouped and presented according to the stage of the help-seeking pathway they examined based on the three-stage model (Cauce et al., 2002): I. Problem recognition; II. Decision to seek help; and III. Service selection.

Different terms were used for outcomes of help-seeking behavior across the studies. The definitions and scopes for help-seeking are presented in Appendix B. In this review, when different terms were used for a similar type of service, original terms from the reviewed studies were used considering that the reviewed studies were conducted in

different countries. For example, three different terms were used for telephone services: Telephone support line in Australia (Milder & De Leo, 2010), helpline in France (Encrenaz et al., 2012), and hotline in U.S. (Chu et al., 2011).

I. Problem Recognition

The first stage of mental health help-seeking suggested by Cauce et al. (2002) is problem recognition. Studies that examined problem recognition among adults with suicidal ideation were reviewed and presented here. Within this section, studies were grouped based on what factors they examined, including predisposing, enabling, and need factors, as suggested by Andersen (2008). Because only one study was located that examined predisposing and enabling factors related to problem recognition, the two factors were combined.

1. Predisposing and Enabling Factors

Only one study (Chu et al, 2011) examined predisposing and enabling factors associated with recognition of help-seeking needs among adults with suicidal ideation. Chu et al. (2011), using data from the National Latino and Asian American Study (NLAAS), examined factors associated with perceiving needs for care among Asian Americans ($n = 413$) and Latinos ($n = 741$) who reported suicidal ideation, attempts, or mental disorders only. A difference was found between these two ethnic groups in the association between suicidal ideation and help-seeking. Reporting suicidal ideation was not a significant predictor for perceiving need among Asian Americans but was a significant predictor among Latinos (OR = 1.52) in multivariate analyses. Being female (OR = 1.75) and having a higher language proficiency (OR = 1.48) were significantly associated with a higher odds of perceiving need among Asian Americans. A lifetime

history of suicide attempt was a significant predictor for perceiving a need among Asian Americans (OR = 1.94) and Latinos (OR = 3.04). Other predisposing factors such as age and educational level, and enabling factors such as a financial status and legal status were not significant predictors of perceiving needs for help.

2. Need Factors: Related to Suicide

Two studies examined whether suicidal ideation increased perceiving need for care. Pirkis et al. (2001), using data from the Australian National Survey of Mental Health and Wellbeing, examined self-reported needs and the extent to which needs were met among adults ($n = 10,641$) with and without suicidal ideation. The results indicated that adults with suicidal ideation have both higher unmet and met needs for care, compared to those without suicidal ideation. Adults with suicidal ideation in the previous year were significantly more likely than persons without suicidal ideation to perceive a need in all five areas examined: information about mental illness and treatment (OR = 2.43), medications (OR = 2.19), counseling (OR = 2.13), skills training (OR = 1.96), and social support (OR = 2.38). In another study, Stringer et al. (2013) examined perceived needs for health care utilization among adults with a depressive and/or anxiety disorder ($n = 1,699$) using the Netherlands Study of Depression and Anxiety. Similar to Pirkis et al. (2001), five different types of needs were measured. When age, gender, education, and marital status were adjusted for in the analyses, persons with suicidal ideation were significantly more likely to report both unmet (Adjusted OR [AOR] = 2.35 to 5.81) and met needs in all of five areas of needs (AOR = 1.55 to 2.86). When severity of depression and anxiety were controlled at the next step of multinomial regression analysis, however, this significant effect disappeared, indicating that the difference between those with and

without suicidal ideation in their needs for care is largely explained by the severity of their depression and anxiety. The results suggest that the relationship between suicidal ideation and unmet needs for mental healthcare services may be mediated by the severity of depression and anxiety.

Implications and Limitations

A limited number of studies examined the first stage of suicide help-seeking, recognition of needs. The three studies that are presented here were conducted in the U.S., Australia, and the Netherlands (Chu, Hsieh, & Tokars, 2011; Pirkis, Burgess, Meadows, & Dunt, 2011; Stringer et al., 2013, respectively). The samples in these studies included adults without suicidal ideation, whereas the current dissertation examines help-seeking among working-age adults only with suicidal ideation. By including those without suicidal ideation, these studies examined how suicidal ideation or attempts predict perceived need for care after controlling for sociodemographic factors, rather than examining these factors within the sample of adults with suicidal ideation.

Predisposing factors such as ethnicity (Chu et al., 2011), gender (Chu et al., 2011), and need factors such as depression and anxiety (Stringer et al., 2011) are significantly related to perceived need for care among adults with suicidal ideation. Enabling factors, as defined by Andersen (2008), were not examined in any of these studies. Chu et al. (2011), however, found that English proficiency is a significant factor for a perceived need; considering that their sample consisted of only Asian Americans and Latinos, the largest groups of immigrants in the U.S., English proficiency can be considered as an enabling factor in addition to other enabling factors as defined by Andersen (Gelberg, Andersen, & Leake, 2000). It has been pointed out that mental health

utilization among Asian and Latino immigrants is limited by the lack of mental health professionals who speak their native languages (DHHS, 2001). In fact, in the Behavioral Model for Vulnerable Populations (Gelberg, Andersen, & Leake, 2000), factors specific to immigrant persons, such as acculturation, immigration status, and literacy were pointed to as the vulnerable domain in addition to the traditional domain of the behavioral model.

It should also be noted that Pirkis et al. (2001) and Stringer et al. (2013) conducted their studies in two countries where access to care is less likely to be influenced by enabling factors as compared to the U.S. For example, Stringer et al. (2013) reported that in the Netherlands, financial barriers regarding access to healthcare services are minimal because every citizen has compulsory health insurance. Hence, the potential of enabling factors to be considered as predictors for perceived needs among adults with suicidal ideation in the U.S. sample cannot be excluded because different healthcare policies and resources may change the effects of enabling factors on help-seeking behavior. The study by Pirkis et al. (2001) was conducted in Australia where universal health care is available.

II. Decision to Seek Help: Seeking Help from Any Source

The second stage of mental health help-seeking suggested by Cauce et al. (2002) is the decision to seek help, which includes voluntary and coercive help-seeking. In this literature review, the studies that examined whether or not any help was received were reviewed. This is based on the core assumption of the three-stage model that the decision to seek help from any source precedes the decision to select a certain type of help as a source for help. Similar to the previous section, studies were grouped by predisposing, need, and enabling factors as suggested by Andersen (2008). Need factors were divided

into general mental health and suicide related need factors. Definitions and scopes of help-seeking used across the reviewed studies were presented in Appendix B.

1. Predisposing Factors

Age is one of the most frequently examined sociodemographic factors for suicide help-seeking. Young adults under age 25 are less likely to seek help from mental health professionals compared to individuals older than 25 (Ahmedani et al., 2012 Brook et al., 2006). For example, Brook et al. (2006), using a nationally representative sample from the Healthcare for Communities Survey ($n = 448$), found that adults younger than age 25 were less likely to seek active psychiatric treatment, defined narrowly to exclude general medical care and non-healthcare services, compared to adults aged between 35 and 50 ($OR = .23$); other age groups were not significantly more or less likely to seek treatment. Similarly, Ahmedani et al. (2012) also used a nationally representative sample from the National Study of Drug Use and Health (NSDUH) data ($n = 75,690$) and found that compared to adults aged between 18 and 25, the likelihood of receiving psychiatric treatment was higher among adults older than 35 ($OR = 2.38^6$), as well as adults aged between 26 and 34 ($OR = 2.13^7$). In other studies among adults with suicidal ideation that used broader categories of help-seeking as an outcome variable, age was not significantly related to receiving treatment (Bruffaerts et al., 2011; Chu et al., 2011; Milner & De Leo, 2010). This inconsistency can be understood in relation to different definitions of scope of help-seeking across the studies as presented in Appendix B. Studies that used a

^{6,7} To make the findings easier to report, the OR was converted by using the formula ($1/OR$) for this review because the study calculated the odds ratio for not receiving help (Menard, 2010).

broader category of help-seeking included general medical health care and non-healthcare services such as religious counselors and/or telephone hotline. Hence, the results across the studies may suggest that young adults aged between 18 and 25 are more likely to seek help from non-mental health professionals.

Similarly, male gender was associated with not receiving any help among adults with suicidal ideation. Ahmedani et al. (2012) found that the odds of receiving psychiatric treatment is lower among men with suicidal ideation (OR = .64⁸) compared to women with suicidal ideation. Milner and De Leo (2010), using a sample of adults who attempted suicide from a large scale community survey conducted in Australia ($n = 399$), found that men are less likely to seek treatment, when it was broadly defined to include psychiatric treatment, visits to general practitioners, and telephone help-lines (OR = .41). In some studies, however, the relationship between gender and receiving help was not significant (Brook et al., 2006; Bruffaerts et al., 2011; Chu et al., 2011).

Studies have consistently found that ethnic minorities are less likely to receive treatment, compared to Whites. According to Brook et al. (2006), Hispanics are less likely to receive active psychiatric treatment (OR = .11) compared to Whites. Ahmedani et al. (2012), by analyzing characteristics of adults with suicidal ideation in the 2008 and 2009 NSDUH, also found that the odds of receiving services among adults with suicidal ideation is lower among ethnic minorities, including Asians or Pacific Islanders (OR

⁸To make the findings easier to report, the OR was converted by using the formula (1/OR) for this review because the study calculated the odds ratio for not receiving help (Menard, 2010).

= .14⁹), Hispanics (OR = .47¹⁰), and Blacks (OR = .51¹¹), compared to Whites. Chu et al. (2011), examined help-seeking among Asian Americans and Latinos with or without suicidal ideation but with major depressive disorder. Suicidal ideation did not significantly increase the odds of seeking help among Asian Americans whereas it did among Latinos (OR = 1.78).

Marital status is also examined in some studies; in general, those who have never been married are less likely to receive treatment than those who are currently married. Bruffaerts et al. (2011), using the WHO's World Mental Health surveys ($n = 55,302$), examined the treatment among adults with suicidal ideation around the world. Treatment was defined as receipt of treatment for emotional, psychological, or alcohol drug problems from any type of professional from the general healthcare and non-healthcare fields. Those who have never been married were less likely to have received any type of professional treatment (OR = .70). Similarly, in the Ahmedani et al. (2012) study, those who have never been married were less likely to have received any psychiatric treatment (OR = .71¹²). In the Brook et al. (2006) study, which also examined psychiatric treatment in a U.S. sample, found that being married did not significantly increase the odds of receiving psychiatric treatment among adults with suicidal ideation. This inconsistency in findings might have resulted from the difference in the scope of the services examined. Ahmedani et al. (2012) defined psychiatric treatment as any alcohol or drug abuse

^{9, 10, 11, 12} To make the findings easier to report, the OR was converted by using the formula (1/OR) for this review because the study calculated the odds ratio for not receiving help (Menard, 2010).

specialty treatment or mental health specialty treatment. In contrast, Brook et al. (2006) used an indicator of “active treatment” and primary care visits were included if the visit was related to mental health or drug abuse problems.

Other predisposing factors that have been examined in the suicide help-seeking literature include employment status and education. Employment status was examined in two studies but was not significantly associated with the odds of receiving professional treatment (Bruffaerts et al., 2011; Milner & De Leo, 2010). Studies that examined level of education yielded mixed results. When education was measured as a continuous variable in the Bruffaerts et al. (2011) study, those with higher education were more likely to receive any professional treatment (OR = 1.2). In contrast, Brook et al. (2006), found that among adults with suicidal ideation, those with college or higher degrees were less likely to have received active psychiatric treatment (OR = .38). The inconsistency can be understood in consideration of different scopes of “treatment” defined in these two studies because Bruffaerts et al. defined treatment more broadly compared to Brook et al., as presented in Appendix B. It may be possible that those with more education are less likely to seek active psychiatric treatment but seek more help through other professional sources including general practitioners or hotline.

2-1. Need Factors: Related to Suicide

Several studies examined whether suicidal ideation, plan, and attempts increased the odds of receiving treatment. In an examination of help-seeking among Asian Americans and Latinos, suicidal ideation increased help-seeking among Latinos (OR = 1.48) but did not in Asian Americans, compared to those with major depression but without suicidal ideation (Chu et al., 2011). Suicide attempts increased help-seeking

among both Asian Americans (OR = 2.18) and Latinos (OR = 7.62). In a worldwide sample, unplanned suicide attempts (OR = 2.7) and planned suicide attempts (OR = 2.1) were both related to increased odds of receiving professional treatment when compared to those with suicidal ideation but without suicide attempt (Bruffaerts et al., 2011). The number of suicide attempts was also associated with help-seeking; those who attempted suicide 2-3 times in the past year were more likely to seek help from healthcare professionals and/or a telephone hotline (OR = 2.72) compared to those who attempted only once (Milner & de Leo, 2010). Having a suicide plan, on the other hand, was not significantly related to increased odds of help-seeking in the same studies (Bruffaerts et al., 2011; Milner & De Leo, 2010).

Other suicide-related need factors included suicide intent, whether or not suicidal ideation and/or plans were communicated to friends or family, and suicide attempt methods. Among those who have a lifetime history of suicide attempts, suicide intent, measured by self-report as very serious, serious, or a cry for help, was not significantly related to help-seeking (Milner & De Leo, 2010). In the same study, methods of suicide attempts were examined as a possible contributing factor related to help-seeking and those who attempted suicide by drug overdose had higher odds (OR=2.63) of seeking help compared to those who used hanging, alcohol, or other methods. Milner and De Leo (2010) found that when suicidal ideation and/or plan were communicated to friends or family, individuals had an increased odds of receiving professional treatment compared to those who did not (OR = 2.55).

2-2. Need Factors: General

Studies have consistently shown that more severe mental health needs, associated with depression, anxiety, psychological stress, or any mental illness, predict higher likelihoods of receiving treatment among adults with suicidal ideation. According to Bruffaerts et al. (2011), lifetime history of anxiety or mood disorder was associated with higher odds of receiving any professional treatment (OR = 1.9 for anxiety and 1.8 for mood disorder). Ahmedani et al.(2012) examined the relationships between the odds of receiving psychiatric treatment and the presence of psychological distress as well as major depression; both were significantly associated with a higher likelihood of receiving treatment (OR = 3.03 for psychological distress and 3.45 for major depression¹³). Similarly, Brook et al. (2006) and Milner and De Leo (2010) found that those who have received treatment were more likely to have any mental illness (OR = 2.98 and 5.63, respectively).

Mental health needs related to substance abuse problems did not significantly increase help-seeking among adults with suicidal ideation. Ahmedani et al. (2011) and Brook et al. (2006) examined drug and alcohol problems to predict psychiatric treatment. In both studies, neither of the substance-related problems significantly increased the odds of receiving treatment among adults with suicidal ideation. Similarly, Bruffaerts et al. (2011) examined substance abuse disorders to predict receiving any professional treatment among a worldwide sample, and the results indicated that there was no significant relationship.

¹³ To make the findings easier to report, the OR was converted by using the formula (1/OR) for this review because the study calculated the odds ratio for not receiving help (Menard, 2010).

Other need-related factors that have been examined in suicide help-seeking literature include impulse disorder, past contact with mental health professionals, and overall health. A lifetime history of impulse disorder did not significantly increase help-seeking from any professionals (Bruffaerts et al., 2011), whereas having a history of receiving treatment significantly increased the odds of receiving treatment from any health care professionals and/or a telephone hotline (OR = 4.4) among those who have a history of suicide attempt in Australia (Milner & De Leo, 2010). Those who rated their overall health lower were more likely to seek help (Ahmedani et al., 2011); specifically, those who rated their health as very good (OR = 1.47), good (OR = 1.82), or fair or poor (OR = 3.12¹⁴) were more likely than those who rated their overall health as excellent to receive psychiatric treatment among adults with suicidal ideation.

3. Enabling Factors

A limited number of studies examined enabling factors such as income and health insurance as predictors of receiving treatment among adults with suicidal ideation. In a worldwide sample, when income was measured as a continuous variable, higher income was associated with higher likelihood of receiving treatment from healthcare or non-healthcare professionals (OR = 1.1) (Bruffaerts et al., 2011). Having health insurance was examined as a predictor of receiving psychiatric treatment in two studies that used U.S. samples. Ahmedani et al. (2012) found that individuals with health insurance were more likely to utilize psychiatric services (OR = 1.49¹⁵). Brook et al. (2006), on the other hand, examined active treatment as a help-seeking outcome and whether or not a participant

^{14,15} To make the findings easier to report, the OR was converted for by using the formula (1/OR) because the study calculated the odds ratio for not receiving help (Menard, 2010).

was insured did not significantly change the odds of receiving active psychiatric treatment. Both studies used nationally representative U.S. samples but used different definitions of help-seeking; Brook et al. developed an indicator of “active treatment” that included inpatient care for alcohol, drug, or mental health reasons (ADM), residential ADM care, daily use of psychotropic medication, and outpatient ADM care. Ahmedani et al., on the other hand, included any behavioral health treatment. Therefore, the different results between these two studies might have resulted from different operationalizations of the outcome variables.

Implications and Limitations

A number of studies examined this second stage of help-seeking, whether or not the adults with suicidal ideation received treatment. Definition and measures, however, of “treatment” differed across studies as presented in Appendix B. Overall, some studies narrowly focused on the receipt of psychiatric treatment, which included hospitalization, residential care, use of psychotropic medication, and mental health specialist visits for their mental health and substance abuse problems (Ahmedani et al., 2011; Brook et al., 2006). Other studies used broader definitions of mental health help-seeking and included treatment from any medical or non-medical professional sources such as religious/spiritual advisors or alternative medicine (Milner & De Leo, 2010; Bruffaerts et al., 2011). Most broadly, Chu et al., (2001) included informal sources of help such as friends and family. These studies examined a wide variety of factors as possible predictors of the decision to seek help. Likelihood of seeking or not seeking treatment was analyzed using multivariate logistic regression analyses. Therefore, when the odds ratios are compared across the studies, the different scope of help-seeking outcomes should be considered.

For example, male gender was associated with lower likelihood of receiving psychiatric treatment in two studies (Ahmedani et al., 2012; Milner & De Leo, 2010). But in two other studies in which help-seeking was more broadly defined, gender was not a significant predictor for whether or not adults with suicidal ideation sought help (Bruffaerts et al., 2011; Chu et al., 2011). This inconsistency might imply that men prefer seeking help from sources other than mental health professionals and/or that women seek help from different sources than men.

Another major limitation of the reviewed studies was that help-seeking, specifically for suicide could not be separated from help-seeking for general mental health or substance abuse treatment. Across the studies, authors used items from questionnaires that measured help-seeking for any mental health or substance abuse problems, including suicide. Though Milner and De Leo (2005) specifically asked for treatment received after suicide attempts, they still did not identify that the participants sought help for suicidality. Hence these other studies had limited implications regarding the association between help-seeking and suicide risk. Authors acknowledge this as a major limitation of their studies. Bruffaertz et al. (2011), for example, pointed out that suicidality may not be considered as an emotional or psychological problem among some individuals. In contrast, Chu et al. (2011) argued that although they could not confirm whether the data represent help-seeking for the problem of suicide, it is assumed that help-seeking behavior represents help for the greatest mental health-related difficulty, which is suicidal ideation.

Still, it should not be assumed that suicidal ideation was addressed by the sources that they sought help from in the studies that used broad definitions of help-seeking to

include general medical professionals and non-health care professionals such as religious counselors or alternative medicine. Although primary care and non-health care settings may serve as an entry point for psychiatric treatment, suicidal ideation is most likely to be addressed in mental health specialty treatment (Bruffaerts et al., 2011). In the Brook et al. (2006) study, 44% of the participants reported visiting primary care for an ADM problem. Although primary care visits can potentially be a point of access to mental health specialty treatment, there it is not enough information to decide how effective these sites are as suicidal intervention portals (Brook et al.). Regarding religious counseling or other alternative sources as well as non-professional help, even less is known about how suicidal ideation is assessed and treated. Thus, this limitation leads to the importance of examining the last stage of help-seeking. It is particularly important to identify what factors are related to choosing sources of help among adults with suicidal ideation because the fact that adults with suicidal ideation sought help does not guarantee that their suicidal ideation is likely to be addressed.

III. Service Selection

The last stage of help-seeking suggested by Cauce et al. (2002) is service selection. Studies that examined types of service received among adults with suicidal ideation were reviewed and grouped based on factors associated with the selection according to Andersen (2008)'s framework: predisposing, need, and enabling factors. Need factors were divided into general mental health and suicide related need factors. Appendix C summarizes the categories for the sources of help used in the reviewed studies.

1. Predisposing Factors

Similar to the second stage of the help-seeking pathway, multiple predisposing factors were examined across studies to predict the last stage of help-seeking, selection of service. In a worldwide sample, when age was measured as a continuous variable, the likelihood of receiving treatment from general medical care, versus any mental healthcare or non-healthcare treatment, increased as age increased (OR = 1.3) (Bruffaerts et al., 2011). Encrenaz et al. (2012), using community survey data collected in France ($n = 4,019$), examined factors associated with seeking help from health professionals versus other sources, including close friends/relatives, organizations, and helplines, among adults with suicidal ideation. Compared to adults aged 18-30, adults aged 46-60 were most likely to seek help from health professionals (OR = 2.1), followed by adults aged 31-45 (OR = 1.7) and 61 and older (OR = 1.7). In an Australian sample of adults who attempted suicide, however, age, measured in seven categories, was not significantly related to choosing any type of treatment including hospital, general practitioner, mental health professional, or telephone helpline (Milner & De Leo, 2010). Generally, adults older than 25 are more likely to seek mental health professional services than younger adults, and increased age is positively related to a higher likelihood of seeking help from medical sources among diverse samples used across studies.

Gender was also examined in the studies that were conducted in diverse contexts in different countries and yielded inconsistent findings. Encrenaz et al. (2012) found that among French adults, women were more likely than men to seek help from health professionals (OR = 1.3). In Milner and De Leo (2010)'s study, among an Australian sample with a lifetime history of suicide attempts, men were significantly less likely to

receive treatment from a hospital (OR = 0.54) or mental health professional (OR = 0.51) compared to women, but significant gender differences were not found for general practitioners and telephone support line. Therefore, in the French and Australian studies, women are more likely to seek help from mental health professionals than men, but this gender association did not hold true among the worldwide sample.

Ethnicity was not examined in many studies as a possible contributing factor for selection of types of treatment. Chu et al. (2011) compared sources of help between Asians and Latinos in the U.S. and the findings imply that these ethnicities were associated with choosing sources of help. Asian Americans were significantly less likely to receive treatment from any of the mental health professionals, but this difference was not found for other sources of help, including religious, spiritual advisor, medical professionals, and other non-professional sources. Findings indicate that generally, Asian Americans with suicidal ideation preferred non-healthcare professionals and non-professional sources. The only professional source that Asian Americans and Latinos utilized equally was medical professionals.

Some studies examined marital status as a predictor of sources of help. Two studies that used different samples found that those who have never been married were less likely to seek help from general medical sources compared to those who are currently married. In the Bruffaerts et al. (2011) study, those who have never been married were less like to utilize general medical care (OR = 0.4) but were more likely to utilize mental health care (OR = 1.9) compared to married persons. Similarly, in Milner and De Leo's (2010) study, compared to those who have never been married, married persons were more likely to seek help from general practitioners after suicide attempt (OR = 1.86).

Encrenaz et al. (2012) examined the likelihood of seeking help from health professionals, including both mental health and general medical professionals; marital status was not associated with chosen sources of help.

Lastly, employment status and education were not significantly related to sources of help in two studies (Encrenaz et al., 2012; Milner & De Leo, 2010). In a worldwide sample, on the other hand, compared to those who are working, those who are not working were more likely to receive non-healthcare services (OR = 1.9), which includes religious counselors, traditional healers, and complementary or alternative medicine practitioners (Bruffaerts et al., 2011). In the same study, when education was measured as a continuous variable, higher level of education was associated with increased likelihood of receiving mental health care (OR = 1.2) and lower likelihood of receiving general medical care (OR = 0.8).

2-1. Need Factors: Suicide-Related

Similar to mental health needs, suicidal ideation, plans, and attempts did not always increase the odds of seeking help from mental health professionals versus other general medical or non-healthcare sources. When categories of types of services were broadly divided into health professionals versus other services, both suicide plan (OR = 1.6) and suicide attempts (OR = 2.3) increased the odds of seeking help from health professionals (Encrenaz et al., 2012). However, the studies that examined more segmentalized categories of help sources showed that those with suicidal risk are not always likely to seek services from mental health professionals. Chartrand et al. (2012), using the longitudinal data from the National Epidemiologic Survey on Alcohol and Related Conditions ($n=2,864$), examined whether suicidal ideation or attempt increased

treatment utilization within three years after reported suicidal ideation or attempt. Suicide attempt increased the odds of being hospitalized for mental health problems (OR = 4.46) but did not increase services from other forms of psychiatric services, including outpatient treatment, emergency room visit, and prescribed medication. In the same study, suicidal ideation did not increase the utilization of any form of services. Similarly, Bruffaerts et al. (2011) found that having planned or attempted suicide did not increase the odds of receiving mental health services among those with suicidal ideation.

Other suicide related need factors include the intensity of suicide intent, whether or not suicidal ideation was communicated to friends or family, suicide methods, and time points after suicide attempts (at one month and one year after suicide attempt). Those who attempted suicide with the most serious intent were more likely to receive treatment from a hospital (OR = 2.97) and were less likely to seek help from telephone hotline (OR = .38) compared to those who said their suicide attempts were a cry for help (Milner & De Leo, 2010). Those who talked about their suicidal ideation to friends or family were more likely to receive formal treatment. This association was shown for all four types of services in Milner and De Leo's (2010) study (OR = 2.31 to 3.17) and for healthcare professionals (OR = 7.5) in the Encrenaz et al. (2012) study. In the Encrenaz et al. (2012) study, among adults with suicidal ideation, only 20% consulted with health professionals but 40% of them talked to close friends or family, implying that for adults with suicidal ideation, close friends or relatives might play an important role in increasing help-seeking behaviors by referral to treatment. Lastly, Cedereke and Ojehagen (2007) examined formal and informal help received at one month and one year after a suicide attempt among Swedish adults ($n = 140$); help received from formal sources did not

change significantly one year after the suicide attempt, but informal help decreased one year after the suicide attempt.

2-2. Need Factors: General

Similar to the studies that examined the second stage of help-seeking, mental health and substance abuse-related need factors were examined in several studies as possible contributing factors related to the selection of services among adults with suicidal ideation. Studies suggest that having mental illnesses such as depression or anxiety do not always increase the likelihood of utilizing psychiatric treatment versus general medical treatment or other non-healthcare sources for help. According to Milner and De Leo (2010), having a mental illness was associated with a higher likelihood of receiving treatment from a general practitioner (OR = 1.75) among Australians who attempted suicide but not from a mental health professional. According to Bruffaerts et al. (2011), anxiety and mood disorders were not significantly associated with mental health care or general medical care among the worldwide sample with suicidal ideation. In contrast, Encrenaz et al. (2012) examined factors associated with talking about suicidal ideation to a health professional among French adults with suicidal ideation. Having a major depressive episode (OR = 1.3) or panic disorder (OR = 1.4) were found to be significant factors associated with seeking help from health professionals, such as mental health and general medical professionals.

Substance abuse-related need factors were not associated with increased odds of receiving help from mental health professionals. In a worldwide sample, substance-related disorders were not significantly associated with receiving treatment from any type of services including mental health professionals, general medical treatment, and any

non-healthcare services, suggesting that having substance-related needs does not affect the selection of types of services among those with suicidal ideation (Bruffaerts et al., 2011). Encrenaz et al. (2012) also found that among a French population, alcohol use disorder was not associated with increased odds of receiving treatment from any health professionals. Other drug use disorders including drug abuse and dependence as defined in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) (American Psychiatric Associations, 2000) increased the odds of seeking help from a health professional versus other sources such as friends, family, or a telephone hotline (OR = 1.5).

Other need-related factors include past contact with mental health professionals and physical illness. As expected, having a physical illness was associated with increased odds of seeking help from general practitioners among Australian adults who attempted suicide (OR = 2.46) (Milner & De Leo, 2010). In the same study, seeking help from any professional in the past increased the odds of seeking help from any source of help, including hospitals (OR = 2.91), general practitioners (OR = 3.15), mental health professionals (OR = 3.18), and telephone support line (OR = 2.70) after suicide attempts. In another study using a worldwide sample, history of treatment increased the odds of seeking help only for non-healthcare sources (OR = 2.4), but not for mental health care and general medical care (Bruffaerts et al., 2011).

3. Enabling Factors

Income and the level of social support were examined as possible enabling factors in choosing sources of help. In a worldwide sample, income was associated with higher odds of receiving treatment from mental health professionals (OR = 1.2) and lower odds

of receiving care from non-healthcare sources (OR = .8), after controlling for need and predisposing factors, suggesting that higher income is associated with receiving mental health services rather than alternative sources (Bruffaerts et al., 2011). In Encrenaz et al.'s (2012) study, low social support was examined as a possible contributing factor to seek help from health professionals but the results indicated that there was no significant relationship between the level of social support and receiving services from health professionals among French adults with suicidal ideation.

Implications and Limitations

The last stage of the combined model of suicide help-seeking is the selection of services. Several studies examined factors associated with the selection of sources of help but their categories for the sources of help varied across studies, as presented in Appendix C. Cedereke and Ojehagen (2007) examined whether needs for formal and informal help were adequately met after suicide attempts when informal help was defined as support from friends or family members. Encrenaz et al. (2012), on the other hand, examined factors associated with health professionals versus all other sources of help, including friends or relatives, organizations, and helplines. Four other studies used more than two categories for the types of help (Bruffaerts et al., 2011; Chartrand et al., 2012; Chu et al., 2011; Milner & De Leo, 2010). Among these studies, Chu et al. (2011) used the most segmentalized categories: hospital admission, non-professional help, mental health professionals, medical professionals, religious/ spiritual advisors, psychotherapy, and medication treatment. These differences in definitions and categories of sources of help made it hard to summarize the findings across the studies.

It is logical to hypothesize that higher mental health needs, including having mental illness, alcohol or drug abuse problem, and suicide-related behavior will increase help-seeking from mental health professionals. However, the review of the literature on need factors related to help-seeking among adults with suicidal ideation suggests that this hypothesis is not supported. Although persons at risk for suicide have increased contact with general health care professionals, their contact with mental health services remains relatively low (Bruffaerts et al., 2011; Chartrand et al., 2012; Encrenaz et al., 2012; Milner & De Leo, 2010). Even those who attempted suicide are not different in their lack of mental health help-seeking, except for inpatient care, which in many cases is compulsory following suicide attempts. But three years after the suicide attempt, they are no more likely to be continuing with outpatient psychiatric services (Chartrand et al., 2012). In the Bruffaert et al. (2011) study, among a worldwide sample with suicidal ideation, only 23% of respondents received care from a mental health specialist, 22% from the general medical field, and 11% from non-healthcare settings¹⁶. The authors suggest that primary care and non-healthcare settings can only serve as entry points into treatment, pointing out that evidence-based treatment for suicidal behavior is unlikely to be available from these sources. In order for this to this happen it is important to understand correlates of selection of sources of services so that suicide prevention efforts can separately address the needs of mental health specialist settings and general medical or non-healthcare settings.

¹⁶ When all types of treatment were considered, 61% of the worldwide sample with suicidal ideation did not receive any care.

Examining the last stage of help-seeking also revealed that although non-professional sources of help such as online support groups and telephone hotlines or non-healthcare professionals such as religious counselors and alternative medicine can play an important role in help-seeking among adults with suicidal ideation, there is a lack of information and empirical research regarding these sources of help. A large portion of adults with suicidal ideation sought help from non-healthcare professionals or from non-professional sources (Bruffaerts et al., 2011; Milner & De Leo, 2010). However, the adequacy of this help and factors associated with choosing these alternative sources remain largely unknown. As suggested by Ceredeke and Ojehagen (2007), those who attempted suicide reported having received adequate formal help in health-related areas but lower help for social needs. Informal help decreased one year after suicide attempt suggesting that adults with suicidal ideation have unmet needs for help from informal sources after their suicide attempts.

Summary: Gaps in the Current Literature

Consistent with the mental health help-seeking literature, male gender and younger age were associated with less help-seeking among adults with suicidal ideation. In the general mental health literature, predisposing factors such as age, gender, ethnicity, and health beliefs are often examined as factors associated with help-seeking by influencing problem recognition and attitudes toward treatment (Judd, Komiti, & Jackson, 2008; Levinson & Ifrah, 2010). Men with suicidal ideation and attempts not only presented lower service utilization rates than women, but also were less likely to report recognition of problems (Chu et al., 2011; Milner & De Leo, 2010). Similarly, young adults and ethnic minorities are less likely to seek help in general and even less

likely to seek help from mental health professionals. Health beliefs are known to be strongly related to help-seeking in the general mental health help-seeking (Schomerus, Matschinger, & Angermeyer, 2009) and youth suicide help-seeking (Michelmore & Hindley, 2012) literatures. However, none of the studies reviewed on adult suicide help-seeking examined health beliefs as a factor associated with help-seeking.

Based on the Andersen (2008) model, health beliefs are considered an important predisposing factor for healthcare service utilization. Furthermore, some studies suggest that other predisposing factors such as gender and ethnicity affect mental health related help-seeking and this relationship is mediated by health beliefs (e.g., stigma attached to mental health problems and negative attitudes toward help-seeking) (Judd et al., 2008; Leong & Lau, 2011; Sue et al., 2012). This dissertation examined whether health beliefs affect help-seeking among adults with suicidal ideation by examining the reasons that they did not seek any help after they recognized a need for treatment. Acknowledging the limitation that health beliefs cannot be easily measured in a large scale national survey, examining reasons for not receiving mental health service utilization can be an important first step to understanding whether health beliefs are relevant to suicide help-seeking. In the Bruffaerts et al. (2011) study, a similar effort was made by examining reasons for not seeking help among the worldwide population who reported suicidal ideation. This dissertation examined this using the nationally representative U.S. sample.

In the reviewed studies, only a few studies examined enabling factors such as income and health insurance. Having higher income and access to health insurance increased help-seeking among adults with suicidal ideation (Ahmedani et al., 2011; Brook et al., 2006; Bruffaerts et al., 2011). These findings are consistent with the general

mental health literature, where socioeconomic status is considered to be an important enabling factor in help-seeking; lower socioeconomic status was found to be related to higher unmet needs for mental health services (Steel, Dewa, & Lee, 2007). However, only two studies were found that examined enabling factors in U.S. samples, and these studies only examined whether having health insurance is associated with seeking any help (Ahmedani et al., 2011; Brook et al., 2006). One might assume that help-seeking for suicide is more strongly influenced by need or predisposing factors so that income has comparatively less influence on help-seeking. The results from the study using the worldwide sample, however, suggest that higher income is associated not only with increased help-seeking but also with choosing mental health treatment versus general medical care or non-healthcare services (Bruffaerts et al.). This dissertation examined how enabling factors, including health insurance and income are associated with each stage of help-seeking among U.S. working age adults with suicidal ideation.

Generally, need factors related to mental health problems and suicidal ideation and attempts were associated with increased help-seeking, but suicidal ideation or attempt did not always increase the likelihood of seeking help from mental health professionals. Therefore, although suicidal ideation seems to increase help-seeking, they may not be receiving services from health professionals to address the mental health needs related to suicidal ideation. The current literature provides limited understanding of this complexity of help-seeking behavior by focusing on whether treatment was received and what factors are associated with the receipt of the treatment. Milner and De Leo (2010) examined factors associated with receiving different types of services but the assumption of their analysis was that the decision to utilize each service is made without going through the

decision of whether or not they will seek any help. The combined model of suicide help-seeking extends the focus of help-seeking beyond merely receipt of mental health treatment services to three critical points of help-seeking behavior at multiple steps in the help-seeking pathway: problem recognition, decision to seek help, and the selection of services.

Research Questions and Aims

As demonstrated in the literature review, prior research on suicide help-seeking did not recognize help-seeking as a process and focused on limited utilization of certain types of services. Another limitation is that most studies did not include a theoretical framework and focused only on how demographic characteristics and mental health problems are associated with help-seeking. This study addresses these gaps in the literature by examining help-seeking based on the model that was developed by combining two empirically based help-seeking models: the three-stage model (Cauce et al., 2002), which views help-seeking as a process, and the Andersen (2008) model, which examines three broad categories of factors related to healthcare service utilization.

Based on the combined model of help-seeking, I examined help-seeking among working-age adults with suicidal ideation. Working-age adults were defined as adults aged between 26 and 64. The lower limit of age 26 is based on two factors: (1) Prior studies of youth help-seeking have set the upper age limit as 25 (Michelmore & Hindley, 2012). (2) The Affordable Care Act (ACA) requires insurance plans to provide coverage of dependent adult children until they reach the age of 26 (U.S. Department of Labor, n.d.). The lower age limit of 64 is based on the fact that a “normal” retirement age is 65 (U.S. Social Security Administration, n.d.).

In this study, help-seeking is broadly defined based on the three-stage model of mental health help-seeking (Cauce et al., 2002). Help-seeking behavior not only indicates mental health service utilization but also includes problem recognition, decision to seek help, and selection of formal or informal sources of help. In the current study, service utilization refers to receipt of behavioral service utilization from health professionals, whereas help-seeking behavior broadly includes other parts of the help-seeking pathway. Suicidal ideation is defined as *serious thought of killing self*. This excludes thought of self-harm without thought to die. Therefore, suicidal ideation is viewed as a serious condition that requires help-seeking and an important risk factor for suicide behavior (Kessler, Borges, & Walters, 1999).

This study aims to: (1) examine predictors of help-seeking behavior among adults with suicidal ideation; (2) test the combined model of help-seeking among adults with suicidal ideation; and (3) identify the reasons for not receiving mental health treatment among the subset of adults who recognize suicidal ideation, but did not receive mental health treatment. This study used the National Survey on Drug Use and Health (NSDUH) to examine the above research aims and answer the following research questions: (1) What factors are related to help-seeking among adults with suicidal ideation; (2) Does the combined model of help-seeking fit for adults with suicidal ideation; and (3) What are the reasons for not receiving mental health treatment among the subset of adults with suicidal ideation who did not receive mental health treatment?

Chapter 3: Method

Data Source

This study utilized data from the 2011 and 2012 National Survey on Drug Use and Health ([NSDUH]; U.S. Department of Health and Human Services Substance Abuse and Mental Health Service Administration, 2011 and 2012). The two years' data was combined to have adequate sample size for the all analyses. The NSDUH measures the prevalence and correlates of drug use in the U.S. with a nationally representative sample of persons aged 12 and older. The target population is the civilian, non-institutionalized population of the U.S. Surveys have been conducted periodically since 1971, and annually from 1990 to 2012. Since 1999, the interview has been conducted using a combination of computer-assisted personal interviewing conducted by an interviewer and audio computer-assisted self-interviewing.

NSDUH uses a design with an independent multistage area probability sample for each of the 50 states and the District of Columbia. The eight states with the largest population, including California, Florida, Illinois, Michigan, New York, Ohio, Pennsylvania, and Texas, were considered large sample states, with a target sample size of 3,600 whereas other states had a target sample size of 900. The survey also oversampled youth and young adults, so that each States' sample was approximately equally distributed among three major age groups: 12 to 17 years, 18 to 25 years, and 26 years or older.

Weighting

The total number of respondents in 2011 was 58,397 with a weighted response rate of 74.38% and in 2012 it was 55,268 with a weighted response rate of 73.04%. The

person-level analysis weight is the product of 15 weight components. Each weight component accounts for either a selection probability at a selection stage or an adjustment factor adjusting for nonresponse, coverage, or extreme weights. Additionally, two sample design variables are provided in the dataset for variance estimation stratum and variance estimation replicate. The person-level analysis weight and the two design variables were used in all analyses. Mplus, a statistical software package that handles weighted data (Carle, 2009), was used for this study.

Sample

The sample, drawn from the combined 2011 and 2012 NSDUH, includes 1,414 adults aged between 26 and 64 who reported suicidal ideation, defined by the survey as positively responding to “At any time in the past 12 months, that is from [datefill] up to and including today, did you seriously think about trying to kill yourself?”. Among this sample, 421 (30%; 30 weighted %) reported having made a suicide plan and 173 (12%; 12 weighted %) reported having attempted suicide in the past year. A high proportion of the sample was adults between the ages of 35 and 49 ($n = 665$; 47%; 43 weighted %), followed by adults ages 26-34 ($n = 473$, 33%; 24 weighted %), and 50-64 ($n = 276$; 19.5%; 33 weighted %). The sample consists of 792 women (56%; 55 weighted %) and 622 men (44%; 45 weighted %).

The University of Maryland, Baltimore, Institutional Review Board (IRB) reviewed this study and determined that it qualified as non-human subjects research (NHSR) in April 2013 because only non-identified, publically available data were to be used. A copy of the determination letter is attached in Appendix E.

Measures

The measures are grouped and based on the Andersen (2008) model and the three-stage model (Cauce et al., 2002). Predisposing, need, and enabling factors are presented, followed by help-seeking variables.

I. Predisposing Factors

Age. Age is measured in three categories: 1 = 26-34, 2 = 35-49, and 3 = 50-64.

Gender. Gender is coded as 1 = *male* and 2 = *female*.

Race. NSDUH asks race using seven categories including 1 = *non-Hispanic White*, 2 = *non-Hispanic Black/African American*, 3 = *non-Hispanic Native American or Alaska Native*, 4 = *non-Hispanic Hawaiian or Pacific Islander*, 5 = *non-Hispanic more than one race*, 6 = *non-Hispanic more than one race*, and 7 = *Hispanic*. For this dissertation, race was recoded as 1 = *White* and 2 = *non-White*.

Marital Status. Responses to marital status are coded as the four categories in NSDUH, including 1 = *married*, 2 = *widowed*, 3 = *divorced or separated*, and 4 = *never married*. Marital status was recoded as 1 = *currently married*, 2 = *previously married*, and 3 = *never married*. For the SEM analyses, marital status was coded as a binary variable by recoding it as 1 = *currently married* and 2 = *not currently married*.

Education. Responses to the highest year of education are coded in 11 categories in NSDUH ranging from 1 = *fifth grade or less* to 11 = *senior/16th year or graduate/professional school (or higher)*. This variable was used as a continuous variable in all analyses.

Employment. Employment status was measured by work situation in the past week. Those who worked 35 hours per week or more were considered full-time

employees. The NSDUH employment status is coded in nine categories, including: 1 = *full-time*; 2 = *part time*; 3 = *has a job or volunteer worker, did not work past week*; 4 = *unemployed/on lay off, looking for job*; 5 = *disabled*; 6 = *keeping house full-time*; 7 = *in school/training*; 8 = *retired*; and 9 = *does not have a job for some other reason*. This variable was recoded as 1 = *employed full-time*, 2 = *employed part time*, and 3 = *not employed* (by combining 3 to 9). For SEM analyses this variable was recoded as 1 = *employed* and 2 = *not employed*.

Occupation. Primary occupation was asked and coded by NSDUH into 14 categories, including 1 = *executive/administrative/managerial/financial*; 2 = *professional (not educational/entertainment/media)*; 3 = *education and related occupations*; 4 = *entertainers, sports, media, and communications*; 5 = *technicians, and related support occupations*; 6 = *sales occupations*; 7 = *office & administrative support workers*; 8 = *protective service occupations*; 9 = *service occupations, except protective*; 10 = *farming, fishing, & forestry occupations*; 11 = *installation, maintenance, & repair workers*; 12 = *construction trades & extraction workers*; 13 = *Production, machinery setters/operators/tenders*; and 14 = *transportation & material moving workers*.

II. Need Factors

Suicide plan and attempt. Having a suicide plan was assessed with one question: “During the past 12 months, did you make any plans to kill yourself?” (1 = *yes*, 2 = *no*). Suicide attempt was also assessed with one question: “During the past 12 months, did you try to kill yourself?” (1 = *yes*, 2 = *no*). For SEM analyses, suicide plan and attempt was recoded to one variable as 0 = *ideation only*, 1 = *plan without attempt*, and 2 = *suicide attempt*

Major depressive episode. Based on DSM-IV criteria, the NSDUH classified the respondents classified as experiencing a Major Depressive Episode (MDE) in the past year if they endorsed five or more of the nine standard DSM-IV criteria (American Psychiatric Association, 2000) for depression in the past 12 months (1 = *Yes*, 2 = *No*).

Psychological distress. NSDUH includes six items from the Kessler 6 scale (K6) measuring nonspecific psychological distress during the past month (Kessler et al., 2003). The six items included feeling “nervous,” “hopeless,” “restless or fidgety,” “so sad or depressed that nothing could cheer you up,” “everything was an effort,” and “down on yourself, no good, or worthless.” In NSDUH, a 5-point Likert scale was used with 1 = *all of the time*, 2 = *most of the time*, 3 = *some of the time*, 4 = *a little of the time*, and 5 = *none of the time*. For this analysis, the scores were reverse-coded as 0-4 (0 = *none of the time*, 1 = *a little of the time*, 2 = *some of the time*, 3 = *most of the time*, 4 = *all of the time*), with a higher score indicating a higher frequency of the symptom to be consistent with Kessler et al. (2003). The total scores of K6 were used as a continuous variable in all analyses.

Functional impairment. The 8 items of the abbreviated World Health Organization Disability Assessment Schedule (WHODAS) were included in NSDUH to measure functional impairment (Rehm et al., 1999). WHODAS measures how much emotion, nerves, or mental health caused difficulties in daily activities during the one month in the past 12 months when emotions, nerves, or mental health interfered the most with the following activities: “remembering to do things you needed to do,” “concentrating on doing something important when other things were going on around you,” “going out of the house and getting around on your own,” “dealing with people you did not know

well,” “participating in social activities, like visiting friends or going to parties,” “taking care of household responsibilities,” “taking care of your daily responsibilities at work or school,” and “getting your daily work done as quickly as needed.” Response categories were 1=*no difficulty*, 2=*mild difficulty*, 3=*moderate difficulty*, 4=*severe difficulty*. Five items had a fifth category for “not applicable” responses. If this category was selected, then another question was asked as to whether respondents’ emotions, nerves, or mental health caused difficulties in the related activities (3 = *yes*, 0 = *no*). A WHODAS total score was created in NSDUH after transforming response values from 1 to 4 to 0 to 3 (0 = *no difficulty*, 1 = *mild difficulty*, 2 = *moderate difficulty*, 3 = *severe difficulty*).

Substance abuse/dependence. In NSDUH, alcohol and drug abuse variables were defined based on the abuse/dependence criteria of the DSM-IV. Respondents were classified as dependent or abusing illicit drugs if they met DSM-IV criteria for marijuana, hallucinogens, inhalants, tranquilizers, cocaine, heroin, pain relievers, stimulants, or sedatives. Four binary variables are available in NSDUH: alcohol abuse (0 = *no*, 1 = *yes*), alcohol dependence (0 = *no*, 1 = *yes*), illicit drug abuse (0 = *no*, 1 = *yes*), and illicit drug dependence (0 = *no*, 1 = *yes*). Based on these four original variables, two variables were created for this dissertation: alcohol abuse or dependence (1 = *yes*, 2 = *no*) and drug abuse or dependence (1 = *yes*, 2 = *no*). For SEM analyses, this was combined as one variable as alcohol/drug problem (1 = *yes*, 2 = *no*).

Overall health. Overall perceived health was asked as: “This question is about your overall health. Would you say your health in general is excellent, very good, good, fair or poor?” Responses were coded as 1 = *excellent*, 2 = *very good*, 3 = *good*, 4 = *fair*, and 5 =

poor. The scores were reverse-coded so that higher scores indicate better health (1 = *poor*, 2 = *fair*, 3 = *good*, 4 = *very good*, and 5 = *excellent*).

III. Enabling Factors

Income. Total family income and respondents' income are coded in seven categories, ranging from 1 = *less than \$10,000*, 2 = *\$10,000-\$19,999*, 3 = *\$20,000-\$29,999*, 4 = *\$30,000-39,999*, 5 = *\$40,000-49,999*, 6 = *\$50,000-\$74,999*, and 7 = *\$75,000 or more*. Income was used as a continuous variable in multinomial logistic regression and as an ordered categorical variable in the SEM analyses.

Health insurance. A binomial variable was used to indicate whether participants had any type of health insurance (1 = *yes*, 2 = *no*). The participants who reported having Medicare, Medicaid, military health care, or private insurance were considered to be covered by health insurance.

Employee assistance programs (EAP). For those who were employed, availability of EAP service was measured by asking whether they have access to any type of EAP programs or other types of counseling programs for employees who have alcohol or drug-related problems (1 = *yes*, 2 = *no*).

Geographic area. Whether the participant lives in a metropolitan area was used as a measure of geographic area relevant to accessibility to care (1 = *large metro area*, 2 = *small metro area*, and 3 = *non-metro area*). For SEM analyses, this variable was recoded as a binary variable by combining category 1 and 2 (1 = *metro* and 2 = *non-metro*).

IV. Help-seeking Pathway

Based on the three-stage model of help-seeking, this study examined the three critical points involved in the help-seeking pathway. The original model by Cauce et al. (2002) assumes a time order in decision-making with three steps: 1) problem recognition: awareness of a problem and a perceived need for help; 2) the decision to seek help, which includes coercive and voluntary processes; and then 3) the selection of a source for help. This study, using cross-sectional data, cannot determine the time precedence of such a process, but NSDUH data can be used to create four groups in terms of where a participant is in the help-seeking pathway: 1) those who did not recognize a need for help, 2) those who recognized a need but did not seek any help, 3) those who sought help from alternative sources but did not receive behavioral health treatment, and 4) those who received behavioral health treatment. Figure 3-1 illustrates how each group is placed in the help-seeking pathway in the three-stage model of help-seeking. Because the three-stage model assumes that failing in moving to the next stages means discontinuation of the help-seeking process, each category is mutually exclusive. This variable was created based on responses to multiple NSDUH variables. Please see Tables 3-1 and 3-2 for the list of variables used to create these groups.

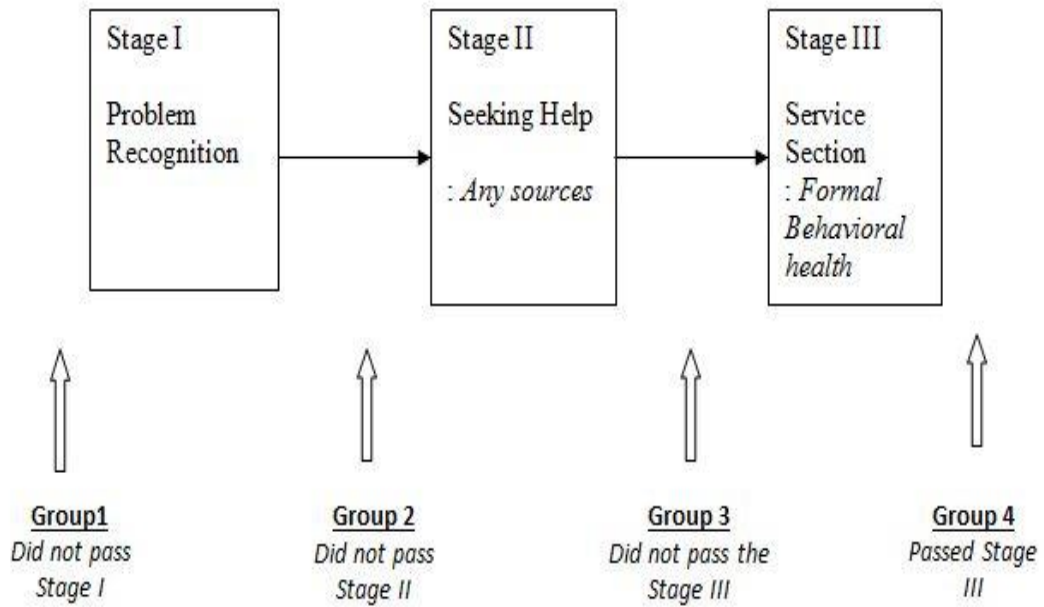


Figure 3-1. Help-seeking Pathway and the Groups Representing Each Stage

Table 3-1. Variables Used to Create the Groups Representing Help-seeking Stages

Groups according to	Answers to Variables
the Help-seeking Pathway	
Group 4 Received any behavioral health treatment	Outpatient =yes or Inpatient =yes or Medication =yes or AD treatment
Group 3 Sought help only from alternative sources	Outpatient =no and Inpatient=no and Medication=no and AD treatment=no, AND Alternative sources=yes
Group 2 Recognized a need but did not seek any help	Outpatient =no and Inpatient=no and Medication=no and AD treatment=no, AND Alternative sources=no, AND Recognized a need =yes
Group 1 Did not recognize a need	Outpatient =no and Inpatient=no and Medication=no and AD treatment=no, AND Alternative sources=no, AND Recognized a need =no

Table 3-2. Help-seeking Variables

Help-seeking Variables	Survey Questions
Outpatient Treatment	During the past 12 months, did you receive any outpatient treatment or counseling for any problem you were having with your emotions, nerves, or mental health at any of the places below?
Inpatient Treatment	During the past 12 months, have you stayed overnight or longer in a hospital or other facility to receive treatment or counseling for any problem you were having with your emotions, nerves, or mental health
Medication	During the past 12 months, did you take any prescription medication that was prescribed for you to treat a mental or emotional condition?
Alcohol or Drug (AD) Treatment	During the past 12 months, have you received treatment or counseling for your alcohol or any drug, not counting cigarettes
Alternative Sources	Earlier, we asked whether you have received prescription medicines, inpatient treatment or outpatient treatment for your emotions, nerves or mental health. The list below contains possible sources of treatment, counseling or support that were not mentioned before. Acupuncturist or acupressurist, Chiropractor, Herbalist, In-person support group or self-help group, Internet support group or chat room, Spiritual or religious advisor, such as a pastor, priest, rabbi, Telephone hotline, Massage therapist, and other sources (including family and friends) <u>Did you receive treatment, counseling or support from any other sources such as these during the past 12 months?</u>
Need Recognition	During the past 12 months, was there any time when you needed mental health treatment or counseling for yourself but did not get it?

Groups Representing Different Points on the Help-seeking Pathway

1) Those who did not recognize a need for treatment. This group, as represented in Figure 3-1, neither sought any help nor reported an unmet need for mental health treatment.

2) Those who recognized a need but did not seek any help. These respondents were considered to have recognized a need if they endorsed one or more of the following questions: “During the past 12 months, did you need treatment or counseling for your alcohol or drug treatment?” “During the past 12 months, was there any time when you needed mental health treatment or counseling for yourself but did not get it?” The respondent was considered to not have sought any help if respondents neither sought help from any type of alternative sources nor received behavioral health treatment.

3) Those who sought help from alternative sources but did not receive behavioral health treatment. Seeking help from alternative sources was determined by asking “The list below contains possible sources of treatment, counseling, support that were not mentioned before: acupuncturist, acupressurist, chiropractor, herbalist, in-person support group or self-help group, internet support group or chat room, spiritual or religious advisor, such as a pastor, priest, rabbi, telephone hotline, massage therapist. Did you receive treatment, counseling or support from any other sources such as these during the past 12 months?”

4) Those who received behavioral health treatment. Behavioral health treatment was defined as 1) Any treatment received for mental health, emotional conditions as well

as 2) alcohol or drug problem¹⁷. A respondent was considered to have received mental health treatment in the past year if they received any inpatient or outpatient treatment or took prescribed medication for mental health reasons. Inpatient treatment was determined by asking “During the past 12 months, have you stayed overnight or longer in a hospital or other facility to receive treatment or counseling for any problem you were having with your emotions, nerves, or mental health?” The examples of the places for inpatient treatment included questions asking specific places for inpatient treatment, these places included psychiatric hospitals, the psychiatric unit of general hospitals, the medical unit of general hospitals, residential treatment centers, or other inpatient facilities. Similarly, outpatient mental health treatment was determined by asking “During the past 12 months, did you receive any outpatient treatment or counseling for any problem you were having with your emotions, nerves, or mental health at any of the places below? An outpatient mental health clinic or center, the office of a private therapist, psychologist, psychiatrist, social worker, or counselor, a doctor’s office, an outpatient medical clinic, a partial day hospital or day treatment program, or some other places (the respondents were asked to identify the place)”. Lastly, the use of psychotropic medication was determined by asking “During the past 12 months, did you take any prescription medication that was prescribed for you to treat a mental or emotional condition?” Alcohol and/or drug treatment was determined by asking “During the past 12 months, have you received treatment or counseling for your alcohol or any drug, not counting cigarettes?”

¹⁷ The author acknowledges it as a limitation of the study that alcohol and drug treatment are less likely to be associated with suicidal ideation; however, they were included as behavioral health treatment to place them in the help-seeking pathway.

V. Continuity of Help-Seeking (SEM analyses only)

Continuity of care was accounted for by adding the fifth help-seeking group in addition to four help-seeking groups outlined in Table 3-1. People were considered as being in the fifth help-seeking group if they visited outpatient care facilities more than 12 times (the peak point in the distribution of the number of visits for outpatient care). With the addition of this group, the help-seeking variable in SEM analyses consists of five groups.

- 1) Received any behavioral health treatment
- 2) Recognized a need but did not any help
- 3) Sought help only from alternative sources
- 4) Received any behavioral health treatment - visited outpatient treatment facility less than once per month
- 5) Received any behavioral health treatment- visited any outpatient treatment facilities at least once per month.

IV. Reasons for not Receiving Mental Health Treatment

The reasons for not receiving mental health treatment was asked if the respondent endorsed “During the past 12 months, was there any time when you needed mental health treatment or counseling for yourself but didn’t get it?” Participants were provided with a list of reasons for not obtaining formal treatment and were asked to give a yes or no response to indicate whether each reason influenced their decision to receive mental health treatment. These reasons included: “could not afford cost”, “concern about opinion of neighbors”, “concern about effect on job”, “health insurance didn’t cover”, “not enough health insurance coverage”, “didn’t know where to go for service”, “concern

about confidentiality”, “concern about being committed or taking medication”, “don’t think needed at that time”, “thought could handle without treatment”, “did not think treatment would help”, “didn’t have time”, “didn’t want others to find out”, and “no transportation or treatment is too far” (each reason was coded as 0 = *No*, 1 = *Yes*).

Data Analysis

The Statistical Package for Social Science (SPSS) version 21.0 (SPSS Inc., Chicago, IL) was used to examine descriptive statistics and missing data, and to conduct the multinomial logistic regression analysis. Mplus version 7 (Muthén & Muthén, Los Angeles, CA) was used for structural equation modeling. For all analyses, the personal level weight provided by NSDUH was used to provide correct estimates. Additionally, to account for the complex sampling design, two design variables were used to correctly compute the standard errors; sample syntax, as provided by SAMHSA staff, is attached as Appendix D (Bose, J., Personal communication, February 23, 2014).

Preliminary data analyses. The public use dataset was available through the SAMSHA website (<http://www.icpsr.umich.edu/icpsrweb/SAMHDA/>). Before conducting analyses, demographic statistics for the sample and descriptive statistics of study variables were examined. Skewness and kurtosis were used to determine whether continuous variables were normally distributed. Data were also screened for outliers and multicollinearity. The assumption of multivariate normality was checked; data transformation was not considered because the normality assumption was not violated. Missing data were also examined. Model-based imputation methods such as expectation-maximization (EM) or multiple imputation were not conducted due to small amount of missing data.

Research question 1: What are factors related to help-seeking among adults with suicidal ideation?

Multinomial logistic regression analyses were conducted to answer this research question. Independent variables were predisposing, need, and enabling factors. Table 3-3 shows the list of independent variables that were entered on each step of the model. Each set of variables were entered hierarchically as 1) predisposing, 2) need factors, and 3) enabling factors, informed by prior literature on suicide and mental health help-seeking. Multinomial logistic regression analyses were used to predict the probability that each factor changes the odds of moving from the previous stage to the next stage on the help-seeking pathway.

Table 3-3. List of Independent Variables for Logistic Regression

Measures		Variables	Coding for analyses
Need Factors -Suicide	Suicide plan	Made plans to kill self in past year	Yes/No
	Suicide attempt	Attempted to kill self in past year	Yes/No
Need factors -Mental health	K6	Psychological distress scale: 6 items	Total score (0-24)
	WHODAS:	Functional impairment: 8 items	Total score (0-24)
	Major Depression	Past year Major Depressive Episode based on DSM-IV criteria	Yes/No
	Overall Health	Single item	1-5

	Alcohol	Alcohol abuse/dependence	Yes/No
	Drug	Drug abuse/dependence.	Yes/No
Predisposing	Gender,	Single Item	Binary
	Race	Single Item	Binary
	Age	Single Item	Multi-nominal
	Marital status	Single Item	Multi-nominal
	Education	Single Item	Continuous
	Employment status.	Single Item	Multi-nominal
Enabling Factors	Insurance	Single Item	Binary
	Family income	Single Item	Continuous
	respondent income	Single Item	Multi-nominal
	Geographic area		

(Table 3-3 Continued)

Research question 2: Does the combined model of help-seeking fit for adults with suicidal ideation?

Structural equation modeling (SEM) was used to test the model of help-seeking, as presented in Figure 3-2. WLSMV estimation was used because dichotomous and ordered categorical variables are included in the model (suicide, MDE, alcohol/drug, help-seeking, family income, respondent income, insurance and geographic area). The measurement models for latent variables were tested before the SEM analyses. After running the SEM model, respecification of the model was considered following the steps provided by Kline (2011). Kline suggests that in the context of model generation, when an initial model does not fit the data, the model is subsequently modified and the altered model is tested with the goal being to produce a model that “makes theoretical sense, it is

reasonably parsimonious, and its correspondence to the data is acceptably close” (Kline, 2011, p. 8).

Multiple fit indices were examined to determine how well the model fits the data, including the chi-square goodness-of-fit index, the comparative fit index (CFI), the Tucker-Lewis Index (TLI), and the root mean square error of approximation (RMSEA). CFI and TLI above .95 indicate acceptable fit (Hu & Bentler, 1999; Kline, 2011). An RMSEA of .06 or less indicates a reasonable error of approximation (Hu & Bentler). As a next step, significance and magnitude of path coefficients were examined. A path coefficient less than .1 indicates a small effect; values around .3, a medium effect; and those greater than .5, a large effect (Kline, 2011).

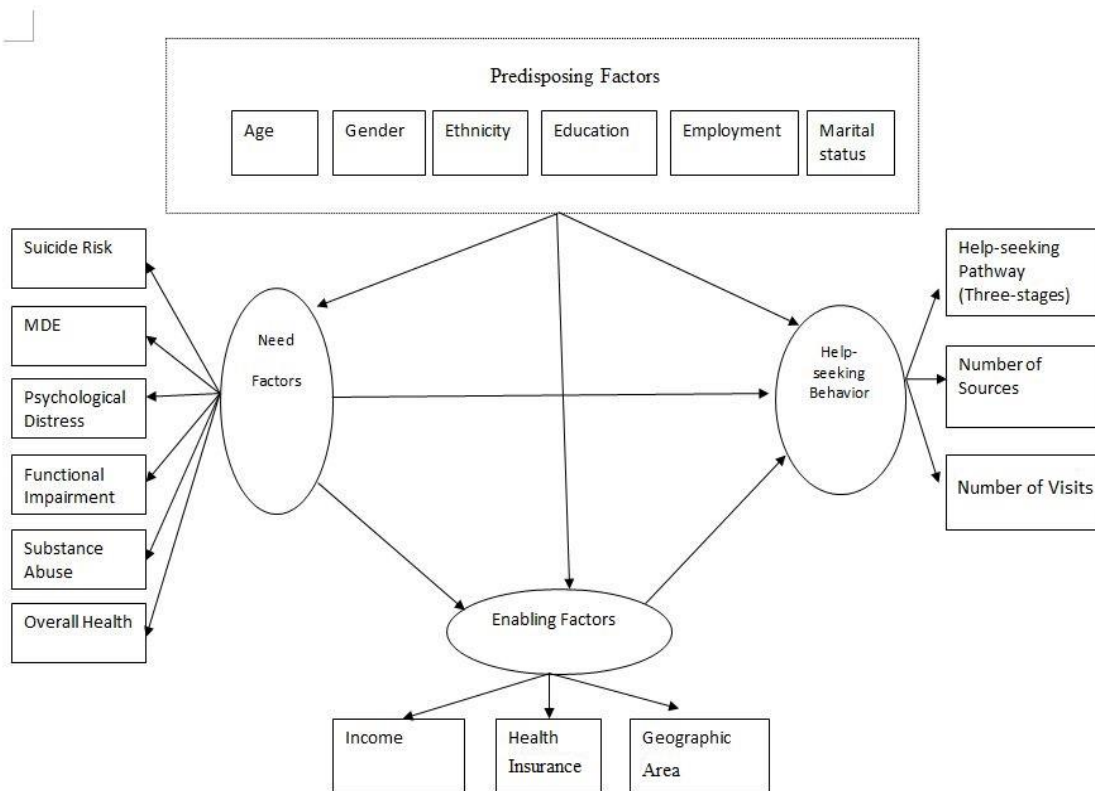


Figure 3-2. Structural Equation Model for the Combined Model of Suicide Help-seeking

Note: Each of predisposing factor predicts need, enabling, and help-seeking behavior separately. Only one arrow is shown in the figure for a display purpose.

Research question 3: What are the reasons for not receiving mental health treatment among the subset of adults with suicidal ideation who did not receive mental health treatment?

The sample for this analysis was limited to those who endorsed the question of “During the past 12 months, was there any time when you needed mental health treatment or counseling for yourself but did not get it?” Descriptive statistics were used to examine reasons that adults with suicidal ideation did not receive mental health treatment after they recognized a need for help. The reasons endorsed were categorized as predisposing, need, and enabling factors and the frequency of each category was examined.

Chapter 4. Results

This chapter presents the data screening procedure, the results from descriptive and bivariate analyses, and the main analyses for each of the three research questions.

Data Screening

Missing data. Data were screened for missing data. The following variables had complete data: education, K6 total score, WHODAS total score, family income, the number of sources utilized, age, gender, race, marital status, employment status, insurance, availability of EAP, and country. Past year MDE had 1.3% missing data. Other variables had less than 1% missing data, ranging from 0.1 % to 0.7%. Because of a large sample size and small portion of missing data, the effects of such missing data on the analyses were considered minimal; therefore, bivariate analyses and multinomial logistic regression analyses were conducted using listwise deletion. In the final model of multinomial logistic regression, 2% of cases were dropped.

Normality, outliers, and multicollinearity. Skewness and kurtosis were examined for continuous variables to examine the distribution of the variables. The skewness and kurtosis values for all continuous variables fell within the range of +/- 1. Outliers were explored with descriptive statistics and all values fell within the appropriate and reasonable range of possible scores, which was 0-24 for the K6 and WHODAS scores and 1-5 for overall health. Multicollinearity was screened by examining correlations between all variables (see Appendix F for the correlations among all continuous variables of interest). The correlations between the model variables were lower than .80

Descriptive Analyses

The results from descriptive analyses are presented in this section. Independent variables were grouped based on the Andersen (2008) model: predisposing, need, and enabling factors. Lastly, descriptive statistics for the help-seeking variables are presented.

I. Predisposing Factors

Table 4-1 presents descriptive statistics of categorical variables for predisposing factors with and without weights. Education was the only continuous variable for predisposing factors; the mean for education was 8.81 ($SD = 1.99$, weighted $M = 8.90$) when coded as 1 = *fifth grade or less* to 11 = *senior/16th year or graduate/professional school (or higher)*. More than 40% of the sample were adults between 35 - 49 years old, one-quarter were adults between 26 and 34 years old, and one-third were between 50 - 64 years old. Slightly more than half of the sample were women and three-quarters were identified as White.

Table 4-1. Descriptive Statistics of Predisposing Factors

		N	%	Weighted %
Gender	Male	622	44.0	44.6
	Female	792	56.0	55.4
Age	26 – 34	473	33.5	24.5
	35 – 49	665	47.0	42.7
	50 – 64	276	19.5	32.8
Race	White	1,017	71.9	74.8
	Non-white	397	28.1	25.2
Marital Status	Currently Married	592	41.9	45.6
	Previously Married	390	27.6	28.6
	Never been Married	432	30.6	25.8

Employment	Full-time	609	43.1	43.8
(Past week)	Part-time	152	10.7	11.4
	Did not work	653	46.2	44.8
Occupation ^a	Executive/ Administrative/Managerial/Financial	67	4.7	9.4
	Professional (not Educational/Entertainment/Media)	103	7.3	12.4
	Education and related occupations	54	3.8	6.4
	Entertainers, Sports, Media, and Communications	29	2.1	3.2
	Technicians, and related support occupations	51	3.6	5.8
	Sales occupations	88	6.2	12.4
	Office & Administrative support workers	119	8.4	15.6
	Protective service occupations	20	1.4	2.1
	Service occupations, except protective	117	8.3	13.6
	Farming, Fishing, & Forestry occupations	5	.4	.1
	Installation, Maintenance, & Repair workers	37	2.6	3.9
	Construction trades & Extraction workers	41	2.9	4.2
	Production, Machinery setters/Operators/Tenders	54	3.8	6.1
	Transportation & Material moving workers	45	3.2	4.7
	Not applicable	580	41.0	

(Table 4-1 Continued)

II. Need Factors

Table 4-2 presents descriptive statistics of need factors with and without weights. Among the current sample, half reported having a major depressive episode in the past year. Alcohol abuse or dependence was experienced by one in five adults, and one in ten had drug abuse or dependence in the past year. Among the current sample, almost one-third reported having made a suicide plan and one in six attempted suicides in the past year. The mean for the K6 total score was 11.54 ($SD = 6.05$) and 11.43 when weighted. The K6 total score ranges from 0 to 24 and higher score indicates higher psychological distress. Kessler et al. (2003) suggested that the respondents who scored 13 or higher can be considered as having a serious mental illness when the responses are coded as 0-4. Similarly, higher scores on the WHODAS indicate higher functional impairment on the range of 0 to 24. The mean for the current sample was 12.01 ($SD = 7.28$) and 11.73 when weighted. On average, the participants' rating for overall perceived health was 3.14 ($SD = 1.14$) and 3.11 when weighted, where a higher score indicates better overall health on the range of 1 to 5.

Table 4-2. Descriptive Statistics of Need Factors

Categorical		N	%	Weighted %
Past year MDE	Yes	719	50.8	53.4
	No	676	47.8	46.6
Alcohol ^a	Yes	280	19.8	19.9
	No	1134	80.2	80.1
Drug ^b	Yes	139	9.8	9.4
	No	1275	90.2	90.6
Suicide plan	Yes	421	29.8	29.6

	No	988	69.9	70.4
Suicide attempt	Yes	173	12.2	12.1
	No	1235	87.3	87.9
Suicide ^c	Ideation only	951	67.3	67.8
	Plan no attempt	281	19.9	20.1
	Attempt	173	12.2	12.1

Note. ^a Alcohol abuse and/or dependence. ^b Drug abuse and/or dependence. ^c Used for the SEM analyses instead for suicide plan and attempt

(Table 4-2 Continued)

III. Enabling Factors

Table 4-3 presents descriptive statistics of enabling factors with and without weights. Three quarters of the sample reported being covered by some type of health insurance. Similar numbers of the sample reside in large metro or small metro areas when unweighted; when weighted, half of the sample resided in large metro areas and about one in three resided in a small metro area. Less than one in five of the sample resided in non-metro area. For availability of EAP, about one in three of the sample reported that counseling services were available through their place of work. Income ranged from \$10,000 to \$75,000 or more. One in five of the sample reported \$75,000 or more as their family income, and less than one in five reported the range of \$10,000 - \$19,999 as their family income. Distribution of family income was almost even for other categories, ranging from 12.8 % to 14.4 % for each category.

Table 4-3. Descriptive Statistics for Enabling Factors

		N	%	Weighted %
Insurance	Yes	1,049	74.2	75.2
	No	362	25.6	24.8
County	Large metro	542	38.3	48.1
	Small metro	550	38.9	35.4
	Non-metro	322	22.8	16.5
EAP	Yes	386	27.3	50.4
	No	378	26.7	49.6
	NA/Don't know	650	46.0	
Family income ^a	Less than \$10,000	181	12.8	13.1
	\$10,000-\$19,999	240	17.0	14.5
	\$20,000-\$29,999	191	13.5	12.2
	\$30,000-\$39,999	168	11.9	11.7
	\$40,000-\$49,999	146	10.3	11.2
	\$50,000-\$74,999	204	14.4	13.9
	\$75,000 or more	284	20.1	23.2

IV. Help-seeking Behavior

Table 4-4 presents descriptive statistics of help-seeking behavior with and without weights. Among the current sample, more than one-quarter did not recognize a need for help-seeking (Group 1). One in 10 recognized a need for help but did not receive any treatment from health professionals or alternative sources (Group 2). Next, more than one in 20 sought help only from alternative sources for their mental health problems (Group 3). Lastly, more than half received behavioral health treatment from health professionals (Group 4). These four groups represent stages of the help-seeking pathway as presented in Figure 3-1. The fifth help-seeking group was added to represent continuity of help-

seeking in the SEM analyses. Among people who received behavioral health treatment, more than one in three visited outpatient treatment facilities 12 times or more in the past year (Group 5).

Table 4-4. Descriptive Statistics for Help-seeking Behavior

Category		N	%	Weighted %
4- Help-seeking groups	Did not recognize a need for treatment	404	28.6	28.6
	Recognized a need but did not seek any help	148	10.5	9.9
	Sought help only from alternative sources	86	6.1	6.7
	Received behavioral health treatment from health professionals	775	54.8	54.8
5-Help-seeking groups	Did not recognize a need for treatment	404	28.6	28.6
	Recognized a need but did not seek any help	148	10.5	9.9
	Sought help only from alternative sources	86	6.1	6.7
	Received behavioral health treatment from health professionals; less than 12 outpatient visits	589	41.7	41.9
	Made 12 or more outpatient visits in the past year (SEM analyses)	186	13.2	13.0

Main Analyses

This section reports the results from three separate analyses to answer the three research questions: multinomial logistic regression (RQ1), structural equation modeling (RQ2), and bivariate/descriptive analyses (RQ3).

Research Question 1: What factors are related to help-seeking among adults with suicidal ideation?

Multinomial logistic regression analyses were conducted to answer this research question. The analyses were conducted three times by using each of the first three groups of help-seeking behavior as a reference category so that the odds ratios of moving from one stage to the next stage in the help-seeking process can be generated (Tabachnick & Fidell, 2007). The sample size for Model 1 was 1,413 (population size = 11,403,625), 1,385 for Model 2 (population size = 11,140,122), and 1,382 (population size = 11,121,166) for Model 3.

1. Help-seeking Group 1 as Reference Group: Problem Recognition

Table 4-5 presents the results from the final model of multinomial logistic regression across different reference groups. Appendix G1 presents the results from the all models when the first group of help-seeking pathway was used as the reference category. Groups 2, 3, and 4 were compared to the first group and odds ratios were generated for each group.

Table 4-5. Multinomial Regression Model 3: Comparison across Reference Groups

Group			Reference: Group 1			Reference: Group 2			Reference: Group 3		
			OR	CI (L)	CI (H)	OR	CI (L)	CI (H)	OR	CI (L)	CI (H)
Age (ref. 50-64)	2	26-34	2.44	.99	6.02	-	-	-	-	-	-
		35-49	1.68	.54	5.29	-	-	-	-	-	-
	3	26-34	.69	.24	1.95	.28*	.11	.73	-	-	-
		35-49	1.25	.49	3.15	.74	.25	2.21	-	-	-
4	26-34	.61	.32	1.15	.25**	.12	.54	.89	.39	2.02	
	35-49	.94	.51	1.74	.56	.22	1.43	.75	.31	1.86	
Men	2	Yes	.43*	.22	.86	-	-	-	-	-	-
	3	Yes	.32**	.17	.62	.74	.35	1.55	-	-	-
	4	Yes	.50**	.32	.78	1.15	.63	2.11	1.56	.81	3.01
White	2	Yes	2.44*	1.03	5.78	-	-	-	-	-	-
	3	Yes	1.07	0.44	2.58	.44	.18	1.04	-	-	-
	4	Yes	2.22**	1.41	3.49	.91	.44	1.86	2.08*	1.00	4.32
Married (ref: Never Married)	2	Prev. ^a	.82	.40	1.67	-	-	-	-	-	-
		Cur. ^b	.96	.44	2.09	-	-	-	-	-	-
	3	Prev.	.71	.28	1.78	.86	.37	2.00	-	-	-
		Cur.	.90	.31	2.58	.93	.31	2.80	-	-	-
	4	Prev.	1.01	.62	1.64	1.23	.68	2.24	1.42	.64	3.19
		Cur.	1.13	.62	2.04	1.17	.62	2.23	1.26	.50	3.15
Education	2		1.06	.90	1.24	-	-	-	-	-	-
	3		1.21	.99	1.47	1.14	.90	1.45	-	-	-
	4		1.15*	1.03	1.29	1.09	.93	1.29	.96	.80	1.14
Employed (ref: Not Employed)	2	Full. ^c	1.07	.60	1.92	-	-	-	-	-	-
		Part. ^d	.59	.23	1.53	-	-	-	-	-	-
	3	Full.	1.12	.54	2.33	1.04	.44	2.46	-	-	-
		Part.	1.12	.41	3.08	1.90	.55	6.49	-	-	-
	4	Full.	.60*	.38	.96	.56*	.33	.95	.54	.26	1.11
		Part.	.62	.31	1.26	1.05	.42	2.65	.55	.24	1.30
Plan	2	Yes	1.96	1.00	3.85	-	-	-	-	-	-
	3	Yes	.80	.30	2.16	.41	.13	1.31	-	-	-
	4	Yes	1.77*	1.04	3.02	.90	.49	1.67	2.22	.75	6.59
Attempt	2	Yes	.54	.16	1.74	-	-	-	-	-	-
	3	Yes	.89	.19	4.09	1.67	.28	9.98	-	-	-
	4	Yes	1.22	.56	2.67	2.29	.79	6.60	1.37	.31	6.01
Past MDE	2	Yes	2.45**	1.28	4.68	-	-	-	-	-	-

	3	Yes	1.85*	1.01	3.37	.75	.33	1.73	-	-	-
	4	Yes	1.92**	1.19	3.09	.78	.41	1.50	1.04	.51	2.11
K6	2		1.10**	1.04	1.18	-	-	-	-	-	-
	3		1.04	.98	1.11	.94*	.89	.99	-	-	-
	4		1.09***	1.05	1.13	.98	.93	1.05	1.05	.98	1.12
WHODAS	2		1.05	.99	1.11	-	-	-	-	-	-
	3		1.01	.96	1.07	.97	.92	1.02	-	-	-
	4		1.11***	1.07	1.16	1.06*	1.01	1.12	1.10***	1.05	1.16
Alcohol	2	Yes	2.05	.99	4.24	-	-	-	-	-	-
	3	Yes	1.90	.71	5.10	.93	.30	2.85	-	-	-
	4	Yes	1.47	.85	2.53	.72	.42	1.23	.77	.31	1.93
Drug	2	Yes	.85	.35	2.09	-	-	-	-	-	-
	3	Yes	2.22	.88	5.61	2.61	.83	8.22	-	-	-
	4	Yes	1.78	.90	3.50	2.09	.85	5.12	.80	.33	1.93
Health	2	Yes	.97	.74	1.28	-	-	-	-	-	-
	3	Yes	1.02	.78	1.34	1.05	.78	1.40	-	-	-
	4	Yes	.95	.74	1.21	.97	.78	1.21	.93	.70	1.23
Income (Family)	2		1.19	.99	1.44	-	-	-	-	-	-
	3		1.08	.90	1.29	.90	.74	1.10	-	-	-
	4		1.09	.96	1.24	.92	.78	1.08	1.02	.85	1.22
Insurance	2	Yes	.72	.44	1.20	-	-	-	-	-	-
	3	Yes	1.29	.62	2.70	1.79	.85	3.76	-	-	-
	4	Yes	2.08**	1.34	3.23	2.87***	1.80	4.59	1.61	.77	3.36
Metro area (Ref. Non Metro)	2	Large.	1.70	.72	4.00	-	-	-	-	-	-
		Small.	1.45	.67	3.17	-	-	-	-	-	-
	3	Large.	.81	.28	2.30	.48	.15	1.51	-	-	-
		Small.	.57	.22	1.52	.39	.12	1.29	-	-	-
	4	Large.	.92	.52	1.62	.54	.24	1.20	1.13	.40	3.24
		Small.	1.05	.59	1.88	.72	.36	1.45	1.84	.75	4.53
Correct Classification Rate				65.5			65.5		65.5		
Nagelkerke Pseudo R ²				.406			.406		.406		

Note. a. Previously married b. Currently married c. Full-time d. Part-time

*p <.5, **p < .01, *** p<.001

(Table 4-5 Continued)

Model 1. Predisposing factors were entered in Model 1 (see Appendix G1). The model correctly classified 58% of the sample with pseudo $R^2 = .18$. Age, gender, race, education, and employment status were significantly related to the odds of moving from the first group of help-seeking (did not recognize a need for help) to at least one of the next groups (recognizing a need or actually seeking help from alternative or health professionals).

Adults between 26 - 34 years old were more likely to be at the second group of the help-seeking pathway (recognized a need but did not seek any help) than the first group (did not recognize a need for help) compared to those between 50-64 years old. Similarly, men were less likely than women to be at the third (alternative sources of help only) or fourth group (behavioral health services) in the help-seeking pathway versus the first group (did not recognize a need). Compared to non-Whites, Whites were more likely to be at the second (recognized a need but did not seek any help) or fourth group (received behavioral health treatment) in the help-seeking pathway.

Higher education level was related to higher probability of being at the third (seeking help from alternative sources) or the fourth group (seeking help from health professionals) versus the first group (did not recognize a need). Similarly, work situation in the past week was significantly related to the odds of being at the later groups of help-seeking. Compared to those who were not employed, those who were employed full-time or part-time were less likely to be at the last group versus the first group in the help-seeking pathway. Those who were employed part-time were less likely to be at the second group of the help-seeking pathway versus the first stage.

In summary, when need and enabling factors were not taken into account, age, gender, race, education, and employment status were significantly related to the odds of recognizing a need for help-seeking. Marital status was not a significant predictor in Model 1.

Higher education level was related to higher probability of being at the third (seeking help from alternative sources) or the fourth group (seeking help from health professionals) versus the first group (did not recognize a need). Similarly, work situation in the past week was significantly related to the odds of being at the later groups of help-seeking. Compared to those who were not employed, those who were employed full-time or part-time were less likely to be at the last group versus the first group in the help-seeking pathway. Those who were employed part-time were less likely to be at the second group of the help-seeking pathway versus the first stage.

In summary, when need and enabling factors were not taken into account, age, gender, race, education, and employment status were significantly related to the odds of recognizing a need for help-seeking. Marital status was not a significant predictor in Model 1.

Model 2. As need factors were entered in Model 2, the model correctly classified 65.4% of the sample and pseudo R^2 increased to .38, indicating the increased ability of the model to explain help-seeking behavior. With the addition of need factors, age, race, and education remained significant predictors, with slight changes in the magnitudes of odds ratios. Employment status was no longer a significant predictor in Model 2, when need factors were controlled. Gender was significant for the third and fourth stage in Model 1 and became a significant predictor for the second stage of the help-seeking

pathway as well when controlling for need factors. Compared to women, men were less likely to have recognized a need.

Among need factors, having made a suicide plan in the past year, having MDE in the past year, higher K6 scores, higher WHODAS scores, and self-reported alcohol abuse/dependence were significantly associated with increased help-seeking behavior. Suicide attempts, drug abuse/dependence, and overall health did not change the odds of recognizing the need for help-seeking. Having made a suicide plan in the past year was related to higher odds of being at the second group of help-seeking pathway (recognized a need but did not seek any help) and the fourth group (received behavioral health treatment from health professionals) than at the first group (did not recognize a need) . Having a MDE in the past year was significantly related to the odds of being at the second or last group in the help-seeking pathway. Higher scores on the K6 scale were significantly related to the probability of being at the second and the fourth group of the help-seeking pathway. Every one point increase in the K6 scores was related to an 11% increase in the odds of not seeking help after recognizing a need and a 9% increase in the odds of receiving behavioral health treatment from health professionals. Similarly, The WHODAS score was associated with higher odds of being at the fourth group in the help-seeking pathway. Every one point increase in the WHODAS score was associated with an 11% increase in the odds of receiving behavioral health treatment from health professionals versus not recognizing a need for help.

In summary, when predisposing factors were controlled, suicide attempts, drug abuse/dependence, and overall health were not significantly related with the odds of recognizing the need for help-seeking. Suicide plan, MDE, higher K6 scores, higher

WHODAS scores, and alcohol abuse/dependence were significantly associated with increased probability of being at one or more of the next groups (not seeking help after recognizing a need or seeking help from any sources) in the help-seeking pathway versus the first group (not recognizing a need). None of these need factors were significantly related to the odds of being at the third group (alternative sources of help only) versus the first group.

Model 3. Lastly, enabling factors were entered in Model 3. Correct classification rate increased slightly to 65.5% and a pseudo R^2 increased to .406, indicating improved ability of the model in predicting help-seeking behavior.

With the addition of enabling factors, age and education were no longer significant. Employment status, which was not significant in Model 2, became a significant predictor for receiving behavioral health treatment in Model 3. Those who were employed full-time were less likely to have received behavioral health treatment. Odds ratios for gender and race remained significant with slight changes in the magnitudes. Marital status remained not significant in Model 3.

Significance of need factors remained the same with slight changes in the magnitude of odds ratios, except for suicide plan, past year MDE, and alcohol abuse/dependence. Suicide plan was not significant for the second group of the help-seeking pathway (not seeking any help after recognizing a need) but remained significant for the fourth group (receiving behavioral health treatment) with the addition of the enabling factors. Similarly, alcohol abuse/dependence was no longer significant. In contrast, past year MDE, which was a significant predictor only for the second and fourth group in Model 2, became statistically significant for the third group with the addition of

enabling factors; meaning, those who had MDE in the past year were more likely to be at the third group of the help-seeking pathway (sought help from only alternative sources) versus the first group (not recognizing a need).

Among the enabling factors, insurance was the only significant predictor for the groups of help-seeking behavior. Those who were insured were more likely to be at the fourth group (receiving behavioral health treatment from health professionals). Family income or living in a large or small metro area were not significant predictors for help-seeking behavior.

In summary, the addition of enabling factors influenced significance of predisposing and need factors, but among enabling factors, only insurance was significantly related with the odds of receiving treatment from health professionals versus not recognizing a need.

II. Help-seeking Group 2 as a Reference Group: Seeking Help from Any Sources

Multinomial logistic regression was conducted after changing the reference group to the second help-seeking stage (not receiving any help after recognizing a need) to see how predisposing, need, and enabling factors were related to the odds ratios of being at the third (seeking help only from alternative sources) or the fourth stage (receiving behavioral health treatment from health professionals) compared with being at the second stage. Table G-2 presents the results from the multinomial logistic regression when the same models were used as the previous analyses. The odds ratios between the first and the second stages are not presented in Table G-2 as they were presented in Table G-1. A pseudo R^2 and classification rates remain same as the previous analyses after changing the reference group because the model variables are same.

Model 1. In Model 1, when compared to those who were at the second group (those who recognized a need but did not seek any help), only age, race and employment status were significant predictors for being at the later groups in the help-seeking pathway (seeking help from alternative sources or health professionals). Adults between 26 - 34 years old were less likely to be in the third (alternative sources only) or fourth group (behavioral health treatment) of the help-seeking pathway compared to those aged between 50 – 64 years old. Whites were less likely to be at the third group (alternative sources only) versus the second group compared to non-Whites. Compared to those who were not employed, those who were employed full-time were less likely to be at the last group of the help-seeking pathway (received behavioral health treatment). There was no significant difference between those who were employed part-time and those who were not employed.

Model 2. In Model 2, race was no longer significant, but age and employment status remained significant with the addition of need factors. Among need factors, higher scores on the K6 scale were associated with decreased odds of being at the third versus the second group of the help-seeking pathway. Every one point increase in the K6 scores was associated with a 6% decrease in the odds of seeking help from only alternative sources versus not seeking any help after recognizing a need. Similarly, higher scores on the WHODAS scale were associated with higher odds of being at the fourth group in the help-seeking pathway. Every one point increase on the WHODAS scale was associated with a 7% increase in the odds of receiving behavioral health treatment from health professionals versus not receiving any help. Suicide plan, suicide attempt, past year

MDE, alcohol abuse/dependence, drug abuse/dependence, and overall health did not change the odds of being at the third or fourth groups of help-seeking process.

Model 3. In Model 3, significance of predisposing and need factors remained the same with slight changes in the magnitude of odds ratios. Among the enabling factors, insurance was the only significant predictor. Those who were insured were more likely to have utilized behavioral health treatment from health professionals versus not receiving any help after recognizing a need for mental health treatment. Family income or residing in metro areas were not significant predictors for receiving help from alternative sources or health professionals versus not seeking any help after recognizing a need.

3. Help-seeking Group 3 as a Reference Group: Received Behavioral Health Treatment

Multinomial logistic regression was conducted after changing the reference group to the third help-seeking group (seeking help only from alternative sources) to generate the odds ratios for being at the fourth group (receiving behavioral health treatment from health professionals) versus the third. The odds ratios for the first and the second groups in comparison to the third group were presented in Tables 4-5 and 4-6. Table 4-7 presents the results from the multinomial logistic regression when the same models were used as the previous analyses. A pseudo R^2 and classification rates remain same as the previous analyses after changing the reference group.

Model 1. When compared to those who are at the third group of help-seeking (utilized only alternative sources), only race and employment status were statistically significant predisposing predictors for being at the fourth group of help-seeking (receiving behavioral health treatment from health professionals). Whites were more

likely to have received behavioral health treatment from health professionals compared to non-Whites. Compared to those who were not employed, those who were employed full-time or part-time were less likely to have received help from health professionals versus alternative sources.

Model 2. With the addition of need factors in model 2, race remained a significant predictor, but employment status was no longer significant. Among the need factors, only higher scores on the WHODAS increased the odds of being at the fourth group versus the third group of the help-seeking pathway. Every one point increase in the WHODAS score was associated with a 10% increase in the odds of receiving behavioral health treatment from health professionals versus alternative sources. Suicide plan, attempt, past year MDE, K6, alcohol abuse/dependence, drug abuse/dependence, and overall health did not change the odds of being at the fourth group of the help-seeking pathway versus the third group.

Model 3. With the addition of enabling factors, significance of predisposing and need factors remained the same with slight changes in the magnitude of odds ratios. Among the enabling factors, none of them significantly increased probability of being at the fourth group versus the third group of the help-seeking pathway. Unlike when the first or the second groups were used as a reference category, having health insurance did not significantly change the odds of being at the fourth group (received behavioral health treatment) versus the third group (alternative sources only).

Summary of RQ 1 Results

In summary, when predisposing, need, and enabling factors were entered hierarchically, each set of variables increased the ability of the model to classify the

sample to the more advanced groups in the help-seeking pathway. The results also showed that different factors were associated with the odds ratios of being one group compared to other groups. In summary, generally, females, persons in older age groups, Whites, those with a higher educational level, those who experienced a MDE in the past year, those with higher psychological distress (K6 score), those with higher functional impairment level (WHODAS score), and those with health insurance were more likely to seek help among working-age adults with suicidal ideation. However, these factors affect help-seeking behavior in different groups of the help-seeking pathway: 1) Men, non-Whites, those with a lower educational level, full-time employees, those without suicide plan, those without MDE, those with lower psychological distress, those with lower functional impairment were less likely to have recognized a need; 2) Younger adults, full-time employees (only for behavioral health services), those with higher psychological distress (only for alternative help), and those with lower level of functional impairment (only for behavioral health services) were less likely to have received help after need recognition; 3) Non-Whites and those with lower functional impairment level were less likely to have received behavioral health services from health professionals versus alternative sources.

RQ 2: Does the combined model of help-seeking fit for adults with suicidal ideation?

Structural equation modeling (SEM) was used to test the combined model of suicide help-seeking. The results from the confirmatory factor analyses for the measurement models, all of which fit well, are presented in Appendix H. The initial SEM model and the respecified SEM model are presented in this section.

Initial SEM Model

The initial SEM analysis tested the proposed model of help-seeking behavior in which predisposing, need, and enabling factors are associated with the groups of help-seeking pathway. In the SEM model, the help-seeking variable was reconstructed as 5 categories by splitting the fourth group and treated as an ordinal variable. The fifth group indicates those who visited outpatient treatment facilities for mental health problems 12 times or more (the peak point in the frequency of the number of outpatient visits) during the past year. This category was added to the help-seeking variable to account for continuity of help-seeking, as number of sources used, number of nights of inpatient care, and number of visits for outpatient care, which could not be used for the SEM analyses because of non-normality or multicollinearity, with the help-seeking pathway variable.

The initial SEM model yielded mixed results, as presented in Table 4-6; chi-square was significant ($\chi^2 = 276.041$, $df = 89$, $p < .001$) but other fit indices indicated a reasonable fit of the model. Fit indices for the initial SEM models are presented in Table 4-8. RMSEA (.039) indicated a reasonable error approximation, but CFI and TLI values (CFI = .906, TLI = .873) were lower than the cutoff values.

Table 4-6. Fit Statistics Values for the SEM Models

	Initial Model	Respecified Model
chi-square	276.041	275.700
<i>Df</i>	89	95
<i>P</i>	<.001	<.001
RMSEA	.039	.037
CFI	.906	.910
TLI	.873	.885

The path relationships between the need and enabling factors and the help-seeking pathway were significant and in the hypothesized direction. Path coefficients between predisposing, need, enabling factors, and help-seeking varied in significance; each path coefficient will be discussed for the final SEM model below. Figure 4-1 shows the initial SEM of help-seeking behavior with fully standardized solutions. Based on that the CFI and TLI values were lower than the cutoff values, respecification of the model was considered as presented in the following section.

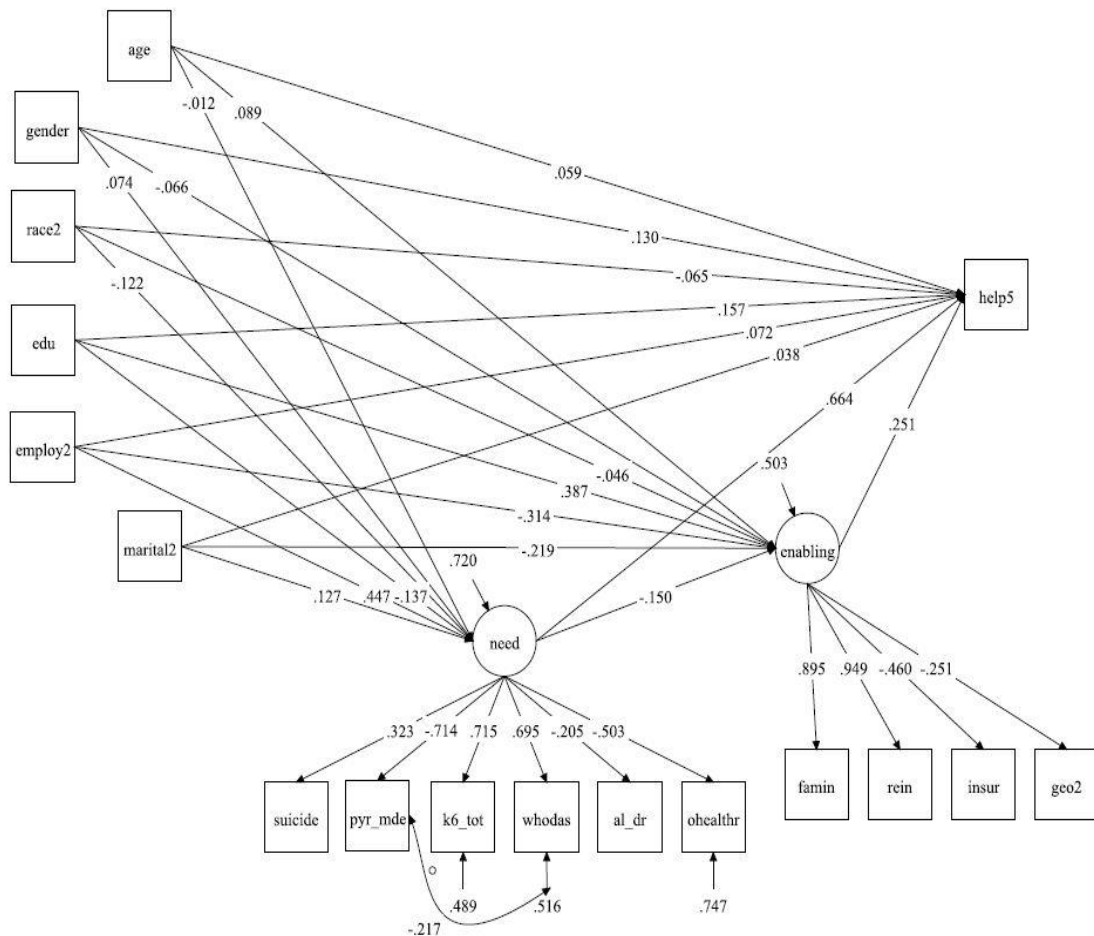


Figure 4-1. The Structural Equation Model for Help-seeking (fully standardized solution)

Note. pyr-mde: past year major depressive episode, K6_tot: K6 total score, al_dr: alcohol and/or drug abuse or dependence, ohealthr: overall health (reverse coded), famin: family income, rein: respondent's income, insur: insurance, geo2: geographic area.

Respecified SEM Model

Modification indices (MI) were examined to determine misspecified parameters in the initial SEM model. MI suggested cross-loading of insurance on the need factor (MI = 10.594, EPC = -.512) and overall health on the enabling factor (15.179, EPC = .180). Based on the assessment of the MI values, a decision was made not to add any cross loadings because of the lack of evidence from literature to support such cross-loadings and the MI values were relatively low.

The respecified SEM model was tested after deleting non-significant paths, based on the results from the initial model. This trimmed SEM model yielded a slightly better fit as presented in Table 4-6; the chi-square test was still significant but the value decreased slightly ($\chi^2 = 275.000$, $df = 95$, $p < .001$). CFI and TLI values (CFI = .910, TLI = .885) indicated a better fit of the respecified model but remained lower than the cutoff values. RMSEA value (.037) indicated a reasonable error approximation. As a next step, path coefficients were examined. Table 4-7 presents path coefficients for the respecified SEM model. The path relationships between the need factor and the help-seeking pathway as well as between the enabling factor and the help-seeking pathway remained significant and in the hypothesized direction. The predisposing factors either had both direct and indirect effects on the help-seeking pathway or had only indirect effects through enabling or need factors. Figure 4-2 shows the respecified SEM model of help-seeking behavior when non-significant path coefficients were deleted.

Table 4-7. Path Coefficients for the Final SEM Model

		Need		Enabling		Help-seeking	
		Unst.	St.	Unst.	St.	Unst.	St.
Predisposing	Age	NS	NS	.144**	.096	NS	NS
	Gender	.049*	.074	-.151*	-.067	.274**	.127
	Race	-.106**	-.138	NS	NS	NS	NS
	Education	-.023**	-.138	.222***	.391	.095**	.176
	Employed	.310***	.463	-.707***	-.312	NS	NS
	Married	.091**	.136	-.490***	-.217	NS	NS
Need				-.497**	-.147	2.331***	.726
Enabling						.222***	.234

Note. Unst., unstandardized; St., Standardized; NS, Non-significant paths deleted for the final model; * $p < .05$, ** $p < .01$, *** $p < .001$

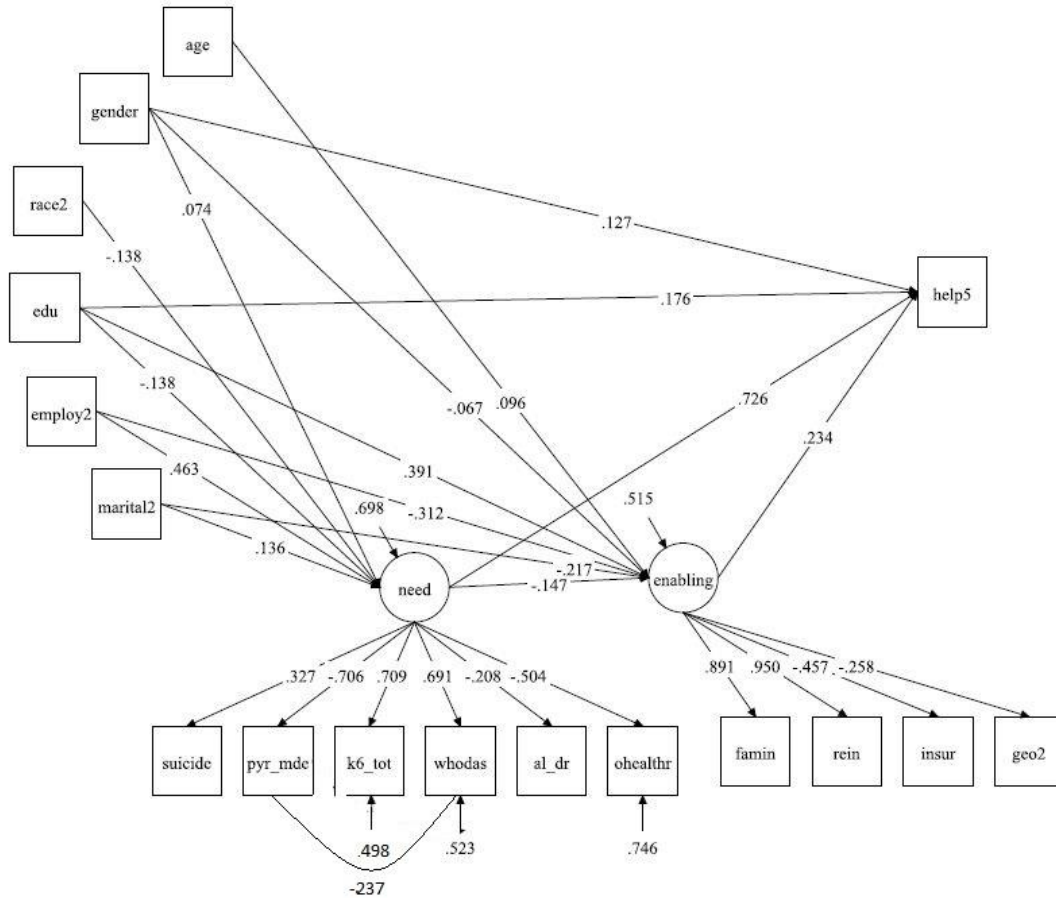


Figure 4-2. The Respecified Structural Equational Model for Help-seeking (fully standardized solution)

Predisposing factor and help-seeking. Gender and education had both direct and indirect effects on the help-seeking pathway. Women were more likely than men to be in higher groups of the help-seeking pathway (medium effect, $\lambda = .127$; $p < .01$). Gender also affected help-seeking behavior through its indirect effects on the need (small effect, $\lambda = .074$, $p < .05$) and enabling (small effect, $\lambda = -.067$; $p < .05$) factors; women were likely to have higher needs but fewer resources for help-seeking. Similarly, higher education level directly increased help-seeking (medium effect, $\lambda = .176$; $p < .01$) as well as by an indirect effect through increased enabling factors (medium effect, $\lambda = .391$; $p < .001$).

Those with higher education reported lower level of needs, as indicated by significant negative coefficient between education and need factors (medium effect, $\lambda = -.138$; $p < .01$).

Age, race, employment status, and marital status were not directly related to help-seeking behavior, but had indirect effects on the help-seeking pathway through their relationships with the need or enabling factors. For example, among working-age adults with suicidal ideation, being in an older age group was associated with increased resources for help-seeking, as indicated by the significant positive coefficient between age and enabling factors (small effect, $\lambda = .073$; $p < .05$). Non-Whites reported lower needs than Whites (medium effect, $\lambda = -.196$; $p < .01$) and those who are not currently married had higher needs (medium effect, $\lambda = .136$; $p < .01$) but lower resources (medium effect, $\lambda = -.217$; $p < .001$) compared to those who are currently married. Lastly, employment status affected help-seeking behavior by its relationship with the need and enabling factors. Those who did not work in the past week had higher needs (medium effect, $\lambda = .463$; $p < .001$) but fewer resources (medium effect, $\lambda = -.312$; $p < .001$) for help-seeking compared to those who were employed in the past week.

Need factor and help-seeking. Need factors affected help-seeking through direct relationships with help-seeking behavior as well as indirect effects through the enabling factors. Higher needs were associated with being in a higher group in the help-seeking pathway (large effect, $\lambda = .726$; $p < .001$). The need factors were also associated with help-seeking behavior through their relationships with enabling factors, as indicated by the significant negative path coefficient between the need and enabling factors (medium effect, $\lambda = -.147$; $p < .01$).

Enabling factor and help-seeking. The significant positive path coefficient between enabling factors and help-seeking behavior (medium effect, $\lambda = .222$; $p < .001$) indicated that increased resources predict being in a higher group in the help-seeking pathway.

Summary

The combined model of help-seeking behavior fit reasonably among the current sample of working-age adults with suicidal ideation. The examination of the relationships between predisposing/need/enabling factors and help-seeking behavior revealed that each factor affects help-seeking behavior through its direct relationship with help-seeking behavior and/or indirect effects on other factors. People with lower needs and enabling resources are less likely to be in a higher group in the help-seeking pathway. Those with higher mental health/suicide-related needs are more likely to seek help, but have lower enabling resources for help-seeking. Among predisposing factors, only gender and education have direct effects on help-seeking behavior in addition to indirect effects through need and enabling factors. Men were less likely than women to be in a higher group in the help-seeking pathway. Those with lower education level were less likely to be in a higher stage in the help-seeking pathway; they have higher needs but less enabling resources for help-seeking.

RQ3: What are the reasons for not receiving mental health treatment among the subset of adults with suicidal ideation who did not receive mental health treatment?

The sample for this research question was limited to those who endorsed the question of “During the past 12 months, was there any time when you needed mental health treatment or counseling for yourself but did not get it?” ($n = 545$; 38%). The self-

reported reasons for not receiving mental health treatment were examined by using descriptive statistics, among this subsample.

Sample Characteristics

The sample characteristics for this subsample (those who reported unmet needs for mental health treatment) are presented for the predisposing, need, and enabling factors

I. Predisposing Factors

Descriptive statistics for the predisposing factors are presented in Table 4-10. Nearly two-thirds (62.6%, weighted 62.5%) were female and almost half of them were between 35-49 years old. About three quarters of the subsample were Whites. More than half of this subsample were unemployed, and about one in ten worked part-time in the past week. Mean for education was 8.85 (Weighted $M = 8.85$, $SD = 1.80$).

Table 4-8. Descriptive statistics for Predisposing Factors among the Subsample

		N	%	% (w)
Gender	Male	204	37.4	37.5
	Female	341	62.6	62.5
Age	26-34	206	37.8	28.4
	35-49	262	48.1	47.4
	50 -64	77	14.1	24.2
Race	White	417	76.5	79.0
	Non-White	128	23.5	21.0
Marital Status	Currently Married	204	37.4	41.2
	Previously Married	160	29.4	29.3
	Never been Married	181	33.2	29.5
Employment	Full-time	207	38.0	40.8
	Part-time	54	9.9	8.1
	Did not work	284	52.1	51.1

II. Need Factors

Table 4-11 presents descriptive statistics of need factors for those who reported unmet needs for mental health treatment. About one quarter of this subsample reported alcohol abuse or dependence and about one in ten had drug abuse or dependence in the past year. More than one-third reported having made a suicide plan and almost one in seven had attempted suicide in the past year. The mean for the K6 total score was 13.92 ($SD = 5.38$) and 13.94 when weighted. For the WHODAS, the mean for the current subsample was 14.88 ($SD = 6.17$) and 14.67 when weighted. On average, this subsample scored 2.94 ($SD = 1.12$) and 2.94 when weighted on the overall health scale.

Table 4-9. Descriptive Statistics for Need Factors among the Subsample

		N	%	% (w)
Past year MDE	Yes	360	67.2	68.7
	No	176	32.8	31.3
Alcohol	Yes	133	24.4	25.0
	No	412	75.6	75.0
Drug	Yes	67	12.3	12.7
	No	478	87.7	87.3
Suicide Plan	Yes	199	36.6	39.1
	No	344	63.4	60.9
Suicide Attempt	Yes	70	12.9	13.6
	No	474	87.1	86.4

III. Enabling Factors

Table 4-12 presents descriptive statistics for enabling factors among those who reported unmet needs for mental health treatment. Seven in ten of this subsample reported being covered by some type of health insurance. Similar numbers of the sample resided in large metro or small metro areas and about one in five resided in non-metro area. Income ranged from \$10,000 to \$75,000 or more. Less than one in five of the sample reported \$75,000 or more as their family income, and similar number of sample reported the range of \$10,000- \$19,999 as their family income. Distribution of family income was mostly even for other categories.

Table 4-10. Descriptive Statistics for Enabling Factors among the Subsample

		N	%	% (w)
Insured	Yes	384	70.6	71.6
	No	160	29.4	28.4
County	Large metro	211	38.7	47.6
	Small metro	217	39.8	36.7
	Non metro	117	21.5	15.7
Family Income	Less than \$10,000	73	13.4	14.2
	\$10,000-\$19,999	95	17.4	14.8
	\$20,000-\$29,999	82	15.0	13.3
	\$30,000-\$39,999	73	13.4	14.7
	\$40,000-\$49,999	54	9.9	9.4
	\$50,000-\$74,999	73	13.4	14.1
	\$75,000 or more	95	17.4	19.6

Reasons for not Receiving Mental Health Treatment

Self-reported reasons for not receiving mental health treatment are presented in Table 4-13 among those who reported unmet needs for mental health treatment. Not being able to afford cost was the most frequently reported reasons for not receiving mental health treatment after need recognition. More than half of this subsample reported that they did not seek help because they could not afford the cost. Other enabling factor-related reasons included “insurance did not pay enough”, “insurance did not cover at all”, and “no or inconvenient transportation”. The second most frequently reported reason for not receiving mental health treatment was that they did not know where to go for service.

Other reasons were mostly related to health beliefs (Andersen, 1998). These reasons include concerns about stigma and not thinking treatment would be necessary or helpful. For example, the third most frequently reported reason for not receiving mental health treatment was “thought could handle problem without treatment”, the fourth most frequently reported reason was “concerns about being committed to treatment or taking medication”, and the fifth most frequently reported reason was “not have time to receive mental health treatment”. Other reasons related to health beliefs include “concerns about confidentiality”, “did not think treatment would help” and “didn’t think treatment is needed at that time”. Similarly, some of this subsample reported stigma avoidance as reason for not receiving treatment. These reasons include “concern about effect on job”, “concern about opinion of neighbors”, and “did not want others to find out”.

Table 4-11. Self-reported Reasons for not Receiving Mental Health Treatment

Reasons	N	% (w)	%	Andersen Grouping
1 Could not afford cost	247	57.6	54.5	Enabling
2 Did not know where to go for service	106	19.0	19.4	Enabling
3 Thought could handle problem without treatment	105	18.7	19.3	Predisposing (health belief)
4 Might be committed/take medications	92	16.4	16.9	Predisposing (health belief)
5 Didn't have time	75	11.9	13.8	Predisposing (health belief)
6 Not enough health insurance coverage	61	12.1	11.2	Enabling
7 Concern about effect on job	56	8.1	10.3	Predisposing (health belief)
8 Concern about opinion of neighbors	55	7.8	10.1	Predisposing (health belief)
9 Concern about confidentiality	54	7.0	9.9	Predisposing (health belief)
10 Some other reasons	48	8.2	8.8	-
11 Didn't think treatment would help	45	7.5	8.3	Predisposing (health belief)
12 Didn't want others to find out	33	5.3	6.1	Predisposing (health belief)
13 Insurance did not cover	30	5.6	5.5	Enabling
14 No transportation or too far	27	3.0	5.0	Enabling
15 Didn't think treatment is needed	22	3.0	4.0	Predisposing (health belief)

Summary

Among the current sample of working-age adults with suicidal ideation, 38% reported that there was a time in the past year that they needed mental health treatment or counseling but did not get it. Among this subsample, more than half identified not being able to afford treatment as a reason for not receiving treatment after recognizing a need. One in five of the subsample reported that they did not receive mental health treatment because they did not know where to go for services. Other frequently reported reasons include beliefs that their problem could be handled without treatment, fear of being committed or forced to take medication, not having time for treatment, and not enough health insurance coverage.

Chapter 5. Discussion

This chapter is divided into several sections: the interpretation and implication of the results for each research question; the limitations and strengths of the study; and the implications for practice and policy, theory development, and future research. The results were compared to previous studies on help-seeking behavior; given a lack of literature on suicide help-seeking behavior among working-age adults, general mental health help-seeking literature were also integrated when they were helpful to understand the results.

Factors Related to Help-seeking Behavior among Working-age Adults with Suicidal Ideation

Predisposing factors. The results from the multinomial logistic regression analyses showed that the relationships between predisposing factors and help-seeking behavior demonstrated in the mental health and suicide help-seeking literature are held up among working-age adults with suicidal ideation. Generally, men, younger adults, those with lower education levels, and non-Whites were less likely to seek help even with suicidal ideation compared to females, older adults, those with higher educational levels, and Whites.

Consistent with prior literature on mental health help-seeking, working-age men with suicidal ideation are less likely to seek help as compared to women, and this lack of help-seeking among men is related in large part to a lack of problem recognition. Prior studies attempted to explain the gender difference in mental health help-seeking by linking it to stronger stigma or more negative attitudes toward help-seeking among men (Judd et al., 2008), whereas some studies suggested that women experience higher rates of depression and anxiety (Levinson & Ifrah, 2010). In this study, men were less likely to

seek help after controlling for need factors including depression, substance abuse, and general psychological distress. Men, when compared to women, were also less likely to be in a higher stage in the help-seeking pathway even with the same level of needs. However, this gender difference was significant only when the first help-seeking group was used as a reference group, indicating that this gender difference was strongly related to problem recognition. This result supports the previous qualitative studies on men's help-seeking behavior that concluded that men tend to ignore health symptoms and have a 'wait and see' attitude as a reason for not seeking help (Sandén, Larsson, & Eriksson, 2000).

Likewise, non-Whites were less likely to have recognized a need for help-seeking than Whites. Non-Whites were also less likely to have received formal behavioral health services as compared to non-healthcare services. General mental health and suicide help-seeking literature consistently demonstrates a lack of mental health help-seeking among racial minorities, and their tendency to rely on informal sources for help (Bernstein, 2007; Shin, 2002). The current results support the racial disproportionality in mental health help-seeking and further indicate that this pattern did not change even when suicidal ideation was recognized. Prior studies have pointed out that a lack of resources, health beliefs, and cultural values are possible explanations for a lack of help-seeking among racial minorities (Bernstein, 2007; Shin, 2002). As this study controlled for enabling factors, the results imply that health-beliefs or cultural values, rather than a lack of resources, might have played a role in the racial difference. However, there is little empirical evidence to understand how race is associated with suicide help-seeking, and

should be further investigated to understand the mechanisms of this racial disproportionality.

Full-time employees were less likely to seek help than the unemployed. The prior studies on the relationships between employment status and help-seeking yielded mixed results, with some studies showing non-significant relationships (Encrenaz et al., 2012; Milner & De Leo, 2010) and others (Bruffaerts et al., 2011; Liu et al., 2006) showing a lack of help-seeking among those who are employed. The results from this study indicated that full-time employees with suicidal ideation were less likely to have recognized a need or received any help after need recognition. Although little is known about how employment status possibly affects help-seeking behavior, several explanations are possible. First, those who are employed may have considered their functional level higher than those who are not employed, resulting in a lack of problem recognition. Second, it is possible that those who are employed full-time have been more concerned about stigma compared to those who have not been employed because of potential effects on their job. Lastly, those who are fully employed may have found it difficult to take off time to visit health care professionals or may not have had adequate insurance coverage¹⁸. However, these possible mechanisms need to be further investigated with consideration of other possible moderating and mediating factors.

Need factors. The results suggest that higher needs among the current sample did not always increase help-seeking. These results support the previous findings on suicide help-seeking, that the presence of a suicide attempt did not always increase help-seeking,

¹⁸ Insurance was measured as whether the participant is insured, without considering public versus private insurance.

whereas higher general mental health needs increased mental health service utilization (Bruffaerts et al., 2011; Chu et al., 2011, Milner & De Leo, 2010). In addition, the presence of alcohol and drug problems did not increase help-seeking among working-age adults with suicidal ideation.

Having made a suicide plan in the past year was related to an increase in help-seeking, while those who only had suicidal ideation were less likely to seek help. It is possible that suicidal ideation alone is not perceived as a problem that requires help-seeking whereas having made a suicide plan is more likely to be perceived as a risky behavior. In contrast, those who made a suicide attempt did not seek more help compared to those who had only ideation, supporting previous findings that suicide-related risk does not always increase mental health help-seeking (Bruffaerts et al., 2011; Milner & De Leo, 2010). These results should be understood in consideration of the limitations of the study. Because the NSDUH survey is cross-sectional, the time precedence between help-seeking and suicide attempt cannot be determined in the present study. In addition, only the presence of suicide attempt in the past year, but not the frequency of such attempts or intention to die, was measured. It is possible that suicide attempts without serious intent to die compounded the result on the relationship between suicide attempt and help-seeking behavior.

Those without depression and a lower level of general mental health needs were less likely to seek help. Though these positive relationships between general mental health needs and help-seeking have been consistently supported in the body of help-seeking literature, the results from the current study can contribute to deeper understanding of such relationships by using a wide range of indicators of mental health

needs and considering the three stages in the help-seeking pathway as an outcome. The presence of MDE increased help-seeking through increased problem recognition. Similarly, the lower level of psychological distress was associated with the lower likelihood of recognizing a need for help. In contrast, the self-related level of functional impairment was related to all the stages in the help-seeking pathway. Those who experienced a lower level of impairment in their daily lives not only demonstrated a lack of problem recognition but also were less likely to seek help from any sources and prefer non-healthcare sources of help versus behavioral health services from health professionals. This suggests that someone who experienced suicidal ideation without MDE and perceived his or her functional impairment level as low would have a low probability of identifying suicidal ideation as a problem that needs help-seeking. The results help us understand the previous finding from the psychological autopsy study that being employed at the time of death and having higher levels of social problem solving ability are related to suicide death without seeking treatment (Liu et al., 2006).

Therefore, taking into account that the definition of suicidal ideation in the current study does not include thoughts of self-harm without serious intent and considering the results regarding need factors, the group that needs more attention in terms of help-seeking is those who are functioning well in spite of suicidal ideation. In fact, among the current sample, only half experienced a MDE in the past year, and 41 % scored 13 or higher on the K6, which is a cut off point for a serious mental illness. Apparently, there were a considerable number of working-age adults with suicidal ideation but without high general mental health needs, putting them in a vulnerable situation when it comes to

getting help. The current results show the need for more attention to those who experience suicidal ideation without perceived high mental health needs.

Enabling factors. Having health insurance was the only enabling factor that significantly increased help-seeking. Those without insurance were less likely to have recognized a need and less likely to have received behavioral health services after a need recognition. The non-significant relationships between income and help-seeking were found in prior studies showing that income did not significantly increase help-seeking among adults with suicidal ideation in Australia (Milner & De Leo, 2010). In contrast, another study found a significant positive relationship between income and help-seeking among the world-wide sample (Bruffaerts et al., 2011). This inconsistency may be explained by the differences in the samples related to the differences in countries' healthcare systems. In the current U.S. sample, insurance but not income, was related to mental health help-seeking among working-age adults with suicidal ideation. It is possible that help-seeking for suicide is more strongly influenced by other factors so that enabling factors such as income and accessibility to care have relatively less influence on help-seeking compared to general mental health help-seeking.

Validation of the Combined Model of Suicide Help-seeking

Overall, the combined SEM model of suicide help-seeking appears to fit reasonably well among the current sample of working-age adults with suicidal ideation. Although not all of the fit indices indicated a good fit with values beyond the thresholds, the results in general indicated significant relationships between the main constructs in the expected directions. The model also yielded several important implications to understand help-seeking behavior among working-age adults with suicidal ideation by

indicating how predisposing, need, and enabling factors are related to each other to influence help-seeking behavior.

Direct and indirect effects on help-seeking. The examination of the relationships between predisposing, need, enabling factors and help-seeking behavior revealed that each factor affects help-seeking behavior through its direct effects on help-seeking behavior and/or indirect effects through other factors. Among predisposing factors, only gender and education have direct effects on help-seeking behavior. Males and those with the lower levels of education were less likely to be in a higher stage in the help-seeking pathway. These relationships are consistent with prior suicide help-seeking literature among adults that found males were less likely to receive mental health treatment (Ahmedani et al., 2011; Milner & De Leo, 2010), and education level is positively related to the health service utilization (Bruffaerts et al., 2011). Likewise, those with lower needs and less enabling resources were less likely to be in a higher stage of the help-seeking pathway. The help-seeking pathway, as conceptualized based on the three stage model of mental health help-seeking, is still influenced by the factors that are previously known as related to mental health service utilization rate.

SEM analyses made it possible to examine the interrelationships between factors by examining path coefficients between predisposing, need, and enabling factors. Predisposing factors indirectly affect the help-seeking pathway through their relations with need and enabling factors. For example, men are less likely to receive mental health treatment from health professionals but little empirical evidence is available to explain whether a lack of help-seeking among men is attributable to their experiences with barriers to mental health care or their lower mental health needs (Galdas, Cheater, &

Marshall, 2005). The current results indicate that men have slightly lower needs but more enabling factors for help-seeking compared to women. In contrast, among men and women, those with the lower education levels have higher needs but less enabling resources for help-seeking, putting them in a vulnerable situation in terms of help-seeking.

Findings about marital and employment status are less known from the prior literature but potentially important factors in understanding help-seeking behavior among working-age adults. In the previous literature review, marital status yielded mixed results for its relationship with suicide help-seeking behavior. Some studies found that those who are not married are less likely to seek help (Ahmedani et al., 2012; Bruffaerts et al., 2011), whereas other studies did not find significant relationships for marital status (Brook et al., 2006; Encrenaz et al. 2012). The results from this study showed that marital status affects help-seeking behavior through its indirect relationships with need and enabling factors. Those who are not currently married have higher needs but fewer enabling factors for help-seeking compared to those who are currently married, indicating higher needs for support among working-age adults who are not married. Higher needs among those who are not currently married can be understood in consideration of their possible lack of a sense of belongingness compared to those who are married. According to the interpersonal theory of suicide, interpersonal constructs, such as thwarted belongingness and perceived burdensomeness, are associated with great suicide risk (Joiner, 2005). It is possible that high needs among those who are not married can be partly explained by a lack of contentedness and high risk for thwarted belongings.

Unemployment is a known risk factor for suicide among middle-aged men (Foster, Gillespie, McClelland & Chris Patterson, 1999) but among adults who died of suicide without receiving treatment, they were more likely to have been employed before death (Liu et al., 2006). The current study did not find a direct relationship between employment status and the stages of the help-seeking pathway but found that those who are currently employed have lower needs but higher enabling resources for help-seeking. Putting the results from the previous studies and the current study together, a lack of help-seeking among employed adults with suicide risk may be associated with other factors that offset high enabling resources. Possibly, these factors can include difficulty in taking time off, concerns about effects on job, and a lack of health insurance coverage that were not measured in the current study. Studies have shown that stigma about mental illness have deleterious impacts on keeping good jobs (Corrigan, 2004), showing that help-seeking can be limited among employees who are concerned about their job due to the impact of stigma.

Utility of the combined model of suicide help-seeking. Another finding that can yield important implications for the field of suicide prevention is related to the fact that the measurement model for need had the great fit among the current sample. Multiple measures were used to indicate the level of need and these measures held together well as one construct and loaded significantly to the latent construct of need. These indicators include suicide plan, attempt, MDE, general psychological distress, functional impairment, and alcohol/drug problems.

When measured with the multiple indicators, higher need was positively related to help-seeking, but negatively related to enabling resources. Based on Andersen (1995)'s

definitions of equitable and inequitable access to health care utilization¹⁹, help-seeking behavior among working-age adults with suicidal ideation is characterized by inequitable access where the access to care is not only determined by needs but also influenced by enabling factors. Those with higher needs are more likely to be in a higher stage in the help-seeking pathway but are more likely to experience a lack of enabling resources for help-seeking.

In the combined model of suicide help-seeking, a lack of enabling resources predicts being in a lower stage in the help-seeking pathway. In other words, those who have fewer resources, such as income, insurance, and accessibility to care, are less likely to recognize a need for help-seeking, decide to seek help after need recognition, choose behavioral health service over non-healthcare services, and continue with outpatient treatment. However, the effect size for the relationship between the need factor and help-seeking is much larger than the relationship between the enabling factor and help-seeking, implying that this inequity can be offset by the level of needs.

The combined model of suicide help-seeking helps us to understand how diverse factors interact to influence the help-seeking pathway and can be further refined by addressing possible sources of miss-fit. First, there is an absence of other important factors that affect mental health help-seeking such as health beliefs, regular sources of visits, health outcomes, lifetime history of mental problems, and suicide attempts. Next, not accounting for the relationships between the indicators and the factors in the model might have affected the model fit. For example, the modification indices suggested the cross-loading of overall health on the enabling factor in addition to the need factor. It is

¹⁹ Definitions are provided in the theory section.

also possible that income is highly correlated with employment status as well as education. Lastly, using cross-sectional data limited the conceptualization of the help-seeking pathway as the three-stage model (Cauce et al., 2002) assumes a time order in this pathway. The implication for theory development is further discussed in the upcoming theory development section.

The Reasons for not Receiving Mental Health Treatment after Need Recognition

The reasons for not receiving mental health treatment were examined for the subset of the sample who reported that there was any time in the past year that they needed mental health treatment but did not get it. The purpose of this research question was to examine how health beliefs and stigma, along with other factors, act as barriers to help-seeking among working-age adults with suicidal ideation because health beliefs were not included in the main analyses. In the help-seeking literature, health beliefs and stigma on mental health help-seeking are well known risk factors for not seeking help. Among the current sample, 38% reported that there was any time in the past year that they needed mental health treatment or counseling but did not get it, indicating that more than one in three working-age adults with suicidal ideation reported unmet needs for mental health treatment.

Among this subsample, more than half identified not being able to afford the treatment cost as a reason for not receiving treatment. It is generally agreed in mental health help-seeking literature that a lack of financial reasons acts as a main barrier to mental health care (Steel, Dewa, & Lee, 2007). Having suicidal ideation did not seem to change the role of financial barriers in receiving mental health treatment. It is possible that those who endorsed this reason thought that they could not afford the treatment cost

because of a lack of insurance coverage or income. It is not known, however, whether this self-reported reason truly reflects the relationship between a lack of resources and unmet needs for mental health treatment. In fact, the results from the multinomial logistic regression analyses revealed that income was not a significant predictor in any stage of the help-seeking pathway. Among the possible explanations is that the cost of treatment was subjectively defined in relation to its value to maintain mental health. For example, \$25 for a co-payment for outpatient mental health visit can be considered as too costly for those who do not believe mental health treatment will help them resolve their problems whereas others can consider the same money as worth paying.

The second most frequently reported reason for not receiving treatment was a lack of information on where to receive services. One in five working-age adults with suicidal ideation reported that they did not receive treatment because they did not know where to go. According to Andersen (1995), a regular source of healthcare service is an enabling factor for health service utilization. Unlike physical healthcare services, people are less likely to have a regular source for mental health services unless they have had a mental health diagnosis for which they have been receiving mental health treatment. However, as pointed out earlier, only half of the current sample experienced a major depressive episode in the past year²⁰. Furthermore, based on the scores for the psychological distress, around 60% of the sample scored lower than the cutoff point for serious mental illness, indicating that a considerable number of working-age adults without diagnosable mental health conditions experience suicidal ideation. Therefore, those who were never diagnosed with mental health conditions need more attention in terms of help-seeking

²⁰ It should be noted that other mental health problems, such as psychosis and mania, are associated with suicide but were not measure in the NUDUH.

resources and the importance of provision of information on mental health care services is higher for this group.

The examination of the other frequently reported reasons for not receiving treatment revealed that negative attitudes toward mental health treatment and stigma avoidance are prevalent among working-age adults with suicidal ideation. The belief that problems can be handled without treatment and that treatment would not help as well as concerns about effects on jobs and the opinions of neighbors still exist among those with suicidal ideation, an important risk factor for suicide related behavior. The results indicate the need for a public health approach to increase suicide help-seeking that is designed to increase health literacy about mental health conditions and decrease stigma on mental health treatment among working-age adults with suicidal ideation. For example, the successful implementation of the U.S. Air Force Suicide Prevention Program implied that it is possible and important to change the culture of the community that stigmatizes help-seeking through community wide education and leadership involvement (Knox et al., 2010). Addressing health belief, in addition to accessibility to care, is critical to help someone move from the problem recognition stage to the next stages in the help-seeking pathway.

Limitations

This study has limitations because of its use of cross-sectional data, which means the time precedence between help-seeking and related factors cannot be determined. Help-seeking behavior measured in the current study is not necessarily followed by suicidal ideation. Additionally, NSDUH asks whether the participant received treatment for mental/emotional conditions or drug/alcohol related conditions. Although behavioral

health treatment or other alternative sources of help received among the current sample are highly likely to include mental and emotional conditions related to suicidal ideation, it cannot be guaranteed that the participants sought help for their suicidal ideation. The cross-sectional data also limited the examination of the actual decision process. Longitudinal data would be better to assess how people move through the help-seeking process.

Next, because of the use of secondary data, some of the components related to help-seeking behavior suggested by the original models cannot be tested. These include health belief, health outcomes, and environmental factors suggested by Andersen (2008). In terms of the three-stage model by Cauce et al. (2002), the second stage of the help-seeking pathway is the decision to seek help. This study examined whether help was sought, thus leaving a chance that those who decided to seek help but did not seek any treatment from health professional or help from alternate sources were excluded from the second stage.

Another limitation concerns measuring suicidal ideation, plan, and attempt with single-item self-reported measures. It can limit the reliability of the measures to use a single-item measure versus a standardized multiple-item measure. Another issue is the reliance on self-report. Moreover, other suicide risk factors, such as a history of suicide attempt, and the frequency of suicidal ideation and probability of acting on suicidal plan were not taken into consideration. It is possible that those who endorsed suicidal ideation can vary in their intention and probability of acting on such ideation and plan; the sample can range from one who repeatedly had suicidal ideation with serious intention to act on such suicidal ideation to one who thought of suicide once in the past year.

The model of suicide help-seeking does not take into account intrapersonal processes²¹ involved in the help-seeking pathway, such as the level of motivation and readiness for treatment. The motivation and readiness to change and seek treatment are suggested as important factors in health behavior change especially in the field of addiction treatment (DiClemente, 2005; DiClemente, Schlundt, Gemmell, 2004). By focusing on the behavioral outcomes of the help-seeking pathway, the current model does not capture such intrapersonal factors. Instead, the combined model of suicide help-seeking pathway focuses on factors involved in the individual's decision-making process in a broader context. For example, even though a person is fully motivated and ready to be engaged in treatment, if he or she lacks enabling sources, this person might not be able to receive any help, or end up seeking alternative sources instead of seeking formal help. Studies that can measure intrapersonal aspects of the help-seeking decision-making process would provide opportunities to examine the intrapersonal aspects of help-seeking behavior such as motivation and readiness to change.

Lastly, a question can be raised regarding whether help-seeking is always a positive behavior. In the current model, focus has been placed on the act of the help-seeking behavior itself, rather than the effectiveness of such behavior. Generally, the evidence suggests the effectiveness of mental health treatment in preventing self-harm behavior (Dolgin, 2012; Kasckow et al, 2011; Stanley et al., 2007; Tarrier, et al., 2008). However, evidence is lacking to confirm that help-seeking behavior among working-age adults will result in reduced suicide risk or death among diverse individuals with suicidal ideation. Such lack of confidence is partly related to several reasons. First, evidence-

²¹ Occurring within the individual mind or self

based practice models for suicide prevention have been more focused on school-based settings and young adults (Caine, 2013). Next, it has been pointed out that there is a lack of adequate training among health professionals to work with clients with suicidal ideation (Osteen, Frey, & Ko, 2014; Pisani et al., 2011). One might not benefit from help-seeking if health professionals were not adequately trained to recognize and respond to suicidal risk. Lastly, little is known about diverse pathways of help-seeking among working-age adults. With the broad definition of help-seeking, non-healthcare sources of help were included in the current study as a part of help-seeking sources. However, even less is known about the effectiveness of help-seeking from such non-healthcare sources as family/friends, religious sources, alternative medicine, and self-help groups.

Strengths

Using data from NSDUH, this study examined help-seeking behavior among a nationally representative sample of working-age adults with suicidal ideation. By doing so, knowledge generated from this study is generalizable to the broad category of working-age adults in the general U.S. population. Second, this study was grounded in strong theoretical frameworks to explain factors related to help-seeking (Andersen, 2008) and the decision-making process involved in help-seeking behavior (Cauce et al., 2002). By testing the combined model of suicide help-seeking, the mechanisms of how predisposing, need and enabling factors interact each other to influence help-seeking could be further investigated. Lastly, by limiting the sample to working-age adults, this study contributes to the body of knowledge on suicide help-seeking by expanding understanding of help-seeking behavior among this less-studied and high-risk population.

In addition, by using a large size sample, all analyses were conducted with sufficient statistical power. For SEM analyses, statistical power was determined in relation to sample size, number of indicators, latent variables, and effect size. An online calculator (<http://www.danielsoper.com/statcalc3/calc.aspx?id=89>) was used to determine whether the current sample size had sufficient power (0.95). The result suggested that the current sample size was sufficient to detect a small effect size (.1). The current sample size also meets the criteria for lower bounds on sample size for SEM suggested by Westland (2010, 2012) when the ratio of observations to indicators and latent variables are considered. For a multinomial logistic regression, G*power (Erdfelder, Faul, & Buchner, 1996) was used to conduct a post hoc power analysis. The results indicated that the current sample was sufficient at .99 power to detect a small effect size (OR=1.5) when R^2 for the other predictors was set as .3.

Implications for Social Work Practice and Policy

The risk factors for not seeking help at each stage of the help-seeking pathway can provide a foundation from which future help-seeking interventions for working-age adults with suicidal ideation can be designed and evaluated. Risk factors, such as being of male gender, a younger working-age adult, non-white, and being employed full-time suggest where prevention efforts are needed. Based on the three-stages of help-seeking, the results also indicated where in the help-seeking pathway each risk factor is related to. For example, recently, CDC announced its plan to support research to evaluate suicide prevention programs or policies among middle-aged male (ages 35-64 years), acknowledging that middle-aged adults accounted for the largest proportion of suicides, and that men are at the increased risk for suicide because they are less likely to seek

treatment compared to females (CDC, 2015). The results from the current study imply that help-seeking among middle-aged men can be increased by addressing a lack of problem recognition. Using a public health approach to increase suicide and general mental health literacy, as well as community-based interventions to help men recognize symptoms related to suicide should be considered critical among working-age men.

Contacts with any health professionals should be used as an opportunity for suicide prevention among working-age adults with suicidal ideation. The results indicated that more than half (55%) of the current sample received behavioral health treatment for their emotional or mental illness problems. This may include any treatment received from health professionals including mental health professionals and primary care physicians. It is not known, however, whether suicidal ideation is recognized and adequately treated by the treatment they are receiving from the health professionals. Mental health professionals need to continuously assess suicide risk among their clients and increase their confidence and skills to work with clients with suicidal ideation. In contrast, those with suicidal ideation but without a diagnosis of mental disorders are less likely to be in the mental health care system and to seek help. Suicide prevention efforts should reach this population in order to increase their accessibility to care by improving problem identification, engagement in early intervention, and referral systems for comprehensive assessment and treatment.

With the implementation of Affordable Care Act (ACA), some of the findings related to health insurance in this study may not be applicable, especially with the potential changes to the ACA in the future. As the data were collected before the implementation of ACA, implications will have to be cautiously drawn from the findings

of this study. The results indicated that health insurance was positively related to help-seeking among this group. Therefore, ACA may increase accessibility to care among working-age adults, but this relationship should be confirmed by examining help-seeking behavior among this group after the implementation of ACA. For example, the results from SEM analysis indicated that those with lower education level and those who are not currently married have higher needs but less enabling resources for help-seeking, including health insurance. The attention should be paid how the implementation of ACA helps increase mental health services utilization among these vulnerable populations.

Knowledge about suicide help-seeking behaviors among working-age adults can be used to design and implement workplace-based suicide prevention programs. For this age group, workplaces can be a good place of help-seeking intervention and studies. Prior studies, though limited, support this potential of workplaces as venue of suicide prevention. The U.S. Air Force Suicide Prevention Programs, for example, was implemented, as the solution to the growing concern of the suicide burden in the US Air Force. Studies have shown that this program is effective by significantly decreasing suicide rates in USAF (Knox et al, 2003; Know et al, 2010). In Japan, the implementation of employee assistance programs significantly decreased depression and suicidal thoughts among employees (Nakao, Nishikitani, Shima, & Yano, 2007). In addition, Cross, Matthier, Cerel, and Knox (2007) examined outcomes of gatekeeper training for suicide prevention in the workplace and found positive changes in participants' knowledge about suicide and attitudes (self-efficacy) about intervening with suicidal individuals. All three programs were shown to be effective in decreasing suicidal ideation or suicide behavior, through increased mental health service utilization. Not surprisingly, the National

Strategy on Suicide Prevention (DHHS, 2012) recognized workplaces as potential resources to reach middle-age adults to address growing rates of suicide among this age group. The DHHS also recommended researchers to evaluate the effectiveness of workplace wellness programs in reducing suicide risk, acknowledging their potential as a suicide prevention strategy.

From the employer's perspective, concerns with productivity loss related to untreated suicidal ideation and depression is an important reason for which they may consider implementing help-seeking intervention in workplaces. Recently, studies on health and productivity have contributed to growing awareness among employers with respect to the importance employee's mental health. Mental health conditions are highly prevalent in the labor force, and are associated with substantial lost productivity (Egede, 2007; Frey, Osteen, Berglund, Jinnett, & Ko, 2015; Lerner & Henke, 2008). Therefore, it should be considered an important human resource management strategy to increase help-seeking among employees with mental health needs and suicidal ideation.

Implication for Theory Development

The results from this dissertation demonstrated the potential of the combined model of suicide help-seeking as a framework to examine help-seeking behaviors among working-age adults. Components from the three-stage model (Cauce et al., 2002) extended the focus of the outcome beyond merely receipt of mental health treatment services to three critical points in the help-seeking pathway. Results from the study suggest that considering help-seeking as a pathway and continuous decision-making process can broaden one's understanding of the complexity of help-seeking behavior. However, future theory development efforts should also consider aspects of the help-

seeking process are included within this framework. For example, help-seeking intention is not taken into account in the model. The importance of behavioral intention is supported by the theory of planned behavior (Godin & Kok, 1996). Based on the theory, behavioral intentions are “indicators of how hard people are willing try, of how much of an effort they are planning to exert, in order to perform the behavior” (Ajzen, 1991, p. 181), and are influenced by attitudes toward the behavior, subjective norms and perceived control over behavior (Ajzen 1991; Fishbein & Ajzen, 1975). The key assumption of this theory is that behavior is most accurately determined by behavioral intention. Future studies can include intention to seek help as another critical point in the decision making process between problem recognition and decision to seek help.

Using longitudinal data can provide a better opportunity for the validation of the combined model of suicide help-seeking. This model assumes time precedence in the help-seeking pathway: People can move to the second stage of the help-seeking pathway (decision to seek help) only after the problem was recognized. In the current study, the help-seeking pathway was measured as the help-seeking groups divided by where in the help-seeking pathway the person is placed. In addition, it was also assumed in the combined model that outcome of the help-seeking will in turn affect the help-seeking process. In the current study, such longitudinal outcomes of the help-seeking behavior could not be tested also because of the limitations of cross-sectional data.

The combined model of suicide help-seeking adapted the components of the Andersen (2008) model. However, only the individual level factors were included in the current model because of the limitations with the secondary data analysis. It should be noted that the environmental factors were also considered critical in the Andersen (2008)

model. Expanding the investigation of the help-seeking in consideration of such environmental level factors will improve the combined model of suicide help-seeking as a more comprehensive framework to understand the complexity of help-seeking behavior.

It should be noted that the three stage model (Cauce et al., 2002) was originally developed for adolescents. Future studies on the combined model of suicide help-seeking should consider possible differences between target populations, if the model is adapted for different age groups. Lastly, although the initial test of the model yielded a reasonable model fit among working-age adults in the current study, the fit indices values were lower than guidelines in the literature and errors estimates were high in the measurement models. The future theory development studies should examine possible sources of model misfit to strengthen the model.

Implications for Research

Future studies should examine the role of suicidal ideation in the help-seeking pathway. The current study limited the sample to those who have suicidal ideation in order to examine the help-seeking behavior pathway within working-age adults with suicidal ideation. Using the results from this study as a foundation, future research should examine how suicidal ideation plays a role in the help-seeking decision making process, by comparing results to a comparison group without suicidal ideation, but with the same level of mental health needs and other risk factors. Prior studies imply that help-seeking behavior can change with the presence of suicidal ideation. For example, studies of youth with suicidal ideation found that suicide thoughts and feelings may act as barriers to mental health service utilization (Barnes et al., 2001; Wilson et al., 2005). It is also

possible that suicidal ideation changes the degree or mechanisms of how related factors influence help-seeking behavior. To better understand where suicide prevention efforts should be targeted, the role of suicidal ideation should be examined among working-age adults by comparing them to a carefully selected control or matched sample group, using case control design or a matched longitudinal/ prospective design.

Future studies also should consider examining the role of the work environment and workplace in supporting suicide help-seeking among working-age adults. Results from the current study indicated that full-time employees were less likely to seek help. However, little is known about how employment status negatively affects help-seeking behavior and whether work characteristics and environment can change such a negative relationship between employment status and suicide help-seeking. One might consider his or her as mentally healthy or strong just because he or she is still working. This idea can delay problem recognition and help-seeking. Based on the prior findings, being unemployed or working under adverse conditions can increase depression and suicidal ideation (Woo & Postolache, 2008). Future studies should examine how these working conditions affect help-seeking behavior in relation to the increased suicide risk.

Conclusion

This dissertation examined help-seeking behavior among working-age adults with suicidal ideation based on the combined model of suicide help-seeking. Findings generally suggest that the model fits reasonably well among the current sample. Male gender, younger age, being non-white, being employed full-time, lower levels of mental health need, and not having health insurance were factors associated with not seeking

help. A burden of treatment cost, not knowing where to look for services, and negative attitudes toward treatment were some of reasons people gave as to why they did not seek the treatment after recognizing a need for help. The results from the current study can guide where suicide prevention efforts should be targeted in order to increase help-seeking among working-age adults with suicidal ideation. Future studies should investigate mechanisms of how these factors act as barriers to help-seeking behaviors and how suicidal ideation plays a role in the help-seeking pathway.

Appendix A: Summary of the Reviewed Studies²²

IV	DV 1. Recognized need		DV 2. Received any help		DV 3: Types of Sources	
	Not Significant	Significant	Not significant	Significant	Not significant	Significant
<u><i>Need factors</i></u>						
Any mental illness (Psychological distress)				S04 (OR=2.98 for 1s, 3.3 for 2s ²³) S05 (OR= 3.03) for SI and 5.88 for SA, ref ²⁴ = no PD)	S08 (PTSD)	
Depression				S01 (Depression and anxiety), measured by CIDI (OR=5.63) S06 (OR for any mood disorder=1.8) S05 (OR= .3.45 for SI, 4.35 for SA, ref= no MDE)	S06 (Any mood disorder)	S04 (OR=1.75 for GP) S08 (OR for MDD=1.3)
Anxiety				S01 (Depression and anxiety), measured by CIDI (OR=5.63)	S08 (GAD, other types of anxiety disorders) S06	S08 (OR for Panic disorder=1.4)

²² S01: Brook et al. (2006), S02: Cedereke and Ojehagen (2007), S03: Chu et al. (2011), S04: Milner & De Leo (2010), S05: Ahmedani et al. (2011), S06: Bruffaerts et al. (2011), S07: Chartrand et al. (2012), S08: Encrenaz et al. (2012), S09: Stringer et al. (2013), S10: Pirkis et al. (2001)

²³ 1s: those who received treatment from one sources, 2s: those who received treatment from more than two sources.

²⁴ Ref: reference category

				S06 (OR =1.9)		
Impulse			S06		S06	
Alcohol & Drug			S01 S05 S06		S08 (Alcohol) S06 (Any substance)	S08 (OR for other SAD=1.5)
Past contact with MH				S04 (OR=4.4 for 1s, 9.31 for 2s, ref: no-contact) S06 (OR=6.2, ref=no contact)	S06 (MH, GMC)	S04 (OR= 2.70-3.18) S06 (OR=2.4 for non-healthcare)
Physical illness (Overall health)			S04 (for 1s)	S04 (OR=2.07 for 2s) S05 (OR for very good= 1.47, OR for good= 1.82, OR for fair or poor= 3.12, Ref=Excellent)	S04 (Hospital, MH, HL)	S04 (OR=2.46 for GP)
Suicidal ideation	S03 (for Asians) S09 (when depression and anxiety were controlled)	S03 (OR for Latino=1.53, Ref=MD without suicide) S10 (OR=1.96 -2.92) S09 (OR=1.55 -5.81)	S03 (For Asians)	S03 (OR for Latinos =1.48, Ref=MD without suicide)	S07 (For all services)	

Suicide attempts		S03 (OR= 1.94 for Asians, 3.04 for Latinos, Ref=MD without suicide)	S04 (for 2s)	S03 (OR=2.18 for Asians, 7.62 for Latinos, Ref=MD without suicide) N of attempts: S04 (OR for 2-3 times=2.72 (one source), (ref=once) S06 (OR for unplanned attempt =2.7, OR for planned attempt=2.1, Ref=SI only)	S06 S04 (number of attempts) S07 Professional, hospitalization, emergency, medication, any treatment	S08 (OR=2.3, ref: SI only) S07 Hospitalization (OR=4.46, Ref=MD without SI)
Suicide plan			S04 S06		S06 S04 (Hospital, GP, TL)	S04 (OR=1.62 for MH) S08 (OR=1.6, Ref=SI only)
Suicide intent (very serious, serious, cry for help)			S04 (Those who attempted suicide)		S04 (GP, MH)	S04 (OR=2.97 for hospital, .38 for telephone, Most serious, Ref=cry for help)
Suicidal ideation communicated				S04 (OR for 1s=2.55, 2s=4.95)		S04 (OR=2.31-3.17) for all types of treatment) S08 (Talked to a relative or friend, OR=7.5)

Suicide attempts methods			S04		S04 (Other methods)	S04 : Hanging (OR=.43 for hospital, : Drugs (OR=2.44 for hospital and 4.02 for MH)
Time point after suicide attempt					S02 (The proportion of formal help did not change significantly in any areas)	S02 (The proportion of informal help decreased from one to 12 months in psychological distress and in company)
<u>Predisposing</u>						
Age	S03		S03 S04 S06	S01 (OR for <25= . 23, Ref =35-50), S05 (OR for 26-43= 2.13, OR for >35= 2.38, Ref=.18-25)	S04 S06 (MH, Non-healthcare)	S06 (GMC: OR=1.3, Con) S08 (OR for 31-45=1.3, 46-60=2.1, 61-100=1.7, Ref=18-30)
Race				S01 (Hispanic=0.11, Ref=White) S4 (Different OR among AA and Hispanic) S05 (OR for SI: Black=.51, Hispanic=.47, Asian or PI=.14; OR for SA: Black=.23, Hispanic=.38), Asian or PI=.13)	S03 (Religious/spiritual advisor, other healers, nonprofessional sources, medical professionals)	S03 (Chi-square test, p<.05): AA with SI and SA were less likely than Latinos to seek help from MH professionals, psychotherapy, medications)

Gender		S03 (OR=1.75 for women)	S01 S03 S04 (for 1s) S06	S04 (Male: OR=.41 for 2s) S05 (Male, OR=.64 for SI, OR=.68 for SA)	S06 (MH, GMC) S04 (GP,TL)	S04 (OR for men = .54 for hospital and .51 for mental health professional) S06 Non-HC: OR=1.9 for female) S08 (OR for Women =1.3)
Marital/relationship			S01 S04 (for 2s)	S04 (Separated: OR=2.52 for 1s, Ref=never married), S06 (Never married: OR=0.7, Ref=Married) S05 (OR for NM=.71 for SI, OR for PM=.3.45 for SA, Ref= married)	S08 S04 (Hospital, MH, TL)	S04 (Married: OR=1.86, Ref= NR, for general practitioner) S06 (MH: OR for NM=1.9, Ref=married, GMC: OR for NM=0.4)
Employment status			S04 S06		S04 S08 S06 (GMC, Non- HC)	S06 NH (OR= 1.8 for other, Ref=working)
Education	S03		S03 S04 S05	S01 (OR for college =.38, Ref=high school), S06 (OR=1.2)	S04 S08 S06 (Non-HC)	S06 MH (OR=1.2, con), GMC (OR=0.8, con)
Enabling						

Income				S06 (OR=1.1, con)	S06 GMC	S06 MH(OR=1.2, con), Non- HC(OR=0.8)
Health insurance			S01	S05 (OR=.67(1.49) for SI and .50(2.0) for SA, Ref= no health insurance)		
Level of social support					S08	
Worries regarding legal status	S03		S03			
English		S03 (OR=1.48)		S03 (OR=1.48 , ref =not fluent)		

Appendix B: Definitions of Help-seeking across the Reviewed Studies

Study	Brook et al.	Chu et al.	Milner & De Leo	Ahmedani et al.	Bruffaerts et al.
Terms for Help-seeking	Active Treatment	Help-seeking Behavior	Seeking Treatment	Psychiatric Treatment Utilization	Treatment
Hospitalization for alcohol or drug (AD)	o	o	o	o	o
Hospitalization for mental health (MH)	o	o	o	o	o
Residential care for AD	o	o	o	o	o
Residential care for MH	o	o	o	o	o
Psychotropic medication	o (Daily)	o	o	o	o
Outpatient visit to mental health specialty	o	o	o	o	o
Medical professional (General medical practitioners, nurses, occupational therapists)	o (Psychiatric treatment)	o	o		o
Religious/spiritual advisor, Alternative medicine		o			o
Telephone (Hotline)		o (Non-professional)	o		
Non-professional help (Online support groups, Self-help groups)		o			

Appendix C: Categories of the Sources of Help

Study	Comparison	Services
Cedereke & Ojehagen (2007)	Formal vs. Informal	Informal: level of support from friends or family, Formal: Services
Milner & De Leo (2010)	Four types of treatment	Hospital, General practitioner , MH professional, and Telephone hotline
Chu et al. (2011)	Multiple categories	Hospital admission, Nonprofessional help (Online support group, self-help group, and hotlines), Mental health professionals, Medical professionals, Religious/spiritual advisor or other healers, Psychotherapy, and Medication treatment.
Bruffaerts et al. (2011)	Mental health, General medical, Non-healthcare	Mental Health: Psychiatrists, Psychologists, General medical: GPs, Occupational therapists, Non-healthcare professionals: Religious counsellors, Traditional healers, Alternative medicine practitioners
Chartrand et al.(2012)	Four types of treatment	(For Mental health problems) (1) Visit counselor, therapist, doctor, psychologist (2) Inpatient, (3) Emergency room visit, (4) Medications
Encrenaz et al. (2012)	Health professional vs. Other sources	Health professional vs. Friends or relatives/ Organizations/ Helpline or some other person

Appendix D: Syntax for the Weight Variables

Source: Personal communication (Bose, J., Personal communication, February 23, 2014)

SAMPLE SYNTAX

Using an individual year of data, example code is shown below to indicate how to calculate the proportions, standard errors (SE) and confidence intervals of the risk of smoking one or more packs of cigarettes per day using by gender. The risk of smoking one or more packs of cigarettes per day is determined using the categorical variable, RSKPKCIG () and gender is determined using the categorical variable. IRSEX. RSKPKCIG is coded as 1 to 4 for no risk, slight risk, moderate risk and great risk for valid values and as system missing for invalid values. . Each program code given below of software packages specifies the variance estimation variables for appropriate calculation of the variance of means/proportions by Taylor linearization method. This specification of variance estimation variables explicit to software packages is standard and can be used for any procedures or methods of that software package. Stata and SAS directly provide the estimate of the means/proportions of a categorical variable. But SUDAAN's DESCRIPT procedure and SPSS's CSDESCRIPTIVES method calculate the mean/proportion of a dummy variable. For this reason four dummy variables (rsk1, rsk2, rsk3, and rsk4) were created for RSKPKCIG variable.

The SPSS specific code for the same analysis is:

```
Get file='path\nsduh2011.sav'.
```

```
CSPLAN ANALYSIS
```

```
  /PLAN FILE='folder-path\nsduh_stage1.csplan'
```

```
  /PLANVARS ANALYSISWEIGHT= analwt_c
```

```
  /DESIGN STRATA= vestr CLUSTER= verep
```

```
  /ESTIMATOR TYPE = WR.
```

```
CSDESCRIPTIVES
```

```
  /PLAN FILE= 'folder-path\nsduh_stage1.csplan'
```

```
  /SUMMARY VARIABLES= rsk1 rsk2 rsk3 rsk4
```

```
  /SUBPOP TABLE= irsex DISPLAY=LAYERED
```

```
  /MEAN
```

```
  /STATISTICS SE CIN(95)
```

```
  /MISSING SCOPE=ANALYSIS CLASSMISSING=EXCLUDE.
```

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

NOT HUMAN RESEARCH DETERMINATION

Date: April 24, 2013

To: Donna Harrington
RE: HP-00055608

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.

Appendix F: Correlation Analyses Results

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<u>Predisposing</u>																
1. Age																
2. Gender																
3. Race																
4. Marriage																
5. Education																
6. Employed																
<u>Need</u>																
7. Suicide																
8. Past MDE																
9. K6																
10. WHODAs																
11. Alcohol/drug																
12. Health																
<u>Enabling</u>																
13. f.Income ^a																
14. r. income ^b																
15. Insurance																
16. County																
<u>Help-seeking</u>																
17. Stage																

Note. ^a Family income, ^b Respondent's income. Mplus does not provide p values for slopes and correlation.

Appendix G: Multinomial Logistic Regression Models

Table G-1. Multinomial Regression Model: Help-seeking Group 1 as a Reference

			Model 1			Model 2			Model 3		
			OR	CI (L)	CI (H)	OR	CI (L)	CI (H)	OR	CI (L)	CI (H)
Age	2	26-34	3.12**	1.41	6.89	2.60*	1.05	6.46	2.44	.99	6.02
		(ref. 50-64)	2.34	.79	6.93	1.69	.51	5.60	1.68	.54	5.29
	3	26-34	.90	.34	2.41	.72	.26	1.99	.69	.24	1.95
		35-49	1.30	.50	3.41	1.15	.45	2.94	1.25	.49	3.15
	4	26-34	.238	.73	.44	.55	.28	1.06	.61	.32	1.15
		35-49	.618	1.13	.70	.85	.46	1.56	.94	.51	1.74
Men	2	Yes	.55	.29	1.06	.46*	.24	.90	.43*	.22	.86
	3	Yes	.38**	.21	.68	.33**	.17	.63	.32**	.17	.62
	4	Yes	.51**	.35	.74	.52**	.34	.79	.50**	.32	.78
White	2	Yes	2.80**	1.34	5.84	2.32*	1.04	5.19	2.44*	1.03	5.78
	3	Yes	1.23	.58	2.63	1.07	.52	2.23	1.07	0.44	2.58
	4	Yes	2.40***	1.69	3.42	2.25***	1.49	3.41	2.22**	1.41	3.49
Married	2	Prev. ^a	.66	.35	1.23	.99	.50	1.97	.82	.40	1.67
		(ref: Never	Cur. ^b	.75	.36	1.55	1.00	.45	2.21	.96	.44
	3	Prev.	.74	.32	1.69	.86	.35	2.09	.71	.28	1.78
		Cur.	.89	.33	2.39	.96	.33	2.75	.90	.31	2.58
	4	Prev.	.88	.58	1.33	1.25	.78	2.00	1.01	.62	1.64
		Cur.	1.08	.65	1.81	1.19	.66	2.12	1.13	.62	2.04
Education	2		1.07	.96	1.20	1.12	.97	1.29	1.06	.90	1.24
	3		1.22*	1.04	1.43	1.23*	1.02	1.49	1.21	.99	1.47
	4		1.16**	1.07	1.26	1.21**	1.08	1.37	1.15*	1.03	1.29
Employed	2	Full. ^c	.60	.35	1.03	1.24	.68	2.27	1.07	.60	1.92
		(ref: Not	Part. ^d	.37*	.15	.90	.62	.24	1.59	.59	.23
	3	Full.	.94	.45	1.97	1.22	.59	2.55	1.12	.54	2.33
		Part.	.94	.30	2.96	1.10	.39	3.09	1.12	.41	3.08
	4	Full.	.29***	.22	.40	.70	.45	1.08	.60*	.38	.96
		Part.	.30**	.16	.59	.62	.31	1.24	.62	.31	1.26
Plan	2	Yes				1.94*	1.01	3.72	1.96	1.00	3.85
	3	Yes				.81	.30	2.15	.80	.30	2.16
	4	Yes				1.75*	1.05	2.92	1.77*	1.04	3.02
Attempt	2	Yes				.51	.15	1.72	.54	.16	1.74
	3	Yes				.87	.19	3.97	.89	.19	4.09
	4	Yes				1.15	.52	2.53	1.22	.56	2.67

Past MDE	2	Yes	2.52**	1.28	4.97	2.45**	1.28	4.68
	3	Yes	1.78	.98	3.21	1.85*	1.01	3.37
	4	Yes	1.95**	1.21	3.14	1.92**	1.19	3.09
K6	2		1.11**	1.04	1.18	1.10**	1.04	1.18
	3		1.04	.98	1.11	1.04	.98	1.11
	4		1.09***	1.05	1.13	1.09***	1.05	1.13
WHODAS	2		1.04	.98	1.10	1.05	.99	1.11
	3		1.01	.96	1.07	1.01	.96	1.07
	4		1.11***	1.07	1.16	1.11***	1.07	1.16
Alcohol	2	Yes	2.20*	1.08	4.50	2.05	.99	4.24
	3	Yes	1.73	.65	4.59	1.90	.71	5.10
	4	Yes	1.38	.83	2.30	1.47	.85	2.53
Drug	2	Yes	.77	.32	1.85	.85	.35	2.09
	3	Yes	2.00	.78	5.17	2.22	.88	5.61
	4	Yes	1.62	.80	3.26	1.78	.90	3.50
Health	2	Yes	.99	.73	1.33	.97	.74	1.28
	3	Yes	1.04	.79	1.36	1.02	.78	1.34
	4	Yes	.99	.78	1.24	.95	.74	1.21
Income (Family)	2					1.19	.99	1.44
	3					1.08	.90	1.29
	4					1.09	.96	1.24
Insurance	2	Yes				.72	.44	1.20
	3	Yes				1.29	.62	2.70
	4	Yes				2.08**	1.34	3.23
Metro area	2	Large				1.70	.72	4.00
(Ref. Non		Small				1.45	.67	3.17
Metro)	3	Large				.81	.28	2.30
		Small				.57	.22	1.52
	4	Large				.92	.52	1.62
		Small				1.05	.59	1.88
Correct Classification Rate			57.8		65.4		65.5	
Nagelkerke Pseudo R ²			.176		.381		.406	

Note. a. Previously married b. Currently married c. Full-time d. Part-time

*p < .5, **p < .01, *** p < .001

Table G-2. Multinomial Regression Model: Help-seeking Group 2 as a Reference

			<u>Model 1</u>			<u>Model 2</u>			<u>Model 3</u>		
Stage			OR	CI (L)	CI (H)	OR	CI (L)	CI (H)	OR	CI (L)	CI (H)
Age	3	26-34	.29**	.12	.70	.28**	.11	.70	.28*	.11	.73
(ref. 50-64)		35-49	.56	.19	1.62	.68	.22	2.09	.74	.25	2.21
	4	26-34	.24***	.11	.49	.21***	.10	.46	.25**	.12	.54
		35-49	.48	.18	1.30	.50	.18	1.38	.56	.22	1.43
Men	3	Yes	.68	.34	1.37	.71	.34	1.49	.74	.35	1.55
	4	Yes	.92	.49	1.72	1.13	.63	2.03	1.15	.63	2.11
White	3	Yes	.44*	.20	.95	.46	.21	1.00	.44	.18	1.04
	4	Yes	.86	.47	1.58	.97	.49	1.92	.91	.44	1.86
Married	3	Prev. ^a	1.12	.54	2.35	.87	.38	1.98	.86	.37	2.00
(ref: Never		Cur. ^b	1.20	.40	3.55	.96	.31	2.93	.93	.31	2.80
Married)	4	Prev.	1.33	.76	2.33	1.26	.69	2.31	1.23	.68	2.24
		Cur.	1.45	.75	2.78	1.19	.61	2.31	1.17	.62	2.23
Education	3		1.14	.95	1.35	1.10	.91	1.34	1.14	.90	1.45
	4		1.08	.96	1.22	1.08	.95	1.24	1.09	.93	1.29
Employed	3	Full. ^c	1.57	.66	3.69	.98	.42	2.32	1.04	.44	2.46
(ref: Not		Part. ^d	2.52	.65	9.75	1.77	.51	6.10	1.90	.55	6.49
Employed)	4	Full.	.48**	.30	.79	.56*	.32	.98	.56*	.33	.95
		Part.	.82	.36	1.86	1.00	.40	2.51	1.05	.42	2.65
Plan	3	Yes				.42	.13	1.29	.41	.13	1.31
	4	Yes				.91	.50	1.64	.90	.49	1.67
Attempt	3	Yes				1.69	.29	9.83	1.67	.28	9.98
	4	Yes				2.24	.76	6.63	2.29	.79	6.60
Past MDE	3	Yes				.71	.31	1.63	.75	.33	1.73
	4	Yes				.78	.39	1.53	.78	.41	1.50
K6	3					.94*	.89	.99	.94*	.89	.99
	4					.98	.93	1.04	.98	.93	1.05
WHODAS	3					.97	.92	1.03	.97	.92	1.02
	4					1.07*	1.01	1.13	1.06*	1.01	1.12

Alcohol	3	Yes		.79	.26	2.37	.93	.30	2.85
	4	Yes		.63	.37	1.08	.72	.42	1.23
Drug	3	Yes		2.61	.85	8.01	2.61	.83	8.22
	4	Yes		2.11	.87	5.12	2.09	.85	5.12
Health	3	Yes		1.05	.79	1.41	1.05	.78	1.40
	4	Yes		1.00	.80	1.25	.97	.78	1.21
Income	3						.90	.74	1.10
	4						.92	.78	1.08
Insurance	3	Yes					1.79	.85	3.76
	4	Yes					2.87***	1.80	4.59
Metro area	3	Large.					.48	.15	1.51
(Ref. Non		Small.					.39	.12	1.29
Metro)	4	Large.					.54	.24	1.20
		Small.					.72	.36	1.45
Correct Classification Rate			57.8		65.4			65.5	
Nagelkerke Pseudo R square			.176		.381			.406	

Note. The odds ratios for the first stage were not presented as in this table: See Table 10.
a. Previously married b. Currently married c. Full-time d. Part-time

*p <.5, **p < .01, *** p<.001

Table G-3. Multinomial Regression Model: Help-seeking Group 3 as a Reference

Stage			Model 1			Model 2			Model 3		
			OR	CI (L)	CI (H)	OR	CI (L)	CI (H)	OR	CI (L)	CI (H)
Age	4	26-34	.82	.37	1.82	.76	.33	1.77	.89	.39	2.02
(ref. 50-64)		35-49	.87	.34	2.21	.73	.29	1.85	.75	.31	1.86
Men	4	Yes	1.35	.74	2.46	1.60	.83	3.07	1.56	.81	3.01
White	4	Yes	1.95*	1.04	3.65	2.10*	1.15	3.85	2.08*	1.00	4.32
Married	4	Prev. ^a	1.19	.59	2.41	1.45	.67	3.14	1.42	.64	3.19
(ref: No)		Cur. ^b	1.21	.51	2.87	1.24	.50	3.09	1.26	.50	3.15
Education	4		.95	.82	1.11	.98	.84	1.15	.96	.80	1.14
Employed	4	Full. ^c	.31**	.15	.64	.57	.28	1.16	.54	.26	1.11
(ref: No)		Part. ^d	.32*	.12	.86	.56	.23	1.37	.55	.24	1.30
Plan	4	Yes				2.17	.76	6.23	2.22	.75	6.59
Attempt	4	Yes				1.33	.32	5.52	1.37	.31	6.01
Past MDE	4	Yes				1.10	.56	2.17	1.04	.51	2.11
K6	4					1.05	.98	1.12	1.05	.98	1.12
WHODAS	4					1.10***	1.05	1.15	1.10***	1.05	1.16
Alcohol	4	Yes				.80	.33	1.97	.77	.31	1.93
Drug	4	Yes				.81	.33	1.98	.80	.33	1.93
Health	4	Yes				.95	.73	1.24	.93	.70	1.23
Income	4								1.02	.85	1.22
Insurance	4	Yes							1.61	.77	3.36
Metro area	4	Large							1.13	.40	3.24
(Ref. No)		Small							1.84	.75	4.53
Correct Classification Rate				57.8			65.4			65.5	
Nagelkerke Pseudo R square				.176			.381			.406	

Note. The odds ratios for the first and second stage were not presented as in this table: See Table 10. a. Previously married b. Currently married c. Full-time d. Part-time. *p <.5, **p < .01, *** p<.001

Appendix H: Measurement Models

Need Factor. The single factor model yielded a reasonable fit. Table G-1 summarizes the model fit of the need factor. The chi-square value was significant ($\chi^2=34.760$, $df=9$, $p<.001$), indicating that the model does not fit the data well; however, this can be a function of a large sample size (Kline, 2011). The CFI (.914) and TLI (.909) values suggested a reasonable fit but lower than the cutoff point of .95 for CFI and TLI for an acceptable fit (Hu & Bentler, 1999; Kline, 2011). The RMSEA (.045) value was lower than the cutoff of .06 for reasonable errors approximation (Hu & Bentler, 1999), indicating a good fit of the model. All factor loadings were significant and in the expected direction, as presented in Table G-2. Figure G-1 presents the initial need factor model with the fully standardized loadings.

Respecified Need Factor. Modification indices (MI) were examined to determine misspecified parameters in the need factor model. Based on the assessment of the MI values, covariance between two indicators (WHODAS with MDE, MI= 20.747, Expected Parameter Change = -2.385) was considered for respecification as a freely estimated parameter. A decision was made to respecify the model with a correlated error term between WHODAS and MDE considering possible correlation between reporting symptoms for a major depressive episode in the past year and reporting the level of function in diverse domains (cognition, mobility, self-care, life activities, and participating social activities) assessed by WHODAS.

The respecified need factor model with a correlated error yielded a very good fit. The chi-square test was still significant but the value was decreased to 14.671 ($df= 8$, $p<.001$). Other fit indices (CFI=.986, TLI= .974, RMSEA=.024) indicated an excellent fit

of the need factor model with a correlated error term. Figure G-2 illustrates the one-factor model with a correlated error term with the fully standardized loadings.

Table H-1

Fit statistics values for the CFA models

	Need	Need 2	Enabling
chi -square	34.730	14.671	1.367
<i>df</i>	9	8	2
<i>p</i>	<.001	.066	.505
RMSEA	.045	.024	<.001
CFI	.946	.986	1.000
TLI	.909	.974	1.001
WRMR	.944	.616	.219

Table H-2

Factor Loadings for the Need CFA models

Items		Need 1	Need 2
Suicide	Estimate	1.000	1.000
	SE	.000	.000
	Standardized	.310	.331
	<i>p</i>	<.001	<.001
MDE	Estimate	-2.415	-1.845
	SE	.389	.281
	Standardized	-.749	-.610
	<i>p</i>	<.001	<.001
K6	Estimate	14.143	14.915
	SE	2.525	2.695
	Standardized	.725	.814
	<i>p</i>	<.001	<.001
WHODAS	Estimate	16.853	12.827
	SE	1.162	2.374
	Standardized	.715	.583
	<i>p</i>	<.001	<.001
Alcohol/Drug	Estimate	-.474	-.484
	SE	.158	.154
	Standardized	-.147	.160
	<i>p</i>	.003	.002
Overall health	Estimate	-1.762	-1.769
	SE	.158	.280
	Standardized	-.456	.489
	<i>p</i>	<.001	<.001
MDE with WHODAS	Estimate		-1.958
	SE		.280
	Standardized		-.417
	<i>P</i>		<.001

Note. Suicide: 0. Suicidal ideation only, 1: suicide plan but no attempt, 2: suicide attempt; MDE (Past year major depressive episode) 1. Yes, 2. No; K6: higher score indicates higher distress; higher score indicates higher impairment; Overall health: higher score indicates better health.

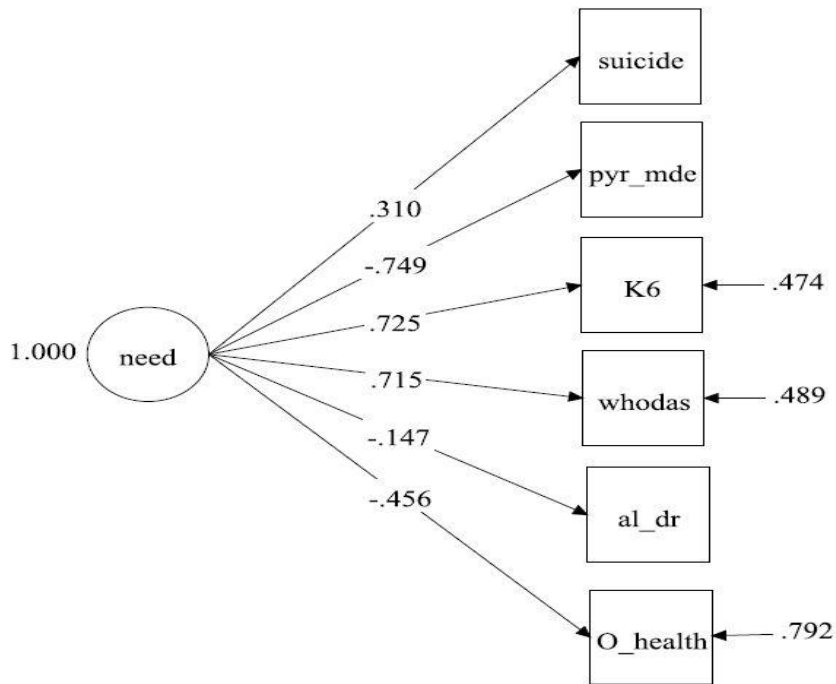


Figure H-1. Confirmatory factor analysis of need factor model (fully standardized solution)

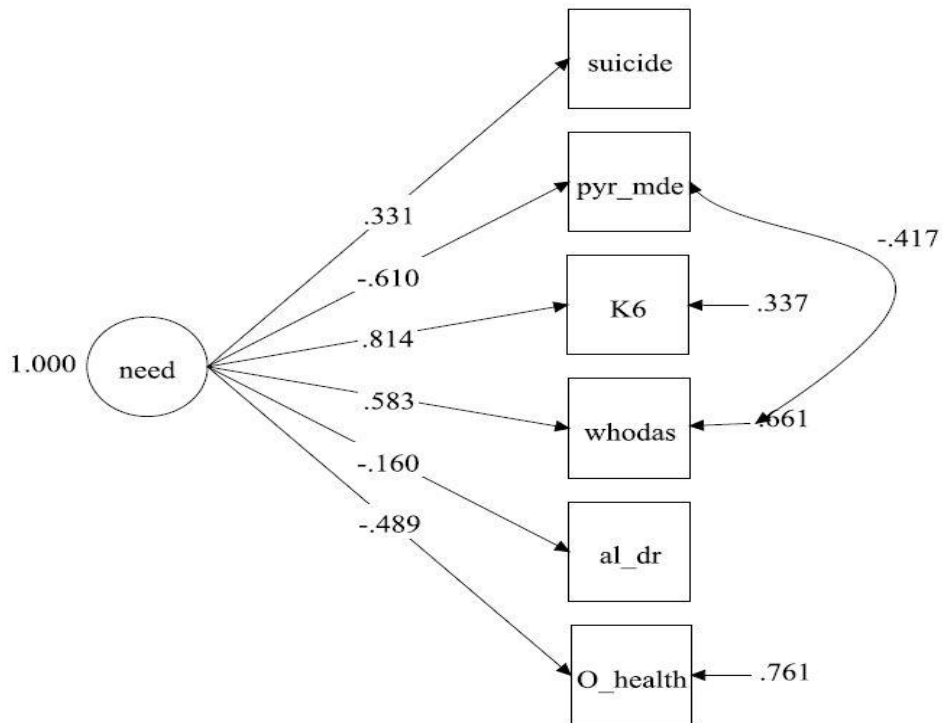


Figure H-2. Confirmatory factor analysis of need factor model with a correlated error term (Fully standardized solution)

Enabling Factor. The enabling factor model yielded a good fit. All of the model fit values suggested an excellent fit of the enabling factor as presented in Table G-3. The chi-square value was not significant ($\chi^2= 1.367$, $df =2$, $p= .505$), indicating that the model fits the data. The CFI (.1.000) and TLI (1.001) values also suggested a great fit. Both RMSEA (<.001) and WRMR (.219) indicated a reasonable error approximation. All factor loadings were significant and in the expected direction, as presented in Table G-3. Figure G-3 presents the enabling factor model with the standardized STDYX loadings.

Table H-3
Factor Loadings for the Enabling CFA model

Items		Enabling
Family Income	Estimate	1.000
	SE	.000
	Standardized	.850
	<i>P</i>	<.001
Respondent Income	Estimate	1.127
	SE	.121
	Standardized	.958
	<i>P</i>	<.001
Health insurance	Estimate	-.538
	SE	.053
	Standardized	-.457
	<i>P</i>	<.001
Metro area	Estimate	-.282
	SE	.058
	Standardized	-.239
	<i>P</i>	<.001

Note. Family income, Respondent income: higher score indicates higher income; Health insurance: 1. Being insured by any health insurance, 2. Not insured; Metro area: 1. Large or small metro area, 2: Non-metro area

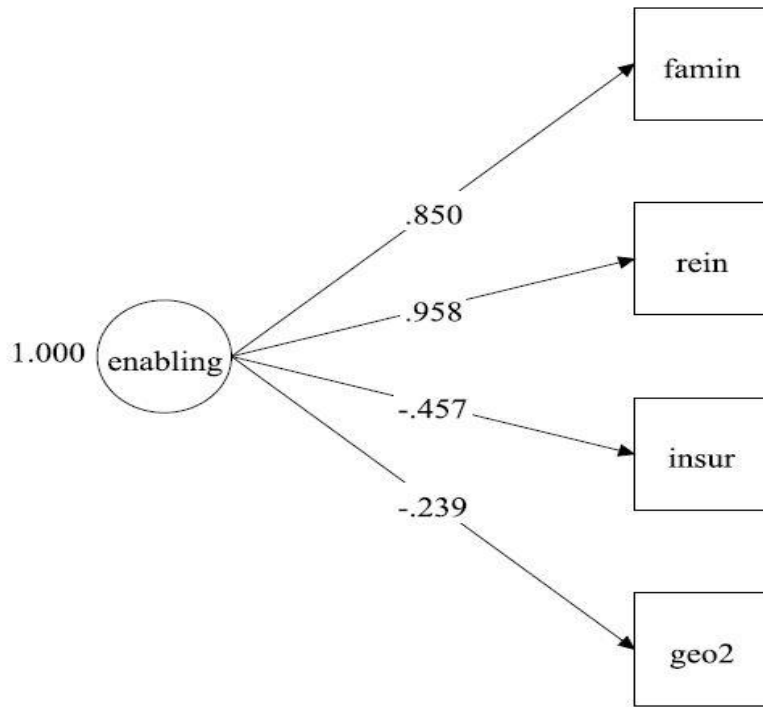


Figure H-3. Confirmatory factor analysis of the enabling factor model (fully standardized model)

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