IMPROVING COLLEGE STUDENTS' MENTAL HELP-SEEKING: FROM CROSS-SECTIONAL EVIDENCE TO A LONGITUDINAL INTERVENTION

A Dissertation

by

QIWEI WU

Submitted to the Graduate and Professional School of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Chair of Committee,	Richard L. Street, Jr.
Committee Members,	Lu Tang
	Jennifer Lueck
	Oi-Man Kwok
Head of Department,	Hart Blanton

August 2021

Major Subject: Communication

ABSTRACT

Making prompt contact with a health professional after the first onset of mental distress is critical for receiving appropriate treatment. However, most people with mental disorders have a six to 23 years' delay to seek treatment. This dissertation reports results of three studies aimed at increasing college students' intention to seek mental help. Study 1 explored the risk factors preventing individuals from seeking medical help. Based on social cognitive theory, this study analyzed the 2019 Health Information National Trends Survey (HINTS) using logistic regression models. It shows that those who are younger, male, having mental issues, low social support, experiencing poor health care, and seeking health-related information online are at risk for not seeking care. These factors also apply to the people who had more than a moderate level of mental distress.

Indeed, mental illness has been more dangerous for young adults, as they experience more severe symptoms and low help-seeking intentions. Previous research has explored the reasons for the low intentions but overlooked the influences of communicative environments, such as communication with family, clinicians, and social media. Based on the theory of planned behavior, Study 2 explores how different communicative environments affect college students' mental help-seeking intentions using a cross-sectional survey of 428 student participants. Results showed that 71 (51.8%) of the 137 students with signs of mental distress did not intend to seek help. Students' patient-centered communication experiences with health care providers

directly affected their intentions to seek help, whereas online and family communication influenced their help-seeking intentions through changes in attitude, self-stigma, and self-efficacy.

While no intervention to date has practically improved young people's mental health during COVID-19, Study 3 may be the first that evaluates the effectiveness of a theory-based self-persuasion intervention on increasing college students' intention to seek mental help during the pandemic. Using a 3-arm randomized controlled design, this study used two tasks of different intensity (i.e., YouTube and the Facebook tasks) to persuade students who have mental distress to seek professional help. The results showed that the intervention significantly increased students' help-seeking intention, attitude, and efficacy at different time points. It also reduced mental help-seeking-related stigma after the first task.

Several conclusions can be drawn from the dissertation. First, a constellation of environmental contexts (e.g., clinical, social support, social media), along with personal factors (e.g., mental status), shaped people's intention to use health care services. Within these context, patient-centered communication and quality of care played an important role in patients' health-related help-seeking behavior. Especially for patients with mental distress, providers' communication can improve their access to mental help, increase their knowledge on how to navigate the mental counseling system, and reduce stigma of mental illness created by mass media and society, which may motivate patients to seek help when they need it. Second, while previous research attributed college students' intention to seek mental help to their personal attitudes, stigma, and self-efficacy to

manage mental health, this study found how these attributes were associated with students' communicative environments, such as their communication with clinicians, family, and online users. Especially, for students who felt very supported online, they tended to manage their mental health on their own. Therefore, interventions targeting college students (or young people in general) should incorporate the influences of their communicative environments, such as the Internet, family, and patient-provider communication. Third, using self-persuasion strategies, college students may be more receptive of the idea that people should seek mental help when they need it. Also, as mental health services went online because of the pandemic precautions, the service providers may need to sufficiently inform students of this change and give them guidance on how to seek mental help via online platforms.

DEDICATION

To my family.

ACKNOWLEDGEMENTS

paper. As an international student, I also appreciate that you generously shared with me your experience of studying and researching in the United States and encouraged me when the review process met obstacles because of the pandemic.

A lot of thanks go to Dr. Jennifer Lueck, who is also on my committee and I really learned a lot from. It was such a pleasure to discuss research and theories with you because your analysis always helped me understood things better. When I felt lost about some of my progress such as the preliminary exam, your words helped me find clearer directions.

And thank you so much, Dr. Oi-Man Kwok. I am deeply grateful to have you on my committee. You taught the best social science methods in the world. Thank you for unpacking complex issues in such an interesting and effortless way. I also appreciate your expert insight, comments, and help on my research and dissertation projects. Your kindness and generosity have also inspired me to be a good scholar and teacher.

For other professors in my department, thank you very much. Dr. Hart Blanton, thank you for creating and running the participant pool. You were so considerate for everyone using it. We couldn't do it without you. Dr. Kevin Barge, thank you for being a kind and generous leader. I love the website on which we worked together. Dr. Kristen Poirot, thank you for being a great DGS. Graduate students' life becomes more manageable because of your hard work and kindness. Professor Nancy Street, thank you for teaching me how to be a good teacher. When I first came to my program, I almost never taught and did not know how to teach American students, but you showed me the right way. You always had the best solutions for any issue, and your helping us

transition to online teaching was absolutely wonderful. It worked out terrifically for my students and I. Thank you so much.

For my graduate friends, we have been in this together. Angie Galal, you are so unique, passionate, smart, brave, assertive, eloquent, and always know what you want. We knew each other from day zero when we came to the campus visit and have been through a lot ever since then. I will always miss sharing the office with you and all the activities we did together. I appreciate that you were always there every time I needed a friend. Mehri Yavari, our cultural backgrounds seemed different, but we share a lot together. I thought you were to steal Angie from me at the beginning, but it turned out you are such a good friend to me too. I believe in your magic words because they always worked. It's your magic words that calmed me down every time when I cried too ugly. It's also your words that gave me hope and helped me keep it together. I will always remember our Facetime and how you encouraged me to walk with you with all the precautions. You are such a sweet soul. Thank you for being you.

For my graduate friends in this pandemic job hunt with me, thank you for your support and company. Rebecca Costantini and Asha Winfield, you are so awesome. Thank you for being so productive and set an example of getting things done efficiently, which inspired me a lot. I miss attending classes with you and will be missing our writing group. I can't wait to see us grow stronger academically. Elina Tachkova, thank you for giving me so much valuable insights about the job search. To me, you had a great balance of work and life. You cared about your well-being and taught me that I should do too. I am happy that you are going to live in a city that I love.

My office friends—Anthony Ramirez, Nicholas Bradley, Valentina Aduen, Nour Zeid, Adam Bajan, Shelby Landmark, Pamela Canales, Chante Anderson, and my dearest cohort—Julia Medhurst, Arti Nadkarni, Kyle Colglazier, Tyler Champine, Brittany Everett, I am always so thankful to have met you. I couldn't be able to finish this program without your company and support. Thank you for being my friends.

For my Chinese comm family—Drs. Feifei Chen, Yikai Zhao, Shaohai Jiang, Hongliang Chen—I miss our hangouts. Feifei, I'm so glad me met in the program and have been through a ton together. You're such a great role model, a mentor, and a beautiful person to talk to. With each other's support, we are going to be happy and rich.

Last but not least, for my parents, Drs. Mingyan Deng and Min Wu, I am forever indebted to you for all your unconditional love. Thank you for having faith in me and staying remotely with me all this time, especially when I had to quarantine alone. I work hard to make you proud, as a Chinese folk song goes — "I put on backpack to go to school. I am not afraid of thunders or storms. I will be afraid if I don't have knowledge and my teacher blames me for being lazy. Then, I will not be able to face my parents." For eight years, I have been thousands of miles away. I know that a traditionally good Chinese kid would not swim far from their parents. I am not a perfect child, but by making you proud, I made myself happy too.

CONTRIBUTORS AND FUNDING SOURCES

Contributors

This work was supervised by a dissertation committee consisting of Professor Richard Street, my advisor, and Professors Lu Tang and Jennifer Lueck of the Department of Communication and Professor Oi-Man Kwok of the Department of Educational Psychology.

All work conducted for the dissertation was completed by the student independently.

Funding Sources

TABLE OF CONTENTS

Page

LIST OF FIGURES

LIST OF TABLES

CHAPTER I

INTRODUCTION

Background

Mental disorders have challenged the public health in the United States. Statistics show that about 50% of Americans can be diagnosed with some type of mental illness at a point in their lifetime; mental illnesses (e.g., depression) also rank the third most common cause of hospitalization in the United States (Albert, Rui, & Ashman, 2017). The consequences of mental illness include hospitalization, high health cost, physical disability, increased risk of cardiovascular disease, shorter longevity, self-harm, and suicide (Albert et al., 2017; Steinberg & Daniel, 2020), threatening the well-being of all people, regardless of their gender (Steinberg & Daniel, 2020) and age (APA, 2019).

However, research suggests that mental illnesses are typically more dangerous in younger generations than their older counterparts (APA, 2019; Patel, Flisher, Hetrick, & McGorry, 2007). For instance, a recent report by Steinberg and Daniel (2020) note that the mean age of depression in the US is now around 25. The American Psychological Association (2019) found in an online survey among 1005 American adults that the young people aged between 18 and 24 reported the poorest mental health and the most shame around mental illness, compared with other older participants. Mental illnesses are also becoming a huge disease burden in young people around the world (Patel et al., 2007). Notably, at the crossroad involving the final stages of education, the start of careers, and romantic relations, young people's mental health problems may strongly

1

influence various aspects of their health (e.g., reproductive health, substance use), behavior (e.g., violence) and development (e.g., educational achievement) (Patel et al., 2007).

In addition, lacking timely treatment of mental illness exacerbates the mental health crisis in young adults (Auerbach et al., 2016; Eisenberg, Nicklett, Roeder, & Kirz, 2011; Hunt & Eisenberg, 2010; Zivin, Eisenberg, Gollust, & Golberstein, 2009), as young people often delay seeking help or tend not to seek help from mental health services (e.g., primary care, psychological counseling, and psychiatric treatment) (H. K. Kim, 2016b; Vanheusden et al., 2008). For example, As reported by Eisenberg et al. (2011), only a small portion of college students who are positively diagnosed with mental disorders have sought treatment. Research shows that young adults communicate their problems with family and friends (Vanheusden et al., 2008) and even online on social networking websites (e.g., Facebook, Reddit) (De Choudhury & De, 2014; Egan, Koff, & Moreno, 2013; Moreno et al., 2011) but tend not to turn to professional resources.

Alternatively, as D. J. Rickwood, Deane, and Wilson (2007) noted, young adults who overestimate their abilities in handling mental health issues tend not to seek professional help. Based on the 2016 mental health survey conducted by the World Health Organization, less than 20% of the college students worldwide who had mental disorders received treatment for their disorders. In fact, mental problems (e.g., depression, substance addiction) can be successfully treated (Ahmadi, Sarani, & Jahromi, 2020; Steinberg & Daniel, 2020), and a recent survey by APA (2019) also

suggests that over 90% of Americans believe that mental issues, such as suicidal ideation, can be treated. However, based on the poll by APA (2019), compared with older age groups, young adults are still less likely to believe that most mental issues need treatment. As one can obtain psychological and psychiatric help from mental health providers, as well as general practitioners (Gask, Kendrick, Peveler, & Chew-Graham, 2018), raising the awareness of mental disorders and finding ways to help young adults seek help from a variety of mental health services can increase the diagnosis and successful treatment of mental problems.

The outbreak of the COVID-19 pandemic has exacerbated this situation by introducing new stressors (e.g., isolation, insecurity, uncertainty) to individuals, as countries rigorously applied preventive measures (e.g., travel bans, lockdowns, face covering, and social distancing) that interrupted the "normal" social interactions and economic growths (Pfefferbaum & North, 2020). Indeed, studies show that the general public experienced increased anxiety and depression levels only four weeks into the pandemic outbreak; individuals with COVID-19 infections and infected social contacts had even higher levels of depression and post-traumatic stress symptoms (PTSS) (Vindegaard & Benros, 2020). As universities reopen in the fall of 2020, college students' mental health concerns escalated due to the heightened challenges of financial issues, social connectedness, and academic performances in college (Lederer, Hoban, Lipson, Zhou, & Eisenberg, 2020). Therefore, having access to and seeking mental help is vital to emotional health during an unprecedented pandemic like the COVID-19. Given that college students' low mental help-seeking intention before COVID-19

(Eisenberg et al., 2011), interventions targeting at increasing college students' mental help-seeking intention and behavior become essential than ever.

However, despite the statistics mentioned above, there lacks substantial evidence showing how young people who have some mental distress may be more likely than their older and happier counterparts to avoid seeking mental help. Therefore, based on the social cognitive theory, the first objective of this dissertation is to identify some personal and environmental factors associated with adults' avoidance of seeking health care.

The current study primarily focused on college students, a typical subgroup of young people who are often the most unwilling to seek mental help (Lederer et al., 2020). Understanding the factors contributing to college students' low intention to use mental health services can help create effective interventions for this population that constitute about 40% of American's young people age 18 to 24 (Lederer et al., 2020). Based on existing behavioral theories (e.g., the theory of planned behavior, the extended parallel processing model, the transtheoretical model) and cross-sectional data, researchers have identified several barriers preventing college students from seeking help. They include low mental health awareness (Anglin, Alberti, Link, & Phelan, 2008; Francis & Horn, 2017; Gulliver, Griffiths, & Christensen, 2010; Kitzrow, 2009), social and personal stigma on mental illness (Corrigan, Edwards, Green, Diwan, & Penn, 2001; Eisenberg, Downs, Golberstein, & Zivin, 2009; Hunt & Eisenberg, 2010; Quinn, Williams, & Weisz, 2015), low perceived benefit of help-seeking behaviors (H. K. Kim, 2016a), insufficient professional mental health resources on campus (Francis & Horn,

2017; Kisch, Leino, & Silverman, 2005; Kitzrow, 2009), and the constant underestimation of the seriousness of mental disorders (Eisenberg et al., 2011; Vanheusden et al., 2008). However, these factors attribute low mental help-seeking intentions to some personal-level predictors (e.g., attitude, stigma, and self-efficacy), instead of offering a global understanding of how one's communication experience can influence their use of mental health services. While previous research acknowledges that human communication transmits information that permeates behaviors (Miller, 1966), this dissertation's second objective is to explore how three types of interpersonal communication (i.e., patient-provider, family, and online interactions) — that are previously linked to young people's mental health-related attitude, stigma, and self-efficacy (Connor et al., 2016; Jang, Chiriboga, & Okazaki, 2009) — can affect college students' help-seeking behaviors.

Finally, the third objective of this dissertation is to use a self-persuasion intervention to increase college students' intention to seek mental help during the COVID-19 pandemic. Previous mental health interventions often focused on increasing people's mental health status (e.g., reducing mental symptoms, managing stress) (Ebert et al., 2016; Rotondi et al., 2010), rather than encouraging the use of mental health services. For example, the intervention by Harrer et al. (2018) effectively reduced college students' stress but did not explore its effect on help-seeking. The few interventions targeting young adult's help-seeking intentions had mixed results of effectiveness. For instance, the web-based intervention by Gulliver et al. (2012) showed effectiveness in raising young athletes' intention to seek mental help, but the study was

5

underpowered. Another intervention by Demyan and Anderson (2012) did not have the main intervention effect on increasing college students' help-seeking intentions. Previous literature attributed the conflicting results of behavioral interventions to the lack of theoretical frameworks (Luca & Suggs, 2013; N. Taylor, Conner, & Lawton, 2012). Also, the existing mental health interventions' pre-post experimental designs only tested immediate changes following the interventions, calling for longitudinal observations to evaluate the intervention effects over time. Hence, the third objective of this dissertation is to test a theory-based intervention to improve college students' intention to seek mental help.

Overview of the Dissertation

This dissertation uses three studies to approach the young people's, especially college students' use of mental health services.

Based on the social cognitive theory (Bandura, 2009), Study 1 is a secondary data analysis of the Health Information National Trends Survey (HINTS5, Cycle 3), a nationally representative mail survey gathered in the US from January through April 2019. The primary goal of Study 1 is to determine how personal (e.g., age, education) and communicative factors (social support, previous patient-centered communication experiences with clinicians) are associated with individuals' willingness to seek help from a medical provider when they feel something is wrong.

Study 2 is a cross-sectional survey exploring the communication factors contributing to college students' mental help-seeking during the COVID-19 pandemic. Based on the theory of planned behavior (Ajzen, 1991) and empirically supported

evidence, it specifically examines how a constellation of factors from diverse communicative contexts (e.g., mass media consumption, social media use, social support, communication experience with doctors) plays a role in students' attitude, stigma, and self-efficacy related to seeking mental help.

Based on the results of Study 1 and 2 and the theoretical paradigm of self-persuasion (Festinger, 1957; Tiro et al., 2016), Study 3 tests the effectiveness of a social media-based intervention in promoting mental help seeking among college students. The results of the intervention may inform mental health practices and future interventions, improving the well-being of college students and young adults in general during challenging times such as the COVID-19 pandemic.

CHAPTER II

STUDY 1

Literature Review and Research Questions

The Benefit of Seeking Help from a Health Care Provider

The integration of medical care, psychiatric services, and behavioral health care creates diagnostic and treatment opportunities for individuals with mental illnesses. Previously, research indicated that insufficient specialized mental health resources prevent people from being able to seek mental help (Francis & Horn, 2017; Kisch et al., 2005; Kitzrow, 2009). For example, according to Levin, Stocke, Pierce, and Levin (2018), university counseling centers may be overwhelmed by students' needs for mental health services, as the ratio of the number of counselors to students reaches about 1: 2,000. However, visiting psychological counselors, psychiatrists, and dialing mental helplines are not the only ways to seek professional mental help. In addition to contacting a specialist, one can also visit a primary care provider who is more accessible at the local community level for screening for mental disorders. In fact, most of the common mental disorders in high-income countries, including depression and anxiety, are seen by a primary care provider (Gask et al., 2018). The integration of mental health services in primary care is also beneficial, as patients may need to treat comorbidities of mental and physical disorders (e.g., HIV, cancer, diabetes), chronic conditions that require long-term care, and reduce the financial burdens for mental health treatment (Funk, 2008; Gask et al., 2018; Tran & Ponce, 2017; P. S. Wang et al., 2005). According

to a line of geriatric research, visiting a primary health care provider can also help reduce the stigma of seeking mental help among the elderly (Mackenzie, Gekoski, & Knox, 2006; Mackenzie, Pagura, & Sareen, 2010). For elders who do not tend to seek professional mental help, their utility of outpatient services is usually higher due to their physical health conditions. Thus, primary care providers play an essential role in the recognition and treatment of psychiatric disorders; establishing initial contact with a (primary or mental) health care provider should be highly encouraged for its accessibility and affordability.

Seeking Informal Help

Moreover, seeking professional help from health care providers is greatly different from seeking informal help from family and/or friends or the evidence-based self-help from the media (e.g., Internet, print materials). According to Levin et al. (2018), parents, intimate partners, and friends are essential sources of support when people feel the need to treat their mental distress. Especially for the college student populations, the intention to seek informal mental help is over four times higher than that to seek help from a health care provider (Levin et al., 2018). The study by Vanheusden et al. (2008) also support that young people tend to talk to their family and friends, rather than a health care professional, when they are distressed. Meanwhile, researchers suggest that evidence-based self-help methods, such as stress managing websites, mobile APPs, and self-help books may be good alternatives to mental health counseling services that are not usually available for people in need (Levin et al., 2018). However, social support or self-help method can never substitute professional mental health resources.

9

On the one hand, one can only be properly diagnosed and treated for mental illness using mental health services. On the other hand, since people, especially the younger generations, tend not to believe that they need to be treated for mental disorders (Eisenberg, Golberstein, & Gollust, 2007), their treatment may be significantly delayed due to their substantial reliance on unprofessional help, leading to the exacerbation of mental and physical disorders. The study by Saunders et al. (2018) is an example showing one of the consequences of not seeking timely mental health care. According to Saunders et al. (2018), immigrant youth who have poor access to mental health care usually have their mental issues discovered in the emergency room, when situations (e.g., substance abuse, anxiety disorders) become worse.

Previous Research

While social networks and media are available as alternative resources for medical and mental health information, do they prevent people from seeking help from a doctor? Previous research has never linked interpersonal and media communication to the intention of seeing a doctor. So far, only Ye, Shim, and Rust (2012) have studied the relationship between severe mental disorders and the intention to seek medical help. Their research shows that people with severe psychological disorder were more likely to avoid seeking medical attention than those who had better mental status, and the reasons for such avoidance included the fear of having a serious illness or dying.

Avoidance of Visiting a Doctor: A Maladaptive Behavior

The persuasion literature suggests avoidance is a maladaptive behavior to not be reactive to an emerging issue (e.g., a health issue) (Janis, 1967; Witte, 1992).

Specifically, based on the extended parallel process model (EPPM) (Witte, 1992), when people face the prospect of being highly susceptible to a severe consequence (e.g., having a disease), they may either engage in adaptive response (i.e., reactively seeking help) or maladaptive response (i.e., denying the need to seek medical attention), depending on their levels of confidence (self-efficacy) to successfully deal with the emerging (health) issue. If their perceived self-efficacy is low, they may use a maladaptive response, such as avoidance.

Previous research on maladaptive response to health messages mainly focused on the avoidance of risk information. For example, Cheng, Ebrahimi, and Lau (2020) explored the psychological impact of information avoidance. In their study (C. Cheng et al., 2020), people who avoided seeking information related to COVID-19 experienced more psychological stress and sleep disturbance than those who did not. A possible explanation of this is that people will somehow receive and communicate such threatening messages regardless of their coping styles (C. Cheng et al., 2020).

Avoidance in the Health Context: Previous Research

The literature is scarce on avoidance behaviors in the health context. So (2013) connected information avoidance to adaptive behavior by arguing that information-seeking can increase individuals' perceived self-efficacy, enabling adaptive behavior to improve their well-being. For mental help-seeking behavior, Teng and Friedman (2009) found that older Chinese Americans tend to avoid seeking help from psychiatrists. Instead, they would seek mental help from primary care providers because of the cultural stigma of mental illness. As such, in addition to some personal characteristics (e.g., self-

efficacy), maladaptive behaviors (be it information avoidance or psychiatrist avoidance) are influenced by contextual factors, such as media information and cultural environments.

Nevertheless, previous research mainly attribute people's avoidance of seeking mental help to personal factors, including underestimation of the seriousness of mental disorders (Eisenberg et al., 2011; Vanheusden et al., 2008), low awareness of mental health distress (Francis & Horn, 2017; Gulliver et al., 2010), low perceived benefits of help-seeking behaviors (H. K. Kim, 2016a), and personal stigma of mental illness (Eisenberg et al., 2009; Hunt & Eisenberg, 2010). More research is needed to study how environmental factors are related to avoidance of seeking care, and this may further contribute to the understanding of the low treatment rate of mental disorders.

Modeling the Avoidance: Social Cognitive Theory

Focusing on the intention to seek mental help from a health care provider, this study uses social cognitive theory (Bandura, 2009) to explore the communicative factors related to people's avoidance of utilizing health care services.

Based on social cognitive theory (Bandura, 2009), one's behavior can be influenced by the interactions between personal (e.g., personal characteristics, preferences) and environmental factors (e.g., communicative environment) through various types of cognitive experiences, including symbolization, vicarious process, self-reflection, and self-regulation. Symbolization refers to the analyzation and conceptualization of past experience; vicarious process stands for the learning process from other people's experiences; self-reflective process means the reflective judgments

on one's behaviors based on the positivity or social desirability of the results; self-regulation is one's intentional production of positive behaviors and reduction of negative performances (Bandura, 2009). With such interactive and reflective social experiences, people may be able to adjust their perceptions on certain issues, develop self-efficacy for positive behaviors, and obtain self-regulation against negative behaviors.

Relating the social cognitive theory and previous research to the mental help-seeking behavior, whether or not one would contact a health care provider may depend on their personal characteristics (e.g., mental health status) and the interactions with their communicative environment (e.g., social support, communication with providers, media use).

Personal Characteristics

As mentioned above, previous research primarily used personal reasons, especially mental status, to explain the avoidance of seeking health-related help. For example, since as many as 71% of the people with major depression would not seek mental help during the first year of their disorder (Schomerus, Matschinger, & Angermeyer, 2009), worse mental health status may be associated with higher unwillingness to seek mental treatment. Research on a 2007 national survey also suggests that serious psychological distress is associated with avoiding visiting doctors (Y. M. Chan & Laster, 2015; Ye et al., 2012). Since mental illness has been stigmatized as dangerous at social and personal levels (Eisenberg et al., 2009; Hunt & Eisenberg, 2010), the fear of having a mental diagnosis might be an important factor preventing one from visiting a doctor. Therefore, this study hypothesizes:

13

H1: Poorer mental health is associated with one's higher avoidance of seeing a doctor.

Communicative Environments

For environmental factors, one's social interactions and media use may play a role in their utilization of medical services.

Social Support

Social support is the care individuals receive from their social network (e.g., family, friends) in times of need (Jacobson, 1986). Social support has three main types (Jacobson, 1986), including emotional support (the expression of concern and empathy), instrumental support (offering material or tangible assistance), and informational support (providing information or knowledge). A review study of the social support literature has found that social support is beneficial for people's well-being in two ways (S. Cohen & Wills, 1985). First, when people experience overwhelming or stressful events, social support can protect them from being adversely affected by these events (buffering effect). Second, even when people are not under stress, having social support can help them make more healthy decisions and can improve their physical and mental well-being. Therefore, having a good support system formed by family and friends may encourage distressed individuals to have positive attitudes or intentions to seek help from a health care practitioner.

The Influence of Social Support

However, previous research has contradictory results on how social support influences individuals' mental help seeking behavior. For instance, some literature

suggests that social support from friends and/or family is positively related to one's intention to seek mental help from health care professionals (Bohon, Cotter, Kravitz, Cello Jr, & Fernandez y Garcia, 2016; Vogel & Wei, 2005). Other literature indicates that instead of seeking help from mental health professionals, young people often turn to their family, friends (Vanheusden et al., 2008), intimate partners (Levin et al., 2018), and the online community (De Choudhury & De, 2014; Egan et al., 2013; Moreno et al., 2011) when they experience mental distress.

Nevertheless, researchers have incorporated the social support in health interventions to change unhealthy behaviors, such as smoking (Cheung et al., 2015), substance abuse (Keller & Galanter, 1999), and physical inactivity (Rote, Klos, Brondino, Harley, & Swartz, 2015). For example, Cheung et al. (2015) used WhatsApp and Facebook support group to prevent smoking relapse for smoking quitters, and the result showed that more engaged support groups had better results in relapse prevention. Also, the study by Rote et al. (2015) showed that Facebook support group discussions significantly increased physical activity (walking routine) among female college students.

While some social support interventions generated positive results, a review study of social support intervention showed mixed results (Hogan, Linden, & Najarian, 2002), suggesting more research is needed to explore the impact of social support on healthy behaviors. Since previous social support intervention never targeted health-related help-seeking behavior, exploring how social support is related to this behavior

can contribute to the literature and provide evidence for future interventions. Therefore, this study asks:

R2: Is one's social support associated with their avoidance of seeing a doctor?

Social Media

Social media has quickly gained population in the United States. According to the Pew Research Center, only 5% of the US adults used social media in 2005, but the percentage has risen to 72% (Auxier & Anderson, 2021), covering most of the young adults and nearly a half of the people aged over 65. As such, social media platforms, such as Facebook and Instagram, become important venues for government agencies and international health NGOs (non-governmental organization) to disseminate health-related information (Guidry, Jin, Orr, Messner, & Meganck, 2017; Jha, Lin, & Savoia, 2016). A content analysis of the Facebook posts shows that healthy living, diseases, and vaccination are three top topic areas posted by state health departments (Jha et al., 2016). Indeed, during pandemic times like COVID-19, public health agencies was able to engage thousands of users using creative videos shared via social media (Y. Li, Guan, Hammond, & Berrey, 2021). As Moorhead et al. (2013) identified, in addition to providing tailored health-related information, social media can also increase public interaction and provide social support to its users.

Social Media and Mental Health

As such, a growing body of research started to examine the compatibility and efficiency of social media in health campaigns (T. Chang, Chopra, Zhang, & Woolford, 2013; Webb, Joseph, Yardley, & Michie, 2010; Williams, Hamm, Shulhan, Vandermeer,

& Hartling, 2014). In the context of mental health, such interventions made progress in lowering stress, reducing stigma of mental illness, and facilitate social support, but has not explored the effectiveness of social media on help-seeking behavior (Livingston, Cianfrone, Korf-Uzan, & Coniglio, 2014; Välimäki, Athanasopoulou, Lahti, & Adams, 2016). For example, in a study with college students who were victims of relational violence (Nguyen-Feng et al., 2015), a web-based stress management intervention with support group function significantly reduced students' distress and the social stigma of mental illness. Another social media intervention for young people also effectively reduced stigma and improved participants' attitudes toward mental issues (Livingston et al., 2014), but it did not increase participants' intention to seek information related to mental health. Therefore, examining how social media use may be related to people's avoidance of mental health-related information and medical attention can better help interventions to address these problems.

Impact of Online Information-Seeking

While social media provides health-related support and information to its users, the users also actively seek information online. Based on a national report in 2013, 72% US adults sought online health information in the past year, and the top three searched topics included specific medical problems, medical treatments, and weight control (Fox & Duggan, 2013). Research has further examined people's online health-related activities and found patients with chronic conditions (e.g., diabetes, cancer, mental illness) tend to habitually seek information online (Fergie, Hilton, & Hunt, 2016; K. Kim

17

& Kwon, 2010). Based on a qualitative study by Fergie et al. (2016), young adults who had mental distress sought online information to identify and manage their illness.

<u>Social Media Use and Avoidance of Visiting a Doctor</u>

However, how online health information-seeking behavior affect one's use of health care resources is not clear. Some research has suggested that online information-seeking behavior increased patients' knowledge and made them more involved in their care, motivating them to seek care more often and discuss their online findings with doctors (AlGhamdi & Moussa, 2012). Other research shows that conflicts between patients and provider may arise when patients trust online information over their doctors, which makes patients less likely to seek care (Sommerhalder, Abraham, Zufferey, Barth, & Abel, 2009). Also, while online health information improves patients' self-management skills to control their diseases (e.g., mental illness, diabetes) (Fergie et al., 2016), such self-management may also reduce their use of health care services (Shaw & Johnson, 2011). Furthermore, research has also shown that patients who are dissatisfied with their providers would turn to the Internet and other informal sources (e.g., friends, family) for health information (Tustin, 2010), which may lead to their avoidance of seeking a doctor.

While mental health interventions have used social media (e.g., social media, APPs) to increase people's intention to seek mental help (Demyan & Anderson, 2012; Teng & Friedman, 2009), it is not yet clear how the social media environment and people's health information seeking may impact on their use of health care services. As social media has a huge psychological impact on its users (Bethune, 2019), more

18

research is needed to increase social media users' help-seeking behavior. Therefore, this study also investigates the connections between people's health-related use of social media/Internet and their utilization of health care services.

R3: Is one's social media use (e.g., having health-related APPs, share health-related information on social media, participating in social media support groups, watching health-related YouTube videos, and seek health information online) associated with one's avoidance of seeing a doctor?

Health Care Experience

Previous research on people's use of mental and general health care services has shown that individuals' experience with these services is strongly correlated with their future use of these services. For example, a study exploring patients' use of online mental counseling services suggested that patients may have favorable attitudes toward seeking mental help online when they had online counseling experience before (Lazuras & Dokou, 2016). Conversely, in a study with Chinese students (H. Chang, 2008), compared with students who sought mental help in the past, those who did not have such experience were less likely to seek counseling services. Another study of patients with chronic disease showed that patients would be more willing to use telehealth services if they had good experience using it in the past (Edwards et al., 2014).

Quality of Care and Use of Healthcare Services

While these studies accounted the status of 'having prior experience' for people's future use of (mental) health care services, the literature further underlined how the 'quality' of communication with their providers during such experiences significantly

influenced people's decision on using the services in the future. For instance, the literature showed that unpleasant care experience may reduce people's (e.g., men, African Americans) intention to visit their doctors (Hammond, 2010; Mansfield, Addis, & Courtenay, 2005). In a qualitative study with young people who sought mental help in the past (D. Rickwood, Deane, Wilson, & Ciarrochi, 2005), the impression that the psychologists did not take patients' emotional problems seriously substantially impeded people's intentions to use mental help again. A content analysis of Chinese patients' online review of doctors also showed that doctors' caring and ethical communication lead to patients' willingness to seek help from these doctors again (Wu & Tang, 2021).

Patient-Centered Communication and Use of Healthcare Services

Indeed, patient-centered communication can effectively enhance the quality of health care delivery through six functions, including information exchange, development of healing relationships, facilitating shared decisions, uncertainty management, responding to emotions, and improving patient self-management (Epstein & Street, 2007). Based on the pathway model of clinician-patient communication and health outcomes (Street, Makoul, Arora, & Epstein, 2009), accomplishing these communication functions successfully may increase patient satisfaction and foster trusting relationships between patients and providers, leading to patients' active involvement in their care that may require them to promptly seek help from a health care provider when they feel the need. For instance, while research showed that a trusting relationship between asthma patients and their clinicians generated positive treatment outcomes for the patients (Young, Len-Rios, Brown, Moreno, & Cox, 2017), mental patients whose counseling

20

outcomes were unsatisfactory tend not to seek mental help in the future (D. Rickwood et al., 2005). Therefore, providers' investment in their relationship with their patients may have a therapeutic value that improves the quality of care and reduces the barrier for patients to actively seek health-related help.

As cost- and knowledge-related health care accessibility greatly impedes patients' ability to seek medical attention for their problems (D. Rickwood et al., 2005; Ubel et al., 2016), patient-centered care can also improve patients' access to care and empower them to seek help from medical professionals. Specifically, providers can help patients choose affordable medication and help them navigate their insurance options to reduce the cost of care (Hunter et al., 2016). Also, since the lack of knowledge on mental help-seeking may reduce people's access to mental health care (D. Rickwood et al., 2005), mental health and general practitioners can educate their patients more on how to seek mental help and what to expect when seeking mental help. Moreover, telehealth may also increase patients' accessibility to health care services. For example, Bao, Bardhan, Singh, Meyer, and Kirksey (2020) suggested that patient portals can improve patients' access to care overtime, increasing patients' motivation to be more engaged in their treatment.

Seeing the Same Provider and Use of Healthcare Services

In addition, being able to see the same provider also improves the continuity of care. Namely, if patients have an ongoing relationship with their providers, they may feel more satisfied with their health care (Wu & Street, 2020; Wun et al., 2010) and continue to see their providers for health-related problems.

21

Therefore, the clinical environment, characterized by factors such as patient-centered communication, the trusting relationship between patients and providers, having a regular doctor, quality of care, and electronic communication (telehealth) with providers, can influence patients' health-related help-seeking. While previous research has not explored such connections, this study contributes to the gap in the literature by investigating the impact of health care environment to better understand people's help-seeking behavior.

R4: Is one's interaction with the health care environment (e.g., patient-centered communication experience, trust in their doctors, having a regular doctor, perceived quality of care, experience using telehealth) associated with one's avoidance of seeing a doctor?

In summary, people's mental states and their interactions with the social, healthcare, and media environment may affect their intention to seek help from doctors.

Method

Data and Sampling

This study used the nationally representative data from the Health Information National Trends Survey (HINTS5, Cycle3), which was administrated by the National Cancer Institute (NCI) from January 22 through April 30, 2019, with a focus on the health care in the United States. Using a probability sampling method, the survey was distributed by mail to non-institutionalized adults aged 18 or older living in the US. Each participant received $2 as a pre-incentive for participation. Overall, 5,438 completed questionnaires were collected.

Mental health was measured by a dummy variable derived from four items, such as "Over the past 2 weeks, how often have you been bothered by little interest or pleasure in doing things?" Answers to the items were assessed on a 4-point scale (1 = *nearly every day* to 4 = *not at all*), with higher numbers indicating better mental health. The Cronbach's α of the four mental health items was .887, indicating good scale reliability. The four items were dichotomized to represent having no ("0") and a few ("1") mental issues, and the former required participants to score a "4" on all four items.

An individual's *information-seeking behavior* is measured by a dummy item, asking whether or not participants looked for health information for themselves in the past 12 months (0 = *no*, 1 = *yes*). Missing values were treated as "0" (*no*).

Social support was measured by a single dummy item, "do you have friends or family members that you talk to about your health?" (0 = *no*, 1 = *yes*). Missing values were also treated as "0" (*no*).

Patient-centered communication experiences were assessed by a dummy variable, which was derived from the sum of seven items. Sample items of this category include "How often did your health care providers give you the chance to ask all the health-related questions you had" and "How often did your health care providers give the attention you needed to your feelings and emotions." The seven items of this category were measured on a 4-point Likert scale, ranging from *never* (1) to *always* (4). The sum of the seven items ranges from 7 to 28, and the Cronbach α among all the items was .929, suggesting excellent scale reliability. The sum was dichotomized to represent

poorer ("0") and greater ("1") patient-centered experience, which was demonstrated by having at least a score of "3" on each of the seven items.

Patient trust was assessed by an item, asking how much a participant would trust health information from a doctor. The answers were measured on a 4-point scale (1 = *not at all* to 4 = *a lot*). Missing values were considered as "1", and higher scores represent higher levels of trust.

Having a regular doctor was measured by a dummy item, asking whether or not a participant has a health care provider he or she often sees (0 = *no*, 1 = *yes*). Missing values were treated as "0".

Perceived quality of care was measured by an item, asking, "how would you rate the quality of health care you received in the past 12 months?" The answers were rated on a 5-point scale (1 = *poor* to 5 = *excellent*). Missing values were treated as missing.

Electronic communication with providers was the sum of three dummy items, as suggested by previous research (Wu & Street Jr, 2020). The items asked whether or not cancer patients texted, emailed, and digitally shared health data with doctors. A sample item from this category reads, "Have you sent a text message to or received a text message from a doctor or other health care professional within the last 12 months?" All items were measured on a yes–no basis (0 = *no*, 1 = *yes*), and all missing values were coded as negative answers (0). After the sum of the three items, the value of the outcome variable, electronic communication, ranges from 0 to 3.

Health-related social media use was measured by three discrete dummy items, asking whether or not respondents have "shared health information on social networking

24

sites (e.g., Facebook, Twitter)," "participated in an online forum or support group for people with a similar health or medical issue," and "watched a health-related video on YouTube" (0 = *no*, 1 = *yes*). For *health-related APP use*, participants were asked if they have any "apps" related to health and wellness (0 = *no*, 1 = *yes*). Missing values in social media use and APP use were all treated as negative answers (0 = *no*).

The outcome variable, *avoid seeing doctors*, was measured by a dummy variable, asking if participants would avoid visiting their doctor even when they suspect they should (0 = *No*, 1 = *Yes*). Missing values were treated as negative answers (0 = *No*).

Demographic variables include gender, race, education, income, general health status. Specifically, *age* was measured as a continuous variable, representing participants' actual age at the time of the data collection. *Gender* was measured as a dummy variable (0 = *male*, 1 = *female*). Race was measured by an item asking if participants identify themselves as in one of the five categories, including "Non-Hispanic White," "African American," "Hispanic," "Non-Hispanic Asian," and "Non-Hispanic other." *Education* was measured by an ordinal variable with four levels of educational background, including "less than high school," "high school graduate," "some college," and "college graduate or more." Income was measured by an ordinal variable, asking if a participant's pre-tax income in the past year falls into one the following categories: "$0~$9999," "$10,000~$14,999," "$15,000~$19,999," "$20,000~$34,999," "$35,000~$49,999," "$50,000~$74,999," "$75,000~$99,999," "$100,000~199,000," "$200,000 or more." *Physical health* was assessed by an item that

reads, "In general, would you say your health is…" The answers were measured on a 5-point scale (1 = *poor* to 5 = *excellent*). Missing values were treated as missing.

Data Analysis

All survey data and study variables were entered into SPSS (24.0). To answer the research questions, logistic regression modeling was performed on all participants (n=5438), as well as a subset of participants (n = 2612) who experience mental disorders. For the model having all participants, the outcome variable, avoiding doctors, was regressed on demographic variables, personal characteristic-related variables, and variables related to the communicative environment. For the model that only has the subset of participants who had mental disorders, the outcome variable (avoiding doctors) was regressed on all the same independent variables in the other model except for the mental status variable. The significance was set at the .05 level.

Results

Descriptive Analysis

All Participants

Of the 5,438 participants, 41.1% were male (n = 2236) and 56.5% were female (n = 3071). For the racial distribution, most of them (56.2%) were White (n = 3054), 677 were African Americans (12.4%), 730 belonged to Hispanic (13.4%), 224 were Asian (4.1%), and only 165 self-identified as "other" (3%). The sample's mean income was between the categories of "$35,000~$49,999" and "$50,000~$74,999" (SD = 2.266). The general participants reported doing well physically (M = 3.41 SD = .945), and 2612

26

of them reported some mental issues (48%). Although, 24.6% of the participants would

avoid seeing a doctor even if they suspected they should (n = 1336).

For the communicative environment, 79.6% of the sample reported having social

support when they need to talk about their health (n = 4331). Most of the participants

(58.1%, n = 3159) reported better communication experience with their health care

providers than others, and 68.5% of them reported having a regular doctor (n = 3724).

Participants' overall trust in doctors was good (M = 3.57, SD = .742), so was their

perceived quality of care (M = 3.99, SD = .896). Even so, the uptake of electronic

communication was low (M = .98, SD = .955).

As with health-related media use, 69.7% of the participants reported having

sought online health information. 43.1% of the participants reported having health-

related APPs on their smartphones (n = 2344). For the use of social media specifically,

636 people (11.7%) shared health-related information on their social media accounts,

377 (6.9%) participated in support groups, and 1749 (32.2) had watched health-related

YouTube videos.

People with Mental Distress

Of the 2612 people who have mental disorders, 38.7% were male (n = 1010) and

59.9% were female (n = 1564). Similar to the whole sample, this subset of the

population was comprised of most White (58%, n = 1514), slightly more Hispanic

(14.5%, n = 378), fewer African Americans (10.9%, n = 284), about the same Asian

(4.1%, n = 106), and more people in other races (3.8%, n = 100). People's income in this

subset is also between "$35,000~$49,999" and "$50,000~$74,999" (SD = 2.231), and

their mean physical health is good (M = 3.18, SD = .963). In addition, proportionally more people in this subset would avoid seeing a doctor (31.6%, n = 826).

Moreover, 2131 of those who have mental disorders (81.6%) reported having social support. Most of them also reported good communication experience with their providers (57.6%, n= 1505) and having a regular doctor (69.8%, n = 1822). They also have good level of trust in doctors (M = 3.57, SD = .714), quality of care (M = 3.82, SD = .924), and slightly higher usage of electronic communication with providers (M = 1.04, SD = .968).

For media use, proportionally more people in this subgroup have health APPs (46.9%, n = 1225), share health related information on social media (15.1%, n = 395), participate in support groups (9.3%, n = 244), and watch health-related YouTube videos (38%, n= 992) than those who did not engage in any of these activities (18%, n = 473).

Regression Analysis

Full Sample

Regression analysis of the full sample shows that people who are women (ß = -.296, p < .001, Odds ratio = .744), older (ß = -.024, p < .001, OR =.976), and have physical health (ß = -.109, p = .032, OR = .896) are less likely to avoid seeing a doctor. Compared with the White population, African Americans are less likely to avoid seeing a doctor (ß = -.521, p < .001, OR = .594). Compared with people whose education is below high school, those who finished college or above are less likely to avoid visiting a doctor (ß = -.474, p = .019, OR = .623).

For the social environment, people who have no social support were more likely to avoid a doctor (ß = -.25, p = .022, OR = .779). For the risk factors in the health care environment, having poorer communication experience with providers (ß = -.379, p < .001, OR = .684), lower trust in doctors (ß = -.194, p = .002, OR = .824), lower perceived quality of care (ß = -.474, p < .001, OR = .623), and lacking a regular doctor (ß = -.195, p < .001, OR = .823) are correlated with the avoidance of seeing a doctor.

As with the media environment, people who seek health-related information online are more likely to avoid seeing a doctor (ß = .253, p = .029, OR = 1.288).

The pseudo R^2 of this regression model is .15, suggesting that the predictors may account for 15% of the variance in the outcome of avoid seeing a doctor.

People with Mental Disorders

For people with mental disorders, the regression model showed similar results.

Being women (ß = -.272, p = .013, OR = .762), older in age (ß = -0.025, p < .001, OR = .976), and having higher income (ß = -.058, p = .038, OR = .943) contributed to lower probability of avoiding seeing a doctor. Compared with the White population, African Americans (ß = -.519, p = .004, OR = .595) were less likely to avoid seeing a doctor. Education did not play a role in this sample.

With respect to social support, people who have family and friends to talk about their health are less likely to avoid a doctor (ß = -.289, p = .045, OR = .749). Meanwhile, poorer communication experience with their provider (ß = -.425, p < .001, OR = .654), low trust in doctors (ß = -.242, p = .002, OR = .785), and low perceived quality of care (ß = -.535, p < .001, OR = .586) were still the risk factors of avoidance of seeing a

29

doctor. Lacking a regular doctor (ß = -.101, p = .115, OR = .904) was not correlated with the avoidance of visiting a doctor.

Along the same line, using the Internet to search for health-related information (ß = .388, p = .013, OR = 1.474) is another risk factor leading to the avoidance of seeing a doctor.

Table 1 Regression Models.

	All cases			People with distress		
Demographics	B	p	OR	B	p	OR
Age	-0.024	0	0.976	-0.025	0	0.976
Gender (2=f) c	-0.296	0	0.744	-0.272	0.013	0.762
Race		0.001			0.015	
Non-Hispanic White						
Non-Hispanic Black or	-0.521	0	0.594	-0.519	0.004	0.595
African American						
Hispanic	-0.228	0.064	0.796	-0.206	0.187	0.814
Non-Hispanic Asian	-0.117	0.545	0.889	-0.351	0.198	0.704
Non-Hispanic Other	0.25	0.225	1.284	0.263	0.286	1.301
Education		0.007			0.046	
Less than High School						
High School Graduate	-0.054	0.79	0.948	0.138	0.591	1.148
Some College	-0.314	0.107	0.73	-0.162	0.506	0.85
College Graduate or More	-0.474	0.019	0.623	-0.35	0.169	0.705

Income	-0.04	0.069	0.96	-0.058	0.038	0.943
General Health	-0.109	0.032	0.896	-0.11	0.08	0.895
Social environment						
Social support	-0.25	0.022	0.779	-0.289	0.045	0.749
Health care environment						
PCC	-0.379	0	0.684	-0.425	0	0.654
Trust	-0.194	0.002	0.824	-0.242	0.002	0.785
Regular doctor	-0.195	0	0.823	-0.101	0.115	0.904
Quality of Care	-0.474	0	0.623	-0.535	0	0.586
eHealth	-0.019	0.7	0.982	0.023	0.701	1.024
Media environment						
Health APPs	-0.115	0.229	0.892	-0.13	0.29	0.878
Health-related Social media share	-0.057	0.663	0.945	-0.079	0.615	0.924
Support group participation	0.058	0.709	1.06	0.018	0.922	1.018
Health-related YouTube video	-0.023	0.813	0.978	-0.061	0.611	0.941
Internet information-seeking behavior	0.253	0.029	1.288	0.388	0.013	1.474
Mental health						
Having mental distress	0.511	0	1.667			
R^2	0.15			0.133		

Discussion

This study explored if personal factors and the communicative environments can influence one's decision on the utility of health care services. The results show that similar factors are associated with the decision of the general population, as well as people experiencing some mental distress. Practical and theoretical implications are discussed below.

Young People and Their Avoidance of Treatments

Firstly, this study suggests that young adults who have mental distress may be at risk for their unwillingness to seek medical attention for any physical or mental symptoms they might have. This is consistent with the literature. Because of early life adversities, such as poor educational and socioeconomic background and exposure to violence, young people may develop the onset of mental disorders (Patel et al., 2007). However, since young adults are more reluctant than other age groups to believe that people should seek treatment for mental disorders (APA, 2019), they may only detect their disorders later in life (Patel et al., 2007). Such reluctance leads to lots of unmet needs for psychological treatments (Verhulst et al., 2003), further compromising young people's academic achievements and physical health (Patel et al., 2007). Also, the study by Ye et al. (2012) showed that younger age and severer mental distress were risk factors of not seeing a doctor. Also, while previous literature did not show what factors in young people with mental distress are associated with their avoidance of seeking medical attention for their health problems, the current study sheds light on this topic by considering individuals' communication experience with their doctors, social networks,

and online media environment. This also highlights how young people with lower mental status are at elevated health risk because they tend to avoid seeing a doctor when something is wrong. Especially, for those who have physical and mental health comorbidity, avoiding seeing a doctor for treatment can lead to cognitive impairment, physical disability, morbidity, and other poor mental and physical health outcomes (Funk, 2008). Hence, health interventionists may pay special attention to the younger generations to motivate their intention to use health care services.

<div align="center">The Importance of Patient Engagement</div>

Secondly, a positive interpersonal environment is crucial to activating individuals' contact with their health care providers. On the one hand, while social support may not alternate health care services, it can benefit one's health by encouraging help-seeking behavior. Such a result also resonates with the findings of previous research, as the literature suggests that social support may enhance one's intention to seek mental help from health care professionals (Bohon et al., 2016; Vogel & Wei, 2005). In addition, while offline social networks can support one's mental health, social media networks may also therapeutically reduce the stress level of an individual (Nabi, Prestin, & So, 2013). Whereas there lack studies investigating how social media can encourage the use of health care resources, future research may fill this gap with further exploration.

On the other hand, good interpersonal communication experience with a provider, such as a pleasant office visit, plays a vital role in predicting one's intention to see a doctor. Such a result reflects previous literature regarding the relationship between

communication experience and active patient engagement. For instance, according to Street (2013), effective clinician-patient communication that allows patients to express concerns and ask questions can encourage patients to be more communicative (e.g., talk more about symptoms) and more actively involved in their treatment, leading to the improvement of health outcomes. In turn, research also shows that patients who are more confidently engaged in their treatment tend to have better care experiences with providers (Hibbard & Greene, 2013). Therefore, productive interactions between patients and providers lead to virtuous cycles of active self-management. Based on how patient experience was measured in this study, there are a few areas that health care professionals can keep in mind to improve the consultation experiences for patients. For example, doctors may allow patients to ask questions, pay attention to their emotions, provide the explanations that patients understand, spend the time that patients would perceive sufficient in addressing their concerns, and involve patients in decision-making processes. Hence, to improve patients' intention to visit a doctor if they need to, health care institutions can help improve the communication skills of providers.

Transforming the Use of Technology to the Use of Health Services

Thirdly, seeking health-related information online is one of the main risk factors correlated with people's tendency to avoid seeing a doctor even if they suspect they should. Such a result is in line with previous research, as the social norm of technology use is especially prominent among young adults (Schaeffer, 2019). According to Schaeffer (2019), 93% of the Millennial population has smartphones, and almost all of them use the Internet. The literature also shows that the Internet has become an essential

source for young people to seek health-related information (Schaeffer, 2019; Sheehy, Cohen, & R Owen, 2014). Indeed, communication technologies gratify people's curiosity within a few clicks, but such a convenient shortcut might have also taken people away from the medical resources in need.

However, technologies never cease being important parts of individuals' lives, and whether technology use is risky or beneficial may depend on its accessibility to health information and resources. In fact, previous research indicates that mobile applications, search engines, and video services can be great eHealth resources that create opportunities to assist people who have mental disorders (Marco-Ruiz et al., 2020). According to Marco-Ruiz et al. (2020), as individuals with psychological distress are more likely than those with other illnesses to use mobile apps, search engines, and videos for health-related purposes, eHealth may be an efficient venue to promote the use of psychological services among young people with mental distress. As such, it is essential to transform technology use from a health risk factor to a health benefit, and future research may continue to explore how technologies may motivate individuals to see a doctor if they feel they need to.

Conclusion

This study was aimed at exploring how personal characteristics and communicative environment may play a role in individuals' decisions on using medical services. For the general population, it shows that those who are younger, male, having mental issues, low social support, experiencing poor health care, and seeking health-related information online are at risk for not presenting themselves to medical care when

they suspect they should. As with people who have mental distress, the risk factors are quite similar. Such results suggest that the low diagnosis and treatment rates of mental illness in young people may be derived from their media use, as well as experiences with health care services. Interventions targeting the younger population to increase their help-seeking behaviors can particularly focus on their communication with the personal network, the Internet, and their health care providers.

This study also has limitations. First, it did not investigate individuals' reasoning behind their behavior of avoiding seeing a doctor. Future exploration may explore the cognitive mechanism behind such a maladaptive behavior. Second, it did not explore the potential mediation or moderation effect of the risk factors. Future research may examine the impact of interactions of factors, such as PCC and social media use. Third, this study only used secondary survey data. Future studies may use more longitudinal data to observe how personal and environmental factors influence people's health-related help seeking behavior. Finally, instead of using survey items related to the avoidance of seeing a mental health professional, this study utilized the one item in HINTS survey related to the avoidance of seeing a doctor. Even if the integration of primary and mental health services helps the study illuminate on how young adults might avoid seeking mental help by avoiding visiting a doctor, more research is needed to focus specifically on young people's reluctance to seek mental treatment to inform interventions targeting young adults' use of mental health services.

CHAPTER III

STUDY 2

Literature Review, Research Questions, and Hypotheses

Mental Illness in Young Adults

Statistics show that about half Americans can be diagnosed with some type of mental illness at some point in their lifetime; mental illnesses (e.g., depression) also rank as the third most common cause of hospitalization in the United States (Albert et al., 2017). Other consequences of mental illness include increased risk of cardiovascular disease, shorter longevity, self-harm, and suicide (Albert et al., 2017; Steinberg & Daniel, 2020), threatening the well-being of men and women (Steinberg & Daniel, 2020) in younger and older generations (APA, 2019).

Research suggests that mental illnesses are typically more dangerous in younger generations than in their older counterparts (APA, 2019; Patel et al., 2007). Also, a lack of timely treatments of mental illness from professional services (e.g., primary care, psychological counseling, and psychiatric treatment) exacerbates the mental health crisis in young adults (Auerbach et al., 2016; Eisenberg et al., 2011; Hunt & Eisenberg, 2010; Zivin et al., 2009). For example, as reported by Eisenberg et al. (2011), only a small portion of college students who are positively diagnosed with mental disorders have sought treatment. For those who have physical and mental health comorbidities, avoiding treatment can lead to cognitive impairment, physical disability, morbidity, and other poor mental and physical health consequences (Funk, 2008).

37

On the other hand, abundant research shows that communicating with family and friends in person or on social media is an important outlet young adults use to ease their emotional issues (De Choudhury & De, 2014; Egan et al., 2013; Moreno et al., 2011; Vanheusden et al., 2008). However, researchers have not drawn links between these communication methods and young people's avoidance of professional mental help.

While the use of mental health services is partly related to some personal and health-related characteristics, such as gender (W. Li, Dorstyn, & Denson, 2016) and mental health status (Jennifer, Adams, Burns, Brindis, & Irwin Jr, 2008), of interest in this study is the influences of different communicative environments. Specifically, this study explores the roles of three types of communicative environments (e.g., health care, media, family) in mental health-related intentions and behaviors using the theory of planned behavior. Also, since young people (e.g., typically college students) with mental distress tend not to seek treatment for their mental health (Eisenberg et al., 2011; Patel et al., 2007), this study focuses on the mental help-seeking intention of college students who have more than a moderate level of mental distress.

Theory of Planned Behavior

As an extension of the theory of the reasoned action (TRA) (Fishbein & Ajzen, 2011), TPB is a framework that explains why and how a behavior occurs (Montano & Kasprzyk, 2015). In this framework, the primary and direct predictor of a behavior is one's intention to conduct that action (Ajzen, 1991). Three intermediate factors, including personal attitudes (one's cognitive or affective evaluation of performing a behavior), perceived social norms (the social pressure toward performing a behavior),

and perceived behavioral control (the ease or difficulty of one's performing a behavior) of the behavior, affect behavior through their influence on one's behavioral intention (Ajzen, 1991). Some distal factors, such as demographic backgrounds and communication environments (e.g., family communication, patient–provider communication), may also influence behavioral intentions through their impact on personal attitudes, perceived social norms, and perceived behavioral control.

Empirical research has validated the power of TPB in predicting health-related behavioral intentions as well as behaviors (e.g., mental health, smoking cessation, physical activity) (Montano & Kasprzyk, 2015). For instance, research conducted in different countries (e.g., United States, Germany, Singapore) has found correlations between individuals' attitudes and their intention to seek mental help (Bohon et al., 2016; Shi & Kim, 2020; Tomczyk, Schomerus, Stolzenburg, Muehlan, & Schmidt, 2020; Zorrilla et al., 2019). People with positive attitudes toward help-seeking behavior and mental health care would be more likely than those with negative attitudes to have the intention to consult a (mental) health professional when having mental problems.

The literature on mental health also suggests that attitude may be the most important factor associated with one's intention to seek mental help (Bayer & Peay, 1997; Schomerus et al., 2009). For example, in an Australian study, Bayer and Peay (1997) suggested that attitude was a stronger predictor of the intention to seek professional mental help, compared with the subjective norm. Based on a representative sample of German, Schomerus et al. (2009) also found attitude to be a much more influential factor than the subjective norm and perceived behavioral control in predicting

the intention to seek psychiatric help for depression. Similarly, Shi and Kim (2020) found that not only is attitude an important predictor of mental help-seeking intention, but also a positive attitude is a boundary condition of the interaction of risk and self-efficacy that also account for the intention for seeking help.

Subjective norm is another predictor of behavioral intention, and it refers to the perceived social pressure toward performing or not performing the behavior in question (Ajzen, 1991). Researchers suggest that (social and personal) stigma on mental illness is a major normative barrier preventing college students from seeking help to improve their mental well-being (Corrigan et al., 2001; Eisenberg et al., 2009; Hunt & Eisenberg, 2010; Quinn et al., 2015). According to Corrigan and Watson (2002), the definition of stigma related to mental illness has three dimensions, including stereotyping, prejudice, and discrimination. Specifically, *stereotyping* is assuming people with mental illness are dangerous, incompetent, and weak; *prejudice* is holding hostility toward those who have mental illness; *discrimination* is having negative reactions to people with mental illness (Corrigan & Watson, 2002).

Previous research shows that both public (i.e., socially endorsed) and personal (i.e., personally internalized) stigma may influence individuals' intention to seek help (Nearchou et al., 2018), but evidence supports that personal stigma may be more related to help-seeking intentions. For example, based on a convenient student sample in Ireland, the study by Nearchou et al. (2018) suggests that public stigma, rather than personal stigma, significantly predicts one's help-seeking intention for mental illness and self-harm. However, a national survey in Australia shows that personal instead of public

stigma significantly predicts mental help-seeking intention (Yap, Wright, & Jorm, 2011),

and a recent study using college student sample in the US suggests internalized stigma is

a stronger barrier than public stigma to reduce an individual's intention to seek mental

help (Arnaez, Krendl, McCormick, Chen, & Chomistek, 2020). In addition, a systematic

review and meta-analysis on 144 studies published between 1980 and December

suggests that personal stigma has a small negative association with help-seeking,

whereas public stigma has no relation with this outcome (Clement et al., 2015). As

personal stigma may be a relevant heuristic cue that lowers people's intention to seek

help for mental problems, this study explores the association between personal stigma

and one's intention to seek mental help.

In addition to attitude and perceived norm, perceived behavioral control is the

third predictor of intention based on the TPB framework (Ajzen, 1991). According to

Ajzen (1991, p. 188), perceived behavior control is the "the perceived ease or difficulty

of performing the behavior," and the source of such perception lies in one's past

experience and expected obstacles related to the behavior. Ajzen (1991) also notes that

the recent view of this concept is most compatible with the term 'self-efficacy'

(Bandura, 1977, 1982), which refers to people's judgments of how well they can execute

a given behavior. Existing behavior theories, including TPB (Ajzen, 1991) and the

extended parallel process model (EPPM) (Witte, 1994), link self-efficacy to intention as

well as the actual behavior.

In the context of mental health, the self-efficacy of seeking mental help refers to

one's confidence in performing this behavior (Shi & Kim, 2020). Also, research

provides empirical evidence supporting the association between self-efficacy and behavioral intentions. For example, Shi and Kim (2020) found that when people have positive attitudes toward mental help-seeking, their self-efficacy interacted with risk perceptions to influence their intentions to seek mental counseling. Similarly, Teo, Shi, Huang, and Hoi (2020) suggest that the self-efficacy of Chinese people to use computers to finish tasks explains their intentions to use online mental counseling services.

Moreover, previous research also suggests that young people's attitudes, stigma, and self-efficacy related to mental health services are interconnected. For instance, a positive attitude may enable the interaction effect of self-efficacy and risk perception on help-seeking intention (Shi & Kim, 2020). Also, attitude is significantly related to self-stigma, as shame, a proxy of self-stigma, characterizes negative attitudes towards help-seeking behavior (Ibrahim et al., 2019; N. Rüsch et al., 2014).

Such findings have informed related health interventions (Montano & Kasprzyk, 2015), and an example is a school intervention by Lubman et al. (2020) that increased students' help-seeking behaviors regarding mental health.

Based on TPB and related empirical research, this study makes the following hypothesis:

H1: The favorable attitudes, low self-stigma, and high self-efficacy of college students reporting more than a moderate level of mental distress are associated with their intention in seeking mental help.

However, previous research using TPB to explore people's uses of mental health services primarily focuses on the immediate predictors of intention and behavior, leading

42

to a lack of attention on how the dismal factors (e.g., communication environments) affect one's intentions to seek mental help. Thus, the current study explores how college-related communication environments may affect students' uses of mental health services (Figure 1).

Figure 1 Theoretical Framework.
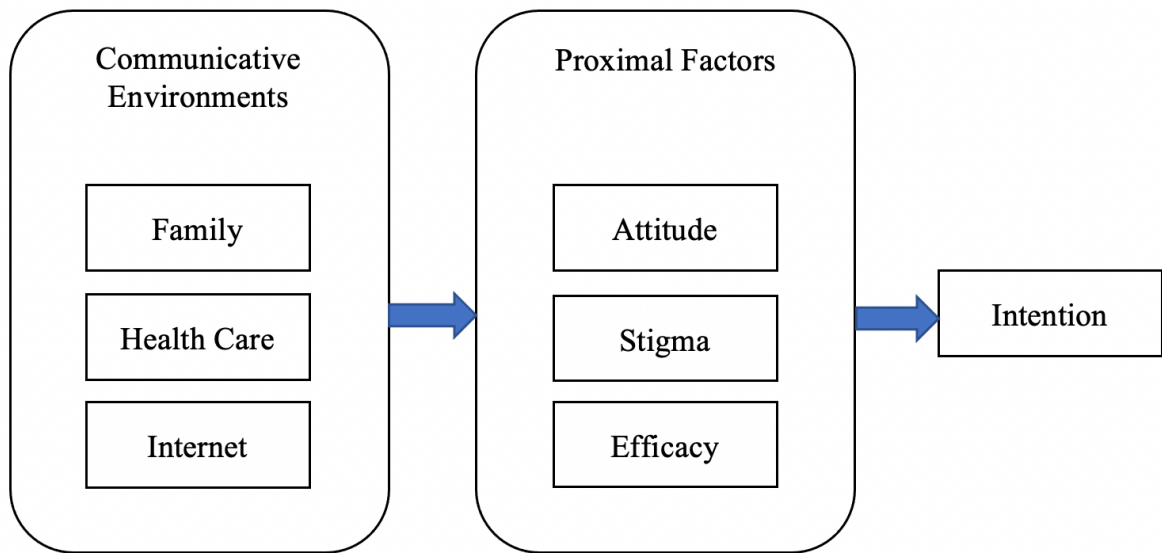
Communicative Environments

As Ajzen (1991, p. 202) explains, past experience may be "the best predictor of future behavior." Miller (1966) also notes, behavioral phenomena cannot be viewed in isolation, and human communication transmits information that permeates behaviors. Therefore, researchers should consider an individual's communicative experience when explaining a behavior, as this experience may influence that person's intentions and behaviors through changes in attitude, perceived norm, and self-efficacy.

However, no research has explored collectively how different communication environments influence the use of mental health services. Most existing literature was focused on attitude, stigma, and self-efficacy as the predictors of behavioral intention. Though, a few studies have revealed that one's interpersonal communication experience—such as interacting with a counselor (Jang et al., 2009); social media interactions (Jang et al., 2009); and family conversations (Connor et al., 2016)—are related to factors (e.g., help-seeking attitude, mental health, online information-seeking behavior) that may influence intentions to seek mental help. In fact, empirical research suggests that interpersonal social influences significantly predict people's health beliefs, behavioral intentions, and health outcomes (Ackerson & Viswanath, 2009; Hendriks, van den Putte, de Bruijn, & de Vreese, 2014). Moreover, these influence could be even more powerful than mass media in influencing personal risk perceptions (Morton & Duck, 2001), which are related to the initiation of health-related reactions (So, 2013), such as seeking mental help.

Therefore, this study explores whether the aforementioned three types of interpersonal communication (i.e., patient-provider, family, and online interactions) can affect college students' help-seeking behaviors.

Patient-Provider Communication

Based on the communication pathway model (Street, 2013), patient-centered clinician-patient communication that provides patients with supportive care (e.g., active listening to patients' problems, asking questions) can directly or indirectly enhance patients' (mental) well-being by increasing patients' trust in the healthcare system and

improving their self-care skills (e.g., seeing a doctor when having a mental/physical problem).

In line with the pathway model, empirical research indicates that quality patient-provider communication leads to patients' improved psychological status. For instance, providers' caring expressions (e.g., smiling, eye contact) and attending to patients' emotions can help patients better manage their emotions (Derksen, Bensing, & Lagro-Janssen, 2013; Henry, Fuhrel-Forbis, Rogers, & Eggly, 2012) and reduce patients' anxiety (Daniali & Flaten, 2019). Providers' being able to understand patients' perspectives and talk to patients in a warm manner can also lower patients' psychological distress (Lelorain, Brédart, Dolbeault, & Sultan, 2012).

Even though, there lacks research on how patient-centered communication can improve patients' emotional well-being by motivating them to seek mental help. Existing literature only documents that past communication experience with (mental) health care providers leads to the increased likelihood to seek help for mental problems. For instance, Jennifer et al. (2008) suggest that having routine physical examinations in the past year significantly predicts future use of mental health services, but they attribute this to patients' *self-efficacy* to maintain their health. A study by Tijhuis, Peters, and Foets (1990) also reveals that having prior contact with a mental health professional may increase an individual's intention to use the service again, as the prior help-seeking experience (positive or negative) may add to the person's positive *attitude* towards using mental health services.

Indeed, while it is unclear how patient-provider communication motivates mental help-seeking, a small number of studies indicate a few ways that patient-centered communication or a good patient-provider relationship can lead to favorable orientation toward mental help-seeking. That is, quality interactions with (mental) health care providers influence patients' help-seeking *attitude*, *stigma*, and *self-efficacy* (Lee, 2019; Priest, Vize, Roberts, Roberts, & Tylee, 1996; Van Voorhees et al., 2005), which may contribute to their positive intentions to seek help.

Attitude

For example, provider's giving reassurance to patients' psychological needs has helped patients feel good about seeking mental help (Dang, Westbrook, Njue, & Giordano, 2017). Van Voorhees et al. (2005) argues that patients' trust in their providers might affect their attitudes towards mental diagnosis and help-seeking for mental problems.

Stigma

In their survey showing that most people perceive antidepressants and tranquilizers as addictive, Priest et al. (1996) analyze that such stigmatization of depression treatment could be traced back to the influence of general practitioners. In fact, how providers explain the cause of illness (e.g., overweight) can lead to patients' self-blame and stigmatization of having that illness (Persky & Street Jr, 2015). Thus, providers' non-stigmatizing conversations over mental treatments might reduce patients' stigma of mental illness (Priest et al., 1996).

Research also shows that patient-centered communication tailored to patients' psychological needs has increased the efficacy of patients who had post-traumatic stress to manage their emotions (Nieforth & Craig, 2020). Moreover, providers' communication that is informative and educational can enhance patients' awareness of (mental) health issues, which increases their self-efficacy to manage (mental) health by seeking help from professionals (Lee, 2019).

Based on the literature mentioned above, quality communication between patients and providers may lead to patients' use of mental health services directly or indirectly through its influence on factors, such as attitude, perceived stigma, and self-efficacy. Hence, this study hypothesizes:

H2: Patient-centered communication experience increases the intention of college students who report more than a moderate level of mental distress to seek mental help through enhanced attitude, reduced perceived stigma, and increased self-efficacy.

Family Conversation

In addition to clinical communication, family communication patterns may also affect one's mental help-seeking behaviors. Based on family communication patterns theory (Fitzpatrick & Ritchie, 1994), two dimensions of family interactions (e.g., conversation and conformity styles) influence people's cognitive processing of information, shaping their social reality, communication, and behavioral outcomes.

The *conversation* dimension refers to the openness of a family's interpersonal conversations (Fitzpatrick & Ritchie, 1994) – When a family encourages exchanging

47

information, the family has an open conversation and its members believe that open conversations lead to an enjoyable life. The *conformity* dimension indicates a family's level to act uniformly (Fitzpatrick & Ritchie, 1994) – If a family has a high level of conformity, the members would value a harmonious atmosphere and avoid conflicting views.

Previous literature has explored the connections between family communication patterns and mental health. According to a meta-analysis on heterogenous studies that explored the impact of family communication patterns, both communication orientation and conformity in a family are associated with children's mental well-being (Schrodt, Witt, & Messersmith, 2008). More specifically, research suggests that family's communication orientation has a modest positive effect on young adult's mental well-being, but such a relationship is mediated by parents' affection of their children (Schrodt, Ledbetter, & Ohrt, 2007), parents' communication styles (e.g., demand to talk about or withdraw from issues) during conflicts (Schrodt & Ledbetter, 2007), and the children's cognitive status (e.g., cognitive flexibility to adapt to a given situation) (Koesten, Schrodt, & Ford, 2009). Comparatively, family conformity has a smaller negative impact on young adult's mental well-being, and such a relationship is often fully explained by the mediating factors listed above (Koesten et al., 2009; Schrodt & Ledbetter, 2007; Schrodt et al., 2008).

Direct Impact

While using professional mental resources is a critical way to maintain mental health, no research so far has explained how family communication patterns influence

48

young people's mental status by encouraging/discouraging mental help-seeking. Nevertheless, existing literature provides some clues connecting family interactions and young people's mental help-seeking behavior. For example, a qualitative study of people with severe mental disorders shows that young people's opening up about their exacerbating mental symptoms (e.g., self-harm, suicidal ideation) can ignite families' collective response assisting them to seek mental help (Connor et al., 2016). Therefore, college students raised in a more open family environment may be more likely to speak up about potential mental disorders, causing the family's awareness of seeking mental treatment. Also, some mental health interventions have used family communication as a social influence to shape the mental help-seeking behavior in minority populations, such as Asian Americans and refugees with PTSD (S. Weine et al., 2008; S. M. Weine, 2011). Since people who follow their family's traditions share high conformity among family members (Koesten et al., 2009), students raised in a conforming environment may be likely to seek mental help if other family members do this when necessary.

Indirect Impact

The TPB suggests that behaviors are a function of attitude, norm, and efficacy. Therefore, in addition to the possibility that family communication can directly influence college students' use of mental services, this influence may also happen indirectly through the changes in their attitude, perceived stigma, and self-efficacy related to mental help-seeking. Although previous research has not explored such a relationship, it provides evidence that family communication patterns shape young people's, especially college students' attitudes (Baiocchi-Wagner & Talley, 2013; Booth‑Butterfield &

Sidelinger, 1998), stigma, and efficacy in various health-related contexts (e.g., diet, exercise, sex, alcohol use). For instance, open family communication may lead to individuals' positive attitude towards healthy diet (Baiocchi-Wagner & Talley, 2013), reduced alcoholism-related stigma (Haverfield & Theiss, 2016), and enhanced efficacy to navigate parents' substance abuse (Hemati, Abbasi, Oujian, & Kiani, 2020), whereas family conformity is related to negative attitude towards responsible drinking (Booth‐Butterfield & Sidelinger, 1998), increased weight stigma (Asbury & Woszidlo, 2016), and reduced ability to seek social support regarding health issues (High & Scharp, 2015).

To bridge the gap in literature and explore how family communication patterns influence an individual's mental help-seeking, this study hypothesizes:

H3: Open family communication increases an individual's intention to seek mental help through enhanced attitude, reduced perceived stigma, and strengthened self-efficacy.

H4: Family conformity discourages an individual's intention to seek mental help through decreased attitude, increased perceived stigma, and reduced self-efficacy.

Online Interactions

As social media becomes a prevalent platform for individuals to connect, it also gains popularity among young adults who have mental illness (K. Gowen, Deschaine, Gruttadara, & Markey, 2012). Previous research found relationships between social isolation, depression, and the use of social media. For instance, Primack et al. (2017) suggest that frequent social media users are twice as likely as those infrequent users to have greater perceived social isolation. In a study by K. Gowen et al. (2012), about 94%

50

of the people who reported mental illness used social media because they intended to compensate offline a lack of social interactions through online social networking. Other researchers also suggest that people who do not find real-life interactions rewarding would turn to various online social platforms (e.g., personal webpage, mobile applications, and social networking sites) to compensate the offline social support (Barker, 2018; Leung, 2011; Papacharissi, 2002). However, while online social support is essential for young people with mental problems, there is no research explicating how such support may influence these individuals' intention to seek mental help.

Though, existing research finds some connections between (online) social support and the TPB factors. For example, Frison and Eggermont (2016) suggest that girls who perceive more online social support would be more likely to feel depressed, while a meta-analysis by Nam et al. (2013) shows that depression may lead to lessened intention to seek mental help. A systematic review of 22 studies provides some evidence that a higher level of social support may lower the stigma of help-seeking (Gulliver et al., 2010). Oh, Lauckner, Boehmer, Fewins-Bliss, and Li (2013) also found that Facebook use may increase one's perceived social support, and the emotional social support online predicts one's health-related self-efficacy.

Based on such findings, the support gained from the online social environment may shape individuals' intention to seek mental help through its influence on attitude, perceived stigma, and self-efficacy, and this study hypothesizes:

H5: Online social support increases the intention of college students who report more than a moderate level of mental distress to seek mental help through more favorable attitudes, reduced perceived stigma, and enhanced self-efficacy.

In sum, this study hypothesized that communication factors (i.e., family communication pattern, patient-centered communication, online support) influence college students' intention to seek mental help through their impact on help-seeking attitude, perceived norm, and self-efficacy.

Method

Data Collection and Sampling

This study used a college student sample to test the research hypotheses. Data collection occurred from February to April 2020.

A total number of 456 participants were recruited from a participant pool at Texas A&M University. Eligible participants were over 18 years old and taking a communication course. Participation in this study was voluntary and rewarded the students with an extra course credit. Of all the participants, 428 completed more than 75% of the survey questions and were included in the analysis.

This study received the university's institutional review board (IRB) approval.

Study Measures

For *help-seeking attitudes*, participants rated 1 ("*strongly disagree*") to 5 ("*strongly agree*") on ten items of the Attitudes Toward Seeking Professional Psychological Help Scale-Short Form (ATSPPHS-SF) (Fischer & Farina, 1995). Sample items included "If I believed I was having a mental breakdown, my first inclination

would be to get professional attention" and "The idea of talking about problems with a psychologist strikes me as a poor way to get rid of emotional conflicts." All items were summed to create a composite (Cronbach's alpha = .801), and it ranges from 10 to 50 (M = 31.53 SD = 5.973).

For *self-stigma* of seeking help, participants rated 1 ("*strongly disagree*") to 5 ("*strongly agree*") on ten items adopted from the Self-Stigma of Seeking Help (SSOSH) scale (Vogel, Wade, & Haake, 2006). The SSOSH scale has had excellent reliability between .86 and .90. Sample items of this scale included "I would feel inadequate if I went to a therapist for psychological help" and "Seeking psychological help would make me feel less intelligent." All items were summed to create a composite (Cronbach's alpha = .874), ranging from 10 to 50 (M = 24.55, SD = 7.963).

Efficacy was measured by 7 items selected from the generalized self-efficacy scale (GSF) by Jerusalem and Schwarzer (1995). Participants rated 1 ("*strongly disagree*") to 5 ("*strongly agree*") on the answers, which included sample items such as "I can solve most my mental problems if I invest the necessary effort" and "When I am confronted with a mental problem, I can usually find several solutions." All items were summed to create a composite (Cronbach's alpha = .859), ranging from 7 to 35 (M = 27.24, SD = 4.922).

Family communication patterns were measured by 12 items from the Revised Family Communication Pattern Instrument (Ritchie & Fitzpatrick, 1990), testing the conversation and conformity styles of a participant's family. The measure asked about participants' attitudes on 12 statements, such as "I can tell my parents almost anything."

The answers were assessed on a 5-point scale, ranging from 1 ("*strongly disagree*") to 5 ("*strongly agree*"). Six items related to family conversation orientations were summed to create a composite (Cronbach's alpha = .886), ranging from 6 to 30 (M = 19.87, SD = 6.253). Similarly, six items related to family conformity styles were summed to create a composite (Cronbach's alpha = .770), ranging from 6 to 30 (M = 21.62, SD = 4.632).

Patient-centered communication was measured by eight items derived from a previously validated construct (Street, 1991), assessing patients' perceptions of physicians' informativeness, interpersonal sensitivity, and partnership-building. Sample items included statements, such as "the doctor showed a genuine interest in my health." The answers were assessed on a 5-point scale, ranging from 1 ("*strongly disagree*") to 5 ("*strongly agree*"). All items were summed to create a composite (Cronbach's alpha = .855), ranging from 8 to 40 (M = 31.55, SD = 5.652).

Online social support was measured by the four-item Online Social Support Scale (OSSS, see Appendix) (Nick et al., 2018). OSSS was rigorously developed from prior research and has been validated by numerous studies (Cole, Nick, & Pulliam, 2020; Kent de Grey et al., 2019; Pulliam, 2018). Each item was measured on a 5-point scale, ranging from 1 ("*strongly disagree*") to 5 ("*strongly agree*"). All items were summed to create a composite (Cronbach's alpha = .720), ranging from 4 to 20 (M = 14.91, SD = 2.946).

Intention was measured by a validated item modified from literature based on TPB and the transtheoretical model (TTM) (Sarkin, Johnson, Prochaska, & Prochaska, 2001), which is a framework for modeling behavioral intention on a timeline. Previous

research has rationalized and validated the use of this item as an outcome of the TPB construct (Boonroungrut & Fei, 2018; Hirai et al., 2013; Malotte et al., 2000; Wyker & Davison, 2010). This item asked if a participant has sought mental help from a health care professional. Answers to this item included "not intending to seek help in the next six months," "intending to seek help in the next six months," "planning to seek help in the next 30 days," "have already sought help but for less than six months," and "have been under treatment for more than six months."

For the control variables, participants reported their *gender* (0 = male, 1 = female) and *mental health status*. Mental health status was measured by the two mental health-related questions adopted from the 8-item Short-Form Health Survey (Ware, Kosinski, Dewey, & Gandek, 2001), and the questions asked, "During the past 4 weeks, how much have you been bothered by emotional problems (such as feeling anxious, depressed or irritable)?" and "During the past 4 weeks, how much did personal or emotional problems keep you from doing your usual work, school or other daily activities?" Both questions were scored on a 5-point scale (1 = "*not at all*", 5 = "*Extremely*"). After reverse coding, a higher score suggested better mental health status. The sum of both questions was dichotomized to create a dummy variable to represent a participant's mental health status (0 = poorer mental health, 1 = better mental health), and the cutoff value for this dichotomization was six as participants may averagely score 1 ("very poor") to 3 ("neutral") on each of the recoded mental health item. About a third of the participants scored equal to or lower than six (N = 137).

Finally, any survey items mentioned above were reverse coded if deemed appropriate. Therefore, a higher score of a study measure indicated a higher level of that variable.

Data Analysis

STATA 16.1 and SPSS 26.0 were used for data analysis.

To test the hypotheses, a structural equation model was constructed using the variables. Exogenous variables were the communication factors (i.e., family communication pattern, patient-centered communication, online support), whereas help-seeking attitude, perceived stigma, efficacy, barriers, and the intention to seek help were endogenous variables. All endogenous variables were regressed on the exogenous variables. Attitude, perceived stigma, efficacy, barriers were also intercorrelated. The model was controlled for the demographic variables. The maximum likelihood method was used to estimate the path parameters.

To test for the model's goodness of fit, the current study employed the cutoff indices suggested by Kline (2015) and reports the models' Chi-square test ($p>.05$), root mean square error of approximation (RMSEA$<.08$), comparative fit index (CFI$\geq.90$), and standardized root mean square residual (SRMR$<.08$). The coefficients in the parameter estimation were standardized for model interpretation.

To explore potential indirect effects in the model, STATA's built-in "estat teffects" post-estimation command was used. This command helps estimate the direct, indirect, and total effects in SEM models (MacKinnon & Fairchild, 2009).

Results

Descriptive Analysis

Of all the 428 participants, 223 were female (52.1%) and 199 were male (46.5%). For mental health status, about 65.2% of the participants (N = 279) had relatively better mental states than the 32% participants (N = 137) who reported having experienced some mental distress. About 2.8% of the participants did not report their mental status (N = 12). Participants generally had a quite neutral attitude (M = 31.53, SD = 5.973), relatively low self-stigma (M = 24.55, SD = 7.963), and relatively high self-efficacy related to seeking mental help (M = 27.24, SD = 4.922). For family communication patterns, the participants' family averagely had a medium open conversation orientation (M = 19.87, SD = 6.253) and a moderately conforming style (M = 21.62, SD = 4.632). For patient-centered communication, participants generally had a relatively positive experience communicating with their doctors (M = 31.55, SD = 5.652). For online social support, the participants generally received good amount of online social support (M = 14.91, SD = 2.946). For the intention to seek help, 70.7% of the participants (N = 302) reported being "not intending to seek help in the next six months," suggesting that some college students who experience mental problems might need to be more motivated to seek mental help (Table 2).

Table 2 Descriptive Analysis.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Gender M=.53 SD=.5	1									
(2) Mental Health M=.67 SD=.47	-.11*	1								
(3) Attitude M=31.53 SD=5.97	.23**	-0.09	1							
(4) Stigma M=24.55 SD=7.96	-.11*	-0.02	-.53**	1						
(5) Efficacy M=27.24 SD=4.92	-.13**	.28**	-.17**	-0.08	1					
(6) Conversation M=19.87 SD=6.25	0.05	.15**	.16**	-.22**	.24**	1				
(7) Conformity M=21.62 SD=4.63	0.05	-.11*	-0.04	.23**	-.13**	-.41**	1			
(8) PCC M=31.55 SD=5.65	0.05	.11*	0.05	-.13**	.28**	.12*	0.07	1		
(9) Online Support M=14.91 SD=2.95	.13**	-0.08	.13**	-0.06	.11*	.17**	0.06	.13**	1	
(10) Intention M=1.74 SD=1.29	.14**	-.27**	.29**	-.13*	-.24**	-0.003	-0.02	-.14**	0.06	1

Note. *: $p < .05$, **: $p < .01$, ***: $p < .001$

For bivariate correlations, the attitude toward seeking help is significantly correlated with being female (r = .225, p < .01), stigma (r = -.535, p < .01), self-efficacy to solve one's own mental problems (r = -.169, p < .01), families' open conversation style (r = .161, p < .01), perceived online support (r = .130, p < .01), and the intention to seek mental help (r = .285, p < .01). One's self-stigma of seeking mental help is correlated with being female (r = -.114, p < .05), families' open conversation (r = -.221, p < .01) and conformity styles (r = .226, P < .01), perceived patient-centered

communication (r = -.133, p < .01), and the intention to seek help (r = -.125, p < .05). Efficacy is correlated with being female (r = -.132, p < .01), mental health states (r = .281, P < .01), families open communication (r = .244, p < .01) and conformity styles (r = -.129, p < .01), perceived patient-centered communication (r = .275, p < .01), perceived online support (r = .111, p < .05), and the intention to seek help (r = -.237, p < .01). Additionally, participants' intention to seek help is not significantly correlated with families' open communication (r = -.003, p > .05) and conformity styles (r = -.017, p > .05).

Structural Equation Modeling

The result showed that the conceptual model (N = 394) did not fit the data perfectly (Chi^2 (df = 1) = 0, p < .001), but the goodness-of-fit indices suggested a good model fit (RMSEA = 0 (95%CI = [0, 0], p = 1), SRMR = 0, and CFI = 1). The AIC of this model was 18912.834 and BIC was 19063.935. This model explained about 37.07% of the data, and also explained 9.27%, 10.35%, 19.68%, and 19.80% of the variance in attitude, stigma, efficacy, and the intention to seek mental help.

Significant predictors of the intention to seek mental help included positive attitudes toward seeking help (ß = .255, p < .001), low self-efficacy to manage one's mental health (ß = -.130, p = .011), low perceived patient-centered communication (ß = -.098, p = .043), and poorer mental states (ß = -.191, p < .001). Open family conversation (ß = .166, p = .003) and being female (ß = .205, p < .001) predicted positive attitudes toward seeking mental help. Relatively closed (ß = -.112, p = .045) and conforming family conversation styles (ß = .201, p < .001), low perceived patient-centered

communication experience (ß = -.134, p = .006), and being male (ß = -..110, p = .022)

predicted self-stigma towards seeking mental help. Significant predictors of self-efficacy

to manage one's mental health included high perceived patient-centered communication

(ß = .224, p < .001), open family communication (ß = .151, p = .004), high online

support (ß = .093, p = .045), being male (ß = -.132, p = .003), and good mental health (ß

= .213, p < .001). Also, attitude and self-stigma (ß = -.535, p < .001), and attitude and

self-efficacy (ß = -.184, p < .001) were significantly and negatively intercorrelated

(Figure 2).

Figure 2 Original Model.
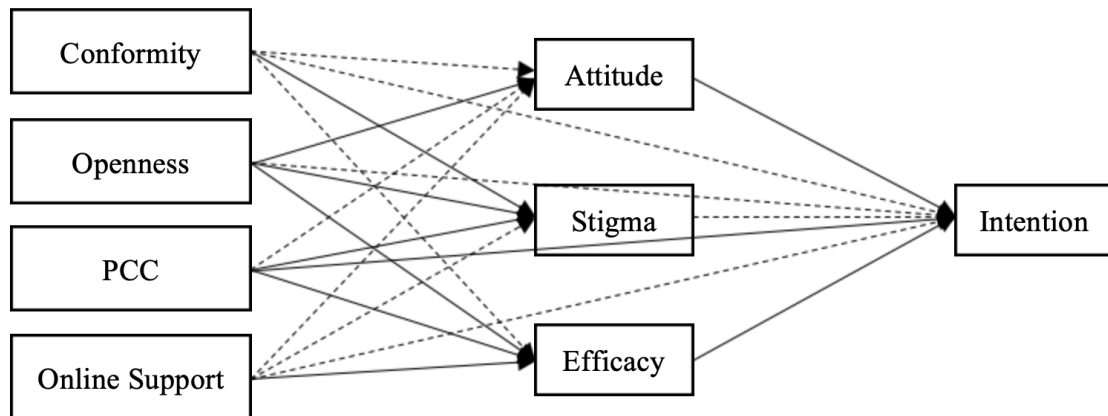
Note. Solid lines represent significant paths; dashes are insignificant paths. Paths linking

the controlled variables are not shown.

Since the conceptual model showed a number of insignificant paths among the study variables, these paths may have reduced the model fit. After removing insignificant paths and changing non-directional paths to directional ones, a new model was accepted with improved model fit (Figure 3).

Figure 3 Refined Model.
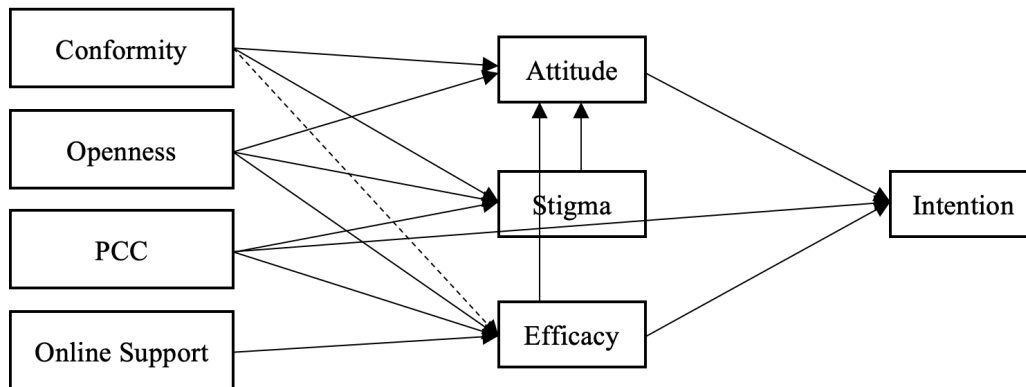
Note. Solid lines represent significant paths; dashes are insignificant paths. Paths linking the controlled variables are not shown.

The accepted model also had 394 observations. It fit the model perfectly (Chi^2 (df = 8) = 5.30, p = .725) and contained more information than the original model (AIC = 18902.135, BIC = 19021. 425). In addition, the model explained 36.23% of the variance in the data, and it also explained 37.92%, 10.31%, 19.68%, and 19.29% of the variance in attitude, perceived self-stigma self-efficacy, and the intention to seek mental help. Therefore, the model's explanation power for attitude greatly improved.

H1 (The TPB Model)

Consistent with H1, college students' higher intention to seek mental help was associated with positive attitude toward seeking help (ß = .257, p < .001). However, self-stigma was not a predictor of the help-seeking intention, and self-efficacy to manage one's mental health (ß = -.119, p = .016) was inversely related to students' intention to seek mental help. Thus, H1 was partially supported. Also, based on the original TPB model, this study found interrelations between attitude, stigma, and self-efficacy. That is, low self-stigma (ß = -.540, p < .001) and low self-efficacy to manage mental health problems (ß = -.187, p < .001) predicted more favorable attitude towards mental help-seeking.

H2 (Impact of PCC)

Consistent with H2, low perceived PCC was associated with higher mental help-seeking behavior (ß = -.101, p = .032), reduced perceived stigma (ß = -.136, p = .005), and increased self-efficacy (ß = .224, p < .001). However, PCC did not predict help-seeking attitude in the model. H2 was partially supported.

H3 (Impact of Open Family Communication)

Inconsistent with H3, open communication among family members was not a predictor of one's intention to seek mental help. Though, consistent with H3, open communication in families predicted enhanced attitude (ß = .149, p = .001), reduced perceived stigma (ß = -.117, p = .033), and strengthened self-efficacy (ß = .151, p = .004). Therefore, H3 was partially supported.

H4 (Impact of Family Conformity)

Inconsistent with H4, family conformity did not predict one's intention to seek mental help. It was not a significant predictor of self-efficacy (ß = -.066, p = .206), and higher family conformity significantly predicted more favorable attitude of seeking mental help (ß = .103, p = .023). Even so, consistent with H4, higher family conformity was associated with severer stigma of seeking mental help (ß = .198, p < .001). Hence, H4 was partially supported.

H5 (Impact of Online Support)

Consistent with H5, better online support is associated with enhanced self-efficacy (ß = .093, p = .045). However, inconsistent with H5, online support did not predict intention, attitude, and stigma related to mental help-seeking. Therefore, H5 was partially supported.

For the control factors, poor mental health (ß = -.196, p < .001) predicted higher help-seeking intention. Having good mental health (ß = .213, p < .001) significantly predicted one's self-efficacy to manage mental problems. Being female (ß = .126, p = .002) was associated with better attitude to seek mental help, whereas being male significantly predicted of having high self-stigma of seeking mental help (ß = -.112, p = .019) and higher self-efficacy to take care of one's mental health (ß = -.132, p = .003).

The model also shows some indirect effects on attitude and the intention to seek mental help. For instance, family's conversation conformity had a negative indirect effect on attitude through self-stigma (d = -.125, p = .003), and being female positively affected attitude through stigma and efficacy (d = 1.04, p = .003). For the intention to

seek help, self-stigma (d = -.022, p < .001) and efficacy (d = -.012, p = .001) indirectly affect it through their impacts on attitude, and mental health indirectly affect it through efficacy and attitude (d = -.136, p = .006). Also, gender has indirect effect on intention through efficacy, self-stigma, and attitude (d = .180, p < .001).

Discussion

Young adults, such as college students, have lower mental health status than other age groups, and they also tend not to use professional resources to alleviate their mental problems. Previous research explored the risk factors of college students' not seeking mental help but paid inadequate attention to how one's communicative environment contributes to their intention and behavior of using mental health resources.

The overarching aim of the current study is to test the impact of communicative environments (consisted of online support, PCC, and family communication patterns) on college students' intention to seek professional mental help. Based on the TPB framework, this study mainly investigated whether the communication factors influence students' intention and behavior to seek mental help directly or indirectly through their impacts on attitude, self-stigma, and self-efficacy. The results show that among all the communication factors explored, PCC directly affects one's intention to seek help, but no significant indirect effect was found between communication factors and the outcome variable. Meanwhile, as predicted by the theoretical construct, individuals' Internet, patient-provider, and family communication affect the TPB factors (e.g., attitude, self-stigma, and self-efficacy) that further influence the help-seeking outcome. Such findings

64

have important theoretical and practical implications related to college students' mental help-seeking behavior.

<div align="center">*Theoretical Contribution*</div>

This study validated a modified TPB model in a mental health context. As a result, the model explains about 19.3% of the variance in college students' intention to seek mental help, suggesting that its explanation power improved from previous research using only TTM as the theoretical construct. For instance, Abrams, Herzog, Emmons, and Linnan (2000) reported that TTM could only predict 10% of individuals' stage of change in smoking cessation, and the research by Romain and Abdel-Baki (2017) showed that the TTM construct explained 14.5% of the variance in physical activities among individuals who have serious mental disorders. Research uses only TPB explores various health behaviors from physical activity to safe sex, and existing meta-analyses based on such research suggest that TPB's explanation power varies for different health behaviors (Y. Han & Hansen, 2012; Topa & Moriano, 2010). For example, it explains about 13.8% of the variance in safer sex and can predict 23.9% of the variance in physical activity (Topa & Moriano, 2010). Comparatively, previous literature directed little attention to help-seeking behavior for mental health. A recent study by Tomczyk et al. (2020) indicated that TPB explained about 23% of the variance in German adults' utilization of professional mental services, but the sample group had a mean age of 50, which may not be comparable for young adults. Therefore, while more research is needed to further explore the application of TPB and its extended construct in the mental health context, combining TTM and TPB may have increased the explanation power of

TTM. As supported by previous research (Fishbein, Hennessy, Yzer, & Douglas, 2003), this is realized by examining the complexity of behavior that the original TPB construct does not test.

Attitude and efficacy were significant predictors of college students' intentions to seek help, but self-stigma was not a significant predictor. For attitude, previous research suggested that attitude was the strongest factor associated with one's intention to seek mental help (Bayer & Peay, 1997; Schomerus et al., 2009). This study's finding also showed that attitude was the most important contributor to the intention and behavior of using mental health services. Therefore, as the general public is increasingly open to talk about mental health issues (APA, 2019), interventions to increase young people's mental help-seeking intentions can not only directly improve their help-seeking attitudes (Demyan & Anderson, 2012; Essler, Arthur, & Stickley, 2006) but also indirectly enhance the attitudes by focusing on predictors of attitudes, which may include self-efficacy, stigma, and the communicative environments.

For efficacy, inconsistent with the previous research that showed positive association between individuals' self-efficacy and their intention to seek mental help (Shi & Kim, 2020; Teo et al., 2020), the current study found a negative relationship between self-efficacy and individuals' intention to seek mental help. This may be due to the wording of the self-efficacy scale (GSF) (Jerusalem & Schwarzer, 1995), which framed efficacy as individuals' confidence to take care of their own mental health. This scale may have measured students' ability to ease mental problems when they intend not to seek professional mental help. Even so, the path coefficients of intention and the

66

proximal factors (e.g., self-efficacy, attitude) in this study are similar to those reported in a meta-analysis by Tomczyk et al. (2020), which was partially based on the TPB construct. Also, this study's results on self-efficacy reflect the premises of self-determination theory (Ryan & Deci, 2000) and related research (Tomczyk et al., 2020). Based on the self-determination theory (Ryan & Deci, 2000), intrinsic motivation enhances individuals' competence to engage in healthy behaviors, which can improve their physical and psychological well-being. Hence, interventions focusing on activating people's internal motivations (e.g., moral integrity) to seek mental help may be more beneficial than those focusing on extrinsic factors (e.g., knowledge) (Essler et al., 2006; Hadlaczky, Hökby, Mkrtchian, Carli, & Wasserman, 2014) to improve their utilization of mental health resources.

For self-stigma, contrary to previous literature (Arnaez et al., 2020; Yap et al., 2011), self-stigma of mental illness is not a significant predictor of one's intention to seek mental help. Two reasons may have contributed to such a result. First, due to the emergence of existing mental health campaigns, people's improved understanding of mental health may reduce their stigmatization of mental problems (APA, 2019). In fact, the mean self-stigma level was relatively low in this study's sample (M = 24.55, SD = 7.963), potentially causing a ceiling effect on its influence on one's intention to seek mental help. Next, such a result may be due to this study's alteration of the TPB construct based on previous research. The literature showed that internalized stigmatic norm can be better associated with an individual's intention to seek mental help than subjective norm that stigmatizes mental illness (Arnaez et al., 2020). In fact, as self-

stigma has a negative relationship with attitude, it can be understood as an underlining

stigmatized belief shaping one's intrinsic motivation to seek help (Ajzen, 1991).

Nevertheless, based on the social cognitive theory (Bandura, 2009), personal-

level factors, such as self-stigma, attitude, and efficacy, are not the only factors

determining mental help-seeking behaviors. While previous research mentioned above

primarily focused on connecting the personal-level factors to enhance mental help-

seeking behavior (e.g., attitude, stigma, self-efficacy) (Bayer & Peay, 1997; Nearchou et

al., 2018; Schomerus et al., 2009; Shi & Kim, 2020), this study contributes to such

literature by examining the impact of environmental factors. Understanding how

communication environments influence mental help-seeking behavior can shed light on

communication-based interventions to shape one's attitude, stigma, and efficacy and

increase individuals' mental help-seeking behavior.

<div align="center">Environmental Factors: Direct Impact on Intention</div>

As an environmental factor, PCC directly influence one's intention to seek

mental help. Contrary to previous research on how past interactions with (mental) health

care providers may increase one's likelihood to seek mental help (H. Chang, 2008; D.

Rickwood et al., 2005), this study's findings showed that PCC has a negative impact on

one's intention to seek help. That is, when providers communicate efficiently with their

patients by caring for their physical and mental needs, patients may be less likely to seek

mental help. Indeed, research has found that PCC helps attenuate patients' psychological

distress. For instance, a longitudinal study by Dang et al. (2017) showed that provider's

reassurance, non-judgmental language, and giving patients opportunities to ask questions

<div align="center">68</div>

was associated with lessening HIV patients' negative emotions, such as anger, shame, and anxiety about contracting the disease. Providers' communicating with patients in a warm and empathetic manner also reduced cancer patients' psychological distress (Lelorain et al., 2012), which may reduce patients' perceived need to seek mental help. Research also reported that PCC may equip patients with good self-care skills that can reduce their need to seek help (Lee, 2019). Therefore, especially for college students who already lack motivation to seek mental help (Garlow et al., 2008), having positive psychological and behavior outcomes due to PCC may strengthen their belief that they need no mental health services. Nevertheless, providers can still increase college students' attitude to seek mental help by providing mental health knowledge for them (Essler et al., 2006; Hadlaczky et al., 2014). Also, since health care providers' mindful communication can help reduce patients' stigmatic perception of mental illness (Priest et al., 1996), providers may also need to communicate to college students in a way that counters the social stigmatization of mental illness.

For the direct impact of other communicative environments, family and online communication did not show significance predicting one's intention to seek mental help. While the literature underlined the impact of family and online environments on people's mental help-seeking behavior (Connor et al., 2016; Lazuras & Dokou, 2016), there lacked research on how the constellation of different communicative environments influences college students' use of mental health services. Therefore, another contribution of this study is suggesting that the communication with health care providers may play a bigger role than that with family members or the internet users.

69

Hence, while more research is needed to further explore the impact of PCC on the intention to seek help, providers need to educate college student patients on the benefits of taking care of their mental health, ensure the privacy of mental counseling (Davenport, 2017), and help them navigate the mental health services provided on and offline (Baker & Ray, 2011).

<p align="center">*Environmental Factors' Impact on Attitude, Stigma, and Efficacy*</p>

Moreover, this study found that people's communication environments can affect their attitude, stigma, and efficacy. Such a result contributes to the literature on how one's personal characteristics (e.g., gender, mental health status) (Jennifer et al., 2008; W. Li et al., 2016) are associated with the TPB factors (e.g., attitude, stigma, and efficacy).

Family Communication Patterns

First, family environment is an important tribute to individuals' help-seeking behavior, as family communication patterns affect individuals' attitude, stigma, and efficacy related to seeking mental help. Specifically, a high level of conformity in a family's communication predicts one's positive attitude toward and higher stigma of seeking mental help; a family's open communication leads to one's positive attitude, lower stigma, and higher self-efficacy related to mental help-seeking. Such a result reflects previous literature on how families are important environments shaping one's identity, socialization, world views, and behaviors (Ferring, 2017), personal development, and well-being (Olson, Baiocchi-Wagner, Kratzer, & Symonds, 2012). For instance, families valuing open discussions may be more likely to support the health-

related needs of family members than those who do not communicate openly (Samp & Abbott, 2012); daughters raised with closed communication tend to develop mental problems (e.g., eating disorders) (Olson et al., 2012, p. 87). On the contrary, families that communicate openly enhances young adult children's ability to cope with stressors (Koesten et al., 2009).

Although previous research explores the health-related impacts of family communication (Koesten et al., 2009) and how families communicate during health crisis (e.g., disabilities, cancer diagnosis, and acute symptoms) (Canary, 2012; Fisher & Nussbaum, 2012; Samp & Abbott, 2012), there lacked academic attention to the impact of family communication on individuals' help-seeking behaviors for mental health. This study addresses such a gap in research, and the findings reflect that family communication orientations can have complex influence on individuals' normative beliefs, attitudes, and self-efficacy related to mental help-seeking behavior. That is, while families' open communication contributes to factors leading to one's potential to seek mental help, a high level of conformity in a family can lead to both positive attitude towards and increased stigma of mental help-seeking. Even though, this study did not investigate the impact of the four dimensions defined by a family's openness and conformity in communication as suggested by Koerner and Fitzpatrick (2006), it validates the potential to combine FCP with TPB in a family-based mental health setting. As Koerner and Fitzpatrick (2006) note, combining FCP with other communication theories allows better theorizing and interpretation of comprehensive human communication. Therefore, while previous research indicates how family

71

communication prepares individuals and families for health crisis and adversity (Olson et al., 2012), this study establishes a cognitive path linking specific family communication orientations and individuals' mental health-related behaviors.

Patient-Provider Communication

The health care context is another tribute to the proximal factors of individuals' help-seeking behavior. That is, while PCC was negatively associated with the intention to seek help, pleasant patient-provider interactions predicted reduced stigma of seeking mental help and enhanced self-efficacy which led to higher intention to seek mental services. On the one hand, this is consistent with the previous literature, documenting how past communication experience that improves individuals' knowledge on mental illness and trust in mental health services can reduce their stigma of seeking mental help (Brown & Calnan, 2012; Verhaeghe & Bracke, 2011). Such a result highlights the importance of reducing mental illness stigma through PCC, as a meta-analysis showed that the most effective ways to reduce people's mental health-related stigma is to increase their medical knowledge on mental illness and making personal contact with people who have mental disorders (Corrigan, Morris, Michaels, Rafacz, & Rüsch, 2012). Since college students reported that they did not receive sufficient mental health-related knowledge as they mainly consult friends or the Internet for such information (Yorgason, Linville, & Zitzman, 2008), health care providers need to better inform students of the scientific facts of mental illness and the existence of professional services that can treat mental disorders. Previous research also supported that health care providers' clear communication can increase patients' knowledge around disease

management (Young et al., 2017). Therefore, providers can efficiently educate college students on mental health issues and even encourage them to reduce their social distance to people with mental illness. In turn, reduced stigma of mental illness may increase students' trust in and satisfaction with the mental health services (Verhaeghe & Bracke, 2011), reducing the fear related to mental health treatment (e.g., antidepressants, tranquilizers) that are major barriers of seeking mental help (Van Voorhees et al., 2005; Zartaloudi & Madianos, 2010), enhancing the belief that the mental health care providers are competent, caring, and empathetic (Gaebel et al., 2014), and leading to students' better likelihood to use these services in the future (D. Rickwood et al., 2005).

On the other hand, how PCC was positively associated with the self-efficacy for mental health management is also in line with previous literature. The research by Lee (2019) showed that pleasant patient-provider interactions enhance patients' awareness of health-related issues and can equip them with higher self-efficacy to manage their health. Although self-efficacy is negatively related to participants' intention to seek mental help in this study, it may be related to the wording of the self-efficacy scale that framed efficacy as the ability to take care of one's own mental health. For instance, a study suggests that providers' encouragement can motivate patients to be more confident to participate in their mental health treatments (Cortes, Mulvaney-Day, Fortuna, Reinfeld, & Alegría, 2009). Nevertheless, while more research is needed to solidify the impact of patients' self-efficacy on their mental help-seeking behavior, patients' mental well-being and emotional health management can benefit from providers' communication strategies

(Woods-Giscombé & Gaylord, 2014) that may include recognizing patients' distress and actively involving patients in treatment actions, such as using mental health services.

Online support

Contributing to the previous research that primarily explored how social support increased the self-efficacy of patients with various conditions (e.g., gastric and colorectal cancer, diabetes) (King et al., 2010; Qian & Yuan, 2012), this study found how online support was positively related to young people's self-efficacy to manage their mental health. This is in line with the existing literature on health-related support on social media (e.g., Facebook) (Oh et al., 2013). For example, research showed that gaining emotional support was one of the most important reasons motivating young adults (especially those with mental distress) to seek mental health information online (Fergie et al., 2016; L. K. Gowen, 2013). Also, based on a cross-sectional survey with college students (Oh et al., 2013), students reported receiving more emotional support on social media than other types of social support (e.g., esteem support, tangible support), and having emotional support predicted high levels of health-related self-efficacy. While this study only assessed the impact of general online support, it contributes to the understanding of how online support facilitates mental health-related self-efficacy, explaining why college students turn to their online friends for emotional support, instead of mental health services (Vanheusden et al., 2008).

Contrary to previous expectation, online support did not predict positive attitude toward seeking help. This may be due to the possibility that the connection between online support and attitude may have a boundary condition of individuals' having poor

mental health (N. Rüsch et al., 2014; Woods & Scott, 2016). In this study, as most participants had relatively good mental health, the support from their online environment (e.g., social media, online forums) does not necessarily affect their attitudes toward seeking mental help.

Also, online support did not predict self-stigma of seeking mental help as suggested by previous qualitative research (Gulliver et al., 2010). The reason for this may be that the model used in this study was controlled for multiple factors, such as family and patient-provider communication, which reduced the influence of the online environment on shaping individuals' stigmatic beliefs on mental help-seeking behavior.

Also, compared with other communication factors, such as family communication and patient-provider communication, online support showed very limited effect predicting individuals' intention to seek help. This is in line with the previous literature on how the Internet and new media technology can shape or undermine people's mental health-related behaviors. For example, researchers suggested technologies such as the stress managing websites and mobile APPs may be good alternatives to mental health counseling services that are not usually available for people in need (Levin et al., 2018). Therefore, as the stigma of mental illness hindered college students' mental help-seeking behavior (Verhaeghe & Bracke, 2011), they can feel more competent to vent their mental concerns online on social media websites, such as Facebook and Reddit (De Choudhury & De, 2014; Egan et al., 2013; Moreno et al., 2011). Nevertheless, such a result shows that online or social media-based mental health

intervention is necessary because it can target college students who have poor mental health and low intentions to seek mental help.

Conclusion

Mental disorders usually strike young people heavily if they tend not to seek professional help. To trace the reasons behind the younger population's mental help-seeking intention, this study examines the influences of medical, family, and the online environments. Based on an extended TPB framework, the results of structural equation modeling showed that favorable attitudes and high self-efficacy are associated with greater mental help-seeking intention of college students who reported more than a moderate level of mental distress, while low-self stigma was not a predictor of mental help-seeking intentions. For the impact of the environmental factors, higher PCC was associated with higher mental help-seeking behavior, reduced perceived stigma, and increased self-efficacy, but PCC did not predict help-seeking attitude. Open communication in families predicted enhanced attitude, reduced perceived stigma, and strengthened self-efficacy, while higher family conformity was associated with severer stigma of seeking mental help. Also, better online support is associated with enhanced self-efficacy, but online support did not predict intention, attitude, and stigma related to mental help-seeking. Theoretically, this study highlights the significance of the background factors in TPB. Practically, the findings contribute to future communication strategies to increase people's willingness to seek mental help.

This study also has limitations. First, it only examines college students' help-seeking intentions. Future research can further investigate the mental health behaviors of other types of young people. Second, using a cross-sectional survey, this study may not draw causal connections between students' help-seeking intention and specific communication. Future researchers can use experiment to further explore this topic. Third, the measurement of *efficacy* was more empirical than theoretical driven, as it represented individuals' confidence to maintain their mental health (as tested in previous research) (Jerusalem & Schwarzer, 1995), instead of the self-efficacy to seek mental help. Although the measure was selected to follow the wealth of previous research on how self-efficacy was related to young people's mental health (Prati, Pietrantoni, & Cicognani, 2010; Schwarzer, Bäßler, Kwiatek, Schröder, & Zhang, 1997), the literature suggested that TPB factors congruent with the target behavior would better predict the behavior (i.e., mental help-seeking) (Fishbein & Ajzen, 2005). Future research built more strictly on the TPB framework can further examine the impact of self-efficacy to seek mental help on the mental help-seeking behavior.

CHAPTER IV

STUDY 3

Literature Review and Hypotheses

College Mental Health Pre- and After COVID-19: Implications for Interventions

Before the outbreak of the COVID-19 pandemic, mental illness had become a global health issue, as it constituted 7.4% of the world's disease burden (Becker & Kleinman, 2013) and ranked as the third most common cause of hospitalization in the United States (Albert et al., 2017). Especially, for young adults, mental disorders (e.g., anxiety and depression) are more common than among any other age groups (APA, 2019). Their low intentions to seek mental treatment are also concerning (Gulliver et al., 2010), as generally lower than one third of young people (in various countries, such as the US, Germany, and Australia) who report severe anxiety or depression disorders would actively seek help from mental health professionals. The consequences of not seeking mental help include hallucinations, mood swings, not being able to work, loss of self-confidence, social stigmatization of mental illness, and hopelessness (Nicolas Rüsch, Angermeyer, & Corrigan, 2005). These adverse effects can significantly lower one's quality of life and even lead to suicides (Albert et al., 2017; Steinberg & Daniel, 2020). While there lacked interventions to improve young people's use of mental health services, this study intervenes the mental help-seeking intention of college students, a major and typical subgroup of American young people.

College students in the United States constitute near a half of the young adult population (Eisenberg et al., 2009). Before COVID-19, the mental health situation in college had become concerning. According to a longitudinal study of nationally representative data, college students' cases of anxiety, depression, panic attacks, attention deficit hyperactivity disorder (ADHD), and insomnia had steadily increased over the course of 2009 to 2015 (Oswalt et al., 2020). Research also shows that students may engage in substance abuse, as they explore the roles and responsibilities of early adulthood (Walters, Bulmer, Troiano, Obiaka, & Bonhomme, 2018). What caused the declining mood of college students? Stressors contributing to college students' mental disorders usually include academic success, interpersonal relationships, finances, and career development (Dusselier, Dunn, Wang, Shelley iI, & Whalen, 2005). Similar to the general young adult population, most (about 50 to 80% of) college students with mental distress tend not to seek professional help for their symptoms (Oswalt et al., 2020).

Researchers explored why college students avoided mental help or treatment even when they felt distressed. The reasons are in line with the results of Study 1 and 2 that they involve both personal and environmental factors. On the personal level, students (even those who sought professional mental help before) tend to believe stress is common in college and have low perceived need to use mental help (Eisenberg et al., 2007; Garlow et al., 2008). On the environmental level, students may not receive enough mental health service-related information to seek help. For example, in a survey study, Yorgason et al. (2008) reported that one in three college students were unaware of the mental health services on campus, and students who knew the on-campus mental health

79

services obtained such information from friends, advertisements, and the Internet. This further suggests that interpersonal and online messages may increase the exposure and receptance of mental health services among college students, and this study's intervention made use of this mechanism.

The COVID-19 pandemic adds to the urgency of such an intervention. Since its global outbreak in March 2020, the world witnessed a steep decline in people's mental health. For instance, only a few months into the pandemic, the emotional well-being of people in China decreased by 74% (Yang & Ma, 2020). A cohort study in the United States shows that people developed acute stress and depressive symptoms only one month into the pandemic (Holman, Thompson, Garfin, & Silver, 2020). Especially, for young people and college students, COVID-19 has been more detrimental on their mental health than their older counterparts' (Bruine de Bruin, 2020; Holman et al., 2020). For example, since the pandemic outbreak, over 41% of college students in China reported anxiety symptoms (Fu et al., 2021); around 48% of college students in the United States experienced more than moderate levels of depression, and about 18% of the US college students had suicidal thoughts (X. Wang et al., 2020). As the literature suggests, even if young people like college students are at lower risk than the older population for severe COVID-19 cases, the pandemic-induced adversities such as home confinement, medical uncertainties, loss of loved ones, unemployment, and food insecurities became the major stressors they internalized in a very short time (Holman et al., 2020; Kujawa, Green, Compas, Dickey, & Pegg, 2020).

Social Media: A Venue for Mental Health Interventions

As the Internet natives, college students use digital devices (e.g., smartphones, laptop) often and are frequent users of social media (e.g., Facebook, YouTube) (Ellison, Steinfield, & Lampe, 2007; Klobas, McGill, Moghavvemi, & Paramanathan, 2018). As research reports that young people are more emotionally connected to social media use and have incorporated social media into social routines than older adults (Bekalu, McCloud, & Viswanath, 2019), researchers explored the psychological impact of social media use on young people and college students. The results of their research justify the reason social media can be used for delivering mental health interventions.

Before the pandemic, research documented the connection of social media use and mental distress in young people. For example, Woods and Scott (2016) found that higher social media use in adolescents is associated with severer depressive symptoms. Berryman, Ferguson, and Negy (2018) did not find connections between social media use and depression but suggest that posting vague and attention-getting content on social media signals mental disorders and suicidal ideation. In another study of adolescents, Twenge and Campbell (2019) compared heavy and light digital media users and found that the heavy users were much more likely than light users to be unhappy, have depressive symptoms, and contempt suicides. For college students, research shows that having close social media relationships without in-person contact was related to development of depression symptoms (Shensa et al., 2018). College students' consumption of alcohol-related advertisement in social media was also associated with

their engagement in problematic alcohol consumption and dangerous behaviors (e.g., self-harm) (Hoffman, Pinkleton, Weintraub Austin, & Reyes-Velázquez, 2014).

After the pandemic outbreak, researchers also found the negative impact of social media use on people's mental health in different countries (e.g., United States, China) (Amsalem, Dixon, & Neria, 2021; Gao et al., 2020). The main reason, according to researchers (Amsalem et al., 2021; Holman et al., 2020), lies in people's constant exposure to risk-related messages during social isolation and their fear for contracting the coronavirus. Specifically, the emerging news on rising COVID-19 cases and deaths and halted social activities may be overwhelming, let alone the spread of inaccurate pandemic-related information on social media can cause much stress and panicking (Rathore & Farooq, 2020).

Indeed, social media can have negative psychological impact on general users, as well as college students. Even so, it suffices a good platform to reach back to those who are mentally distressed. As previously mentioned, social media is one of college students' main sources of information on mental health services (Yorgason et al., 2008), especially during the pandemic times (Amsalem et al., 2021). Therefore, researchers recommended using social media to deliver online contact-based healthy behavior interventions (Amsalem et al., 2021), such as those for increasing mental help-seeking.

Previous social media-based interventions focused on directly improving people's mental health status, instead of increasing their intention to seek mental help. Frazier et al. (2015) used websites to deliver interactive courses on stress management; Renfrew et al. (2020) tested the differences between email, text message, and video-

conferencing in providing mental health support for healthy people; Rickard, Arjmand, Bakker, and Seabrook (2016) developed a mobile APP to support self-monitoring of mental well-being. Hence, the scarcity of social media-based intervention for help-seeking calls for actions to address mental health epidemic within the pandemic (Fu et al., 2021; X. Wang et al., 2020). While no intervention to date has practically improved people's mental health during COVID-19, this study should be the first that evaluates the effectiveness of a theory-based intervention on increasing college students' intention to seek mental help during the pandemic.

In fact, the literature rarely conceptualizes the impact of social media for behavior interventions. Previous research based on the use of mass media provides some theoretical support for using media-based interventions. For instance, McCombs, Shaw, and Weaver (2014) suggested that media sets a public agenda that influences people's attitudes, opinions, and behavior. Gerbner (1958) also argued that media exposure shapes people's attitudes and beliefs. For example, general television viewing and television news consumption may cultivate the stigma of mental illness (Diefenbach & West, 2007). Also, the exposure to celebrities' media narratives of mental disorders may gradually increase people's intention to seek mental help (Calhoun & Gold, 2020). Therefore, using social media, a platform young people are routinely and emotionally attached to (Bekalu et al., 2019), may help deliver effective messages for college students and persuade them to seek mental help.

Theory Use in Behavioral Interventions

Although there lack social media-specific theories for interventions, using theories is essential for conducting effective behavioral interventions (Fishbein & Cappella, 2006; Luca & Suggs, 2013; N. Taylor et al., 2012). Theories outline the scientific principles for every step along a behavioral intervention (Fishbein & Cappella, 2006; Luca & Suggs, 2013), including deciding whether or not an intervention is needed for a particular behavior, designing of the persuasive messages and the measurement details, implementing the intervention, and assessing the results.

Specifically, to determine if an intervention is necessary, Fishbein and Yzer (2003) suggest that researchers should consider if the target population has already thought of or performed the behavior in question. When individuals have both the intention and performance of a particular behavior, no intervention is necessary (Fishbein & Cappella, 2006). Otherwise, the intervention provided little room for improvement, as a ceiling effect may happen as a result (Fishbein & Ajzen, 2011, p. 322). For example, in an intervention promoting healthy dieting for school pupils, researchers offered the pupils a nutrition course but observed no intervention effect (Bech‑Larsen & Grønhøj, 2013). It turned out that the school's nutrition education might have already optimized the pupils' healthy dieting behaviors, creating little space for further enhancement. Nevertheless, in this study's context, it is necessary to use an intervention to improve college students' mental help-seeking intention and behavior, since many college students who report mental distress tend not to seek professional help.

Also, a suitable theoretical framework helps design an intervention by following the conceptual connections between a behavior and its factors. Specifically, Fishbein (2000) notes that behavioral theories provide a small number of factors for researchers to consider when modeling a behavior. For example, the reasoned action and the planned behavior (TRA/TPB) suggest that the main predictor of behavior is behavioral intention, which is anticipated by factors, such as personal attitudes, social norms, and behavioral control (Montano & Kasprzyk, 2015). Knowing such theoretical relationships help researchers specify details of behavioral interventions. Based on the self-persuasion paradigm, this study's intervention was modeled on the premise of cognitive dissonance theory (Festinger, 1957; Stone & Fernandez, 2008), which is further discussed in the next section.

Moreover, following theories or research principles helps maintain the internal and external validity of an intervention. For example, the literature suggests that researchers should blind research participants from knowing the aim and randomization of an intervention (Victora, Habicht, & Bryce, 2004; Viera & Bangdiwala, 2007). Using a statistical method to estimate the sample size before an intervention can also maintain the statistical power of the intervention effect (Jo, 2002). Based on these principles, this study also included plans to blind research participants and estimate the sample size before conducting the intervention. This step is discussed in the Method section.

Empirical research also shows that theory-driven interventions are more successful than the ones that are non-theory-driven (Luca & Suggs, 2013; N. Taylor et al., 2012). For instance, previous systematic reviews and meta-analysis suggest that

theory use contributes to the success of various types of behavioral interventions (e.g., social marketing health interventions, physical activity interventions) (Glanz, Rimer, & Viswanath, 2008; Luca & Suggs, 2013; N. Taylor et al., 2012; Webb et al., 2010). Successful theory-driven interventions, in turn, enhance the understanding of health behaviors (Fishbein & Cappella, 2006; Fishbein & Yzer, 2003). Conversely, for behavioral interventions in general, the lack of theoretical frameworks in previous social media-based interventions (e.g., weight management, physical activity, mental health) resulted in poor study designs and insignificant differences between treatment and control groups (An, Ji, & Zhang, 2017; Laranjo et al., 2014; Välimäki et al., 2016; Williams et al., 2014). For mental health interventions, in particular, the absence of theory use leaves the research uncontrolled and unpredictable (Kaplan, Salzer, Solomon, Brusilovskiy, & Cousounis, 2011). The study by Kaplan et al. (2011) falls into this category. After simply randomizing 300 patients with schizophrenia diagnosis into an email listserv control group and an online peer support-based bulletin board group, the researchers did not guide the interventions in either group using any designed content, resulting in the insignificance of the intervention (Kaplan et al., 2011).

As such, researchers underline the importance of theory use in behavioral health interventions (Fishbein & Cappella, 2006; Luca & Suggs, 2013; N. Taylor et al., 2012), and they advocate close connections between theories and health behavior change strategies.

In addition, while research increasingly apply new technologies, such as video and web-based programs, to mental health intervention to reduce stigmatization of

mental illness (J. Y. N. Chan, Mak, & Law, 2009; Finkelstein, Lapshin, & Wasserman, 2008; Stuart, 2006), social networking sites (e.g., Facebook, Instagram), a popular media platform among college students, may be good venues for mental health interventions. Using social media to conduct interventions is also beneficial because the platform is cost-effective in recruiting participants for large-scaled campaigns (C. J. Han, Lee, & Demiris, 2018; Park, Reber, & Chon, 2016). Also, Yzer and Southwell (2008) suggested that new media does not fundamentally alter human interactions. Thus, it is feasible and worthwhile to conduct a theory-based health intervention using the social media platform, and this study adopts the self-persuasion theories' principles to increase college students' intention to seek mental help.

Theoretical Basis: Self-Persuasion and the Theory of Planned Behavior

Previous Interventions

The previous mental health interventions mainly have focused on improving individual's self-management of mental well-being (Frazier et al., 2015; Rickard et al., 2016) and reduced stigma of mental illness (Clement et al., 2013). Existing research on improving individual's mental help-seeking intentions mostly used mass media (e.g., video, advertisement watching) (Demyan, 2009; Smith, 2007) and educational (e.g., lectures) (D. Y. Han, Chen, Hwang, & Wei, 2006; Teng & Friedman, 2009) programs for different population groups (e.g., young athletes, high school students, adult Facebook users) (Batterham, Calear, Sunderland, Carragher, & Brewer, 2016; Gulliver et al., 2012; Lillevoll, Vangberg, Griffiths, & Eisemann, 2014). However, most of these interventions were unsuccessful in improving help-seeking intentions, and the few

87

successful ones (1) were not designed for young people or college students and (2) only generated very small intervention effects under limited conditions.

For example, Teng and Friedman (2009) used lectures to increase the awareness of mental health resources among elderly Chinese Americans. The educational intervention significantly improved the participants' intention to seek mental help (Teng & Friedman, 2009), but this result may not easily apply to young adults. D. Y. Han et al. (2006) used biology classes to educate the need to seek mental help, but the intervention only had very small treatment effect. Also, the video intervention by Demyan (2009) created a small treatment effect on participants' intention to seek mental help, but such increase was only significant if participants intended to solve interpersonal problems.

Researchers attribute such non-significant or small intervention effect to reasons, such as recruitment challenge (i.e., not enough participants were recruited) (Gulliver et al., 2012), ceiling effect (i.e., participants' preexisting condition provided little space for improvement) (V. Cheng et al., 2020), and poor intervention design that lowered participants' need to seek mental help (e.g., Batterham et al., 2012). For example, in an web-based study by Gulliver et al. (2012), the intervention showed effectiveness in raising young athletes' intention to seek mental help, but the study was underpowered due to a low recruitment rate. In a video game-based help-seeking intervention for young people (V. Cheng et al., 2020), the video game was not able to increase the help-seeking intention of young women because these women's high intention to seek help at the study's baseline might have created a ceiling effect. In another randomized controlled trial (Batterham et al., 2016), researchers gave participants feedback on their emotional

status to remind them of the need to use mental health services. However, the study's design might have directly enhanced participants' psychological status and lowered their intention to seek help.

Therefore, to improve the use of mental health services especially among college students, researchers need to consider more effective study designs targeting this population. As all the previous attempts used persuasive methods guided by researchers, there is room for experimenting a new type of persuasion — self-persuasion — that may effectively improve college students' mental help-seeking.

Self-Persuasion Through Hypocrisy

Self-persuasion is a research paradigm grounded on a few behavioral theories, such as cognitive dissonance theory (Festinger, 1957; Stone & Fernandez, 2008), self-affirmation theory (G. L. Cohen & Sherman, 2014; Steele, 1988), and personal relevance (Priniski, Hecht, & Harackiewicz, 2018). As opposed to other persuasive methods guided by researchers, self-persuasion relies on individuals' self-generated reasoning for engaging in a behavior (e.g., healthy diet, contraception use) (Baldwin, Rothman, Vander Weg, & Christensen, 2013). Although self-persuasion's underlining cognitive mechanism is not yet clear (Tiro et al., 2016), researchers using self-persuasion primarily relied on the premise of cognitive dissonance that people are motivated to reduce inconsistencies between their beliefs and actions (Festinger, 1957). This is usually realized through the induction of hypocrisy. Namely, researchers asked intervention participants to create counterarguments to their behaviors (e.g., disordered eating) that needed to be changed (Baldwin et al., 2013; Stice, Marti, Spoor, Presnell, & Shaw, 2008;

Stone, Aronson, Crain, Winslow, & Fried, 1994). After contradicting their heath beliefs or related actions, participants tended to adjust their beliefs or behaviors to make them congruent to their arguments.

For instance, in a study of college women who reported eating disorders, participants who had criticized women's thin ideal reduced their body dissatisfaction and disordered eating (Mitchell, Mazzeo, Rausch, & Cooke, 2007), since their criticism might have negotiated with their previous belief that favors thin body images. In another study with college men in the United States (Wong, McDermott, Zounlome, Klann, & Peterson, 2020), participants randomized in the intervention condition were asked to argue against three opinions for sexual aggression. Then, these participants convinced themselves to engage in prosocial bystander behavior that motivate them to intervene in situations of sexual aggression. As reported, such an effect was still strong and persistent six months after the intervention (Wong et al., 2020).

Even though no meta-analysis to date has evaluated the effectiveness of self-persuasion, other recent research also showed that the induced hypocrisy had persistent and robust persuasion power in various behavioral change experiments for young people (e.g., anti-alcohol consumption, physical activity, and smoking cessation) (Baldwin et al., 2013; Loman, Müller, Oude Groote Beverborg, van Baaren, & Buijzen, 2018; Stice et al., 2008). As Aronson (1999) explained, such long-lasting and powerful effect of self-persuasion may be due to people's intrinsic motivation to reestablish their belief. In this case, while people are not under influence of a communicator, their intent to change might be more sincere. Even for conventionally hard-to-change opinions, such as

attitudes, stigma, and prejudice, self-persuasion has the persuasion power to address them (Aronson, 1999).

As mentioned above, negative mental help-seeking attitude and stigma are the major reasons preventing college students to seek mental help (Eisenberg et al., 2007). Since previous research has not applied self-persuasion to mental help-seeking behavior, this study explores if a self-persuasion intervention that asks college students to advocate mental help-seeking can help them develop favorable intentions to seek mental help.

Self-Persuasion Using the TPB Factors

Previous self-persuasion intervention for college students required participants to form rebuttals closely related to the beliefs contributing to a problematic behavior (e.g., thin body ideal, sexual aggression perpetration) (Mitchell et al., 2007; Wong et al., 2020). For example, the intervention changing male bystanders' sexual aggression perpetration required arguing against beliefs, such as people should never interfere with other people's sexual activities. Applying this to the current study's context, a self-persuasion intervention for mental help-seeking should let college students argue against beliefs contributing to low mental help-seeking intention. Based on the results of previous research (Downs & Eisenberg, 2012) and Study 1 and 2, beliefs contributing to college students' mental help-seeking are multidimensional and can be divided into mental help-seeking attitude, subjective norm, and self-efficacy, which are consistent with the theory of planned behavior.

Based on the theory of planned behavior (TPB), the primary and direct predictor of behavior is one's intention to conduct that action (Ajzen, 1991). Three intermediate

factors, including personal attitudes (one's cognitive or affective evaluation of performing a behavior), perceived social norms (the social pressure toward performing a behavior), and perceived behavioral control (the ease or difficulty of one's performing a behavior) of the behavior, affect behavior through their influence on one's behavioral intention (Ajzen, 1991). In line with this theoretical framework, empirical studies showed that the common reasons for young people's not seeking mental treatment include low awareness of mental health issues (Francis & Horn, 2017; Gulliver et al., 2010); social and personal stigmas toward mental illness (Eisenberg et al., 2009; Hunt & Eisenberg, 2010); low perceived benefits of help-seeking behaviors (H. K. Kim, 2016a); insufficient professional mental health resources on campuses (Francis & Horn, 2017; Kitzrow, 2009); and the constant underestimation of the seriousness of mental disorders (Eisenberg et al., 2011; Vanheusden et al., 2008). Based on the self-persuasion paradigm and the mechanism of TPB, if college students form arguments against such attitudinal, normative, and efficacy-related beliefs, they may engage in active self-persuasion favoring mental help-seeking.

Therefore, in this study, self-created arguments countering (a) low mental help-seeking attitudes, (b) help-seeking stigma, and (c) low help-seeking efficacy may increase college students' intention and action to seek mental help when they experience emotional issues during the pandemic.

H1: Self-generated arguments help increase students' mental help-seeking intention and behavior.

Self-Persuasion Enhanced by Self-Affirmation and Self-Relevance

To maximize the effectiveness of these arguments, this study also applies another two self-persuasion theories, self-affirmation and self-relevance. Specifically, self-affirmation refers to individuals' adequacy to affirm their self-image that they are good, moral, and adaptive in life (G. L. Cohen & Sherman, 2014; Steele, 1988). According to Sweeney and Moyer (2015), a health message may threaten individuals' self-image when it reminds them of their unhealthy behaviors (e.g., unhealthy diet, smoking). When people become defensive of their unhealthy behaviors, they are more likely to be biased about the health message and less likely to be receptive of it. Using self-affirmation strategies is to help people become less defensive during such instances and start to more objectively appraise the information they receive. This is because individuals can be more open to unwelcome health messages when they are reminded of their good trait or self-integrity (Sweeney & Moyer, 2015). Review studies of self-affirmation interventions confirms this theory can improve people's acceptance of health messages (Harris & Epton, 2009; Sweeney & Moyer, 2015). For example, compared with nonaffirmed sunbathers, sunbathers who are more self-affirmed developed more positive attitudes toward using sunscreen (Jessop, Simmonds, & Sparks, 2009). Another health intervention also shows that self-affirmation helped college students improve the intention and behavior regarding fruit and vegetable intake. While not all self-affirmation interventions lead to behavior or intention change, a meta-analysis by

93

Sweeney and Moyer (2015) suggests that self-affirmation strategies have a small effect on changing health-related intentions and behaviors.

This study uses a self-persuasion strategy to help college students self-persuade that they should seek mental help. Namely, the intervention designates the students as opinion leaders to hypothetically advocate mental help-seeking on their social media. Previous research shows that social media opinion leaders bear the responsibility of advocating for the public good (Meskó, Radó, & Győrffy, 2019). For example, these opinion leaders' sharing information online can direct people's attention to climate change (Nisbet & Kotcher, 2009) and empower patients by increasing patients' access to digital care (Meskó et al., 2019). Therefore, taking on the role of opinion leaders, students may be more aware of their strength in accepting health information and be more receptive to the idea of mental help-seeking.

In addition to self-affirmation, self-relevance is another strategy to enhance the effect of self-persuasion (Wong et al., 2020). The literature suggests that people tend to have high motivations to pursue a goal if the goal is relevant to their interest (Priniski et al., 2018). In the context of health intervention, messages tailored to individual needs or characteristics are more relevant to the audience. A meta-analysis of web-based tailored health interventions shows that tailored interventions generated greater improvement than non-tailored conditions in health outcomes (e.g., smoking cessation, physical activity, healthy eating) (Lustria et al., 2013). Another meta-analysis of culturally tailored interventions for cancer patients also shows that messages incorporating the norms and beliefs of ethnic groups generated stronger intervention effects than messages

that only briefly mentioned some cultural features (e.g., language) on the surface (Huang & Shen, 2016). The elaboration likelihood model of persuasion (ELM) may explain the effect of self-relevance. Based on ELM (Petty & Cacioppo, 1986), people process information either on a central level (where they use higher amount of cognition to consider the merit of the message based on logical arguments) or on a peripheral level (where they heuristically assess the message based on cues unrelated to its logical quality). According to Hall et al. (2021), individuals may engage in the health message more, when the message is more tailored to self-relevance.

Therefore, this study's intervention is tailored to college students' culture by situating them in scenarios where they use social media message to care for friends who are mentally distressed. By combining self-persuasion strategies, such as cognitive dissonance, self-affirmation, and self-relevance, this study's approach may enhance students' intention to seek mental help.

Self-Persuasion of Different Intensity

Following the premises of ELM (Petty & Cacioppo, 1986), arguments may be more persuasive if people process them deeply at a cognitive level. Therefore, compared with heuristically created messages calling for mental help-seeking, messages created with more cognitively engaged effort may be more likely to persuade the content creators. Previous research has tested how different levels of commitment affect the outcomes of self-persuasion. For example, in an intervention increasing college students' condom use, committed self-persuasion influenced students to take more safe sex measures than non-committed self-persuasion (Stone et al., 1994). In another

95

intervention promoting smoking cessation in middle schools (Flynn, Worden, Bunn, Connolly, & Dorwaldt, 2011), students who had higher involvement in smoking decisions had more favorable attitudes toward anti-smoking arguments than those who involved less in their decisions.

In this intervention, students' involvement in their self-persuasion was manipulated by the amount the self-persuasion task they receive. Based on the literature mentioned above, this study also tests if a higher engagement level in self-persuasion leads to a better persuasion outcome that generates higher mental help-seeking intentions. Therefore, this study hypothesizes:

H2: More task-intensive self-persuasion intervention generates higher help-seeking intention and behavior than the less task-intensive self-persuasion.

In sum, based on the self-persuasion research paradigm, this study tested the effectiveness of a social media-based intervention to motivate college students' intention to seek mental help.

Employing a longitudinal design, this study used a self-persuasion framework in a 3-arm intervention to increase college students' help-seeking intentions during the COVID-19 pandemic. Two of the three study arms received interventions, with the other arm having a control condition. The interventions were created using the self-persuasion theories (e.g., cognitive dissonance) that individuals tend to persuade themselves due to their intrinsic motivations not to contradict their self-created arguments (Festinger, 1957). Such a mechanism had high effectiveness in promoting healthy behaviors (e.g., condom use, sun protection, weight loss), and empirical research also validated its

96

efficiency (Freijy & Kothe, 2013). Even though, no research so far has applied self-persuasion interventions to mental help-seeking. Hence, this study may be the first self-persuasion intervention for increasing the use of mental health services. By motivating college students' intention to seek mental help, this study can also provide practical implications for improving young people's mental well-being during COVID-19.

Method

Design

The study's aim was to increase the mental help-seeking intentions of college students with more than a moderate level of distress during the COVID-19 pandemic. A four-armed randomized controlled trial (RCT) was conducted to compare two self-persuasion methods against two control conditions.

Two of the four arms were intervention arms. One of them used a task-intensive treatment (using YouTube videos for mental help, "YouTube Intervention") at T1 and a non-task-intensive treatment (creating Facebook messages related to mental help-seeking, "Facebook Intervention") at T2. The other intervention arm had a reverse order of such treatments at T1 and T2.

The control arms used two similar tasks but directed participants' attention to social distancing during COVID-19.

Assessments took place at baseline (T0), post first treatment (T1), post-second treatment (six weeks, T2), and ten-week follow-up (T3).

Participant Recruitment

Upon institutional review board (IRB) approval, undergraduate student participants were recruited at Texas A&M University through a research participant pool and in-class recruitment led by communication course instructors between October and November 2020. Students were qualified participants in the study if they aged 18 and above and were full-time undergraduate students at the university. While all qualified participants went through this study's tasks, only the data of those who had more than a moderate amount of mental distress were analyzed to answer the research question. The mental distress level was determined by two mental health-related questions adopted from the SF-8 health survey (Ware et al., 2001). The questions included: (a) "During the past 4 weeks, how much have you been bothered by emotional problems (such as feeling anxious, depressed, or irritable)?" and (b) "During the past 4 weeks, how much did personal or emotional problems keep you from doing your usual work, school or other daily activities?" Both questions were measured on a 5-point scale of 1 ("Extremely") to 5 ("Not at all"). Individuals scoring 6 or lower on both questions were classified to have "more than a moderate level of mental distress."

A priori power analysis using G*Power 3.1 (Faul, Erdfelder, Buchner, & Lang, 2009) suggested that a total of 270 participants was necessary for a 4-group experiment to generate an 80% statistical power to reject the null hypothesis while achieving a small effect size (f=.25) for the ANOVA test at the .05 significance level. Given the potential attrition in this study's longitudinal design, 926 students were recruited as a result.

Procedures

Data collection was consisted of online experiments conducted at three time points. Following informed consent, participants were randomized into the four study groups mentioned above and finished initial assessments. To collect sufficient information for the intervention conditions, the randomization was weighted. About two thirds of all participants were randomized to the intervention groups (N = 326), and about one third of them were randomized to the control groups (N = 124). After the initial assessments, participants were invited to complete another two follow-up assessments, and informed consent was sought at each time point before the assessment happened (Figure 4).

Figure 4 Flow of Participants.
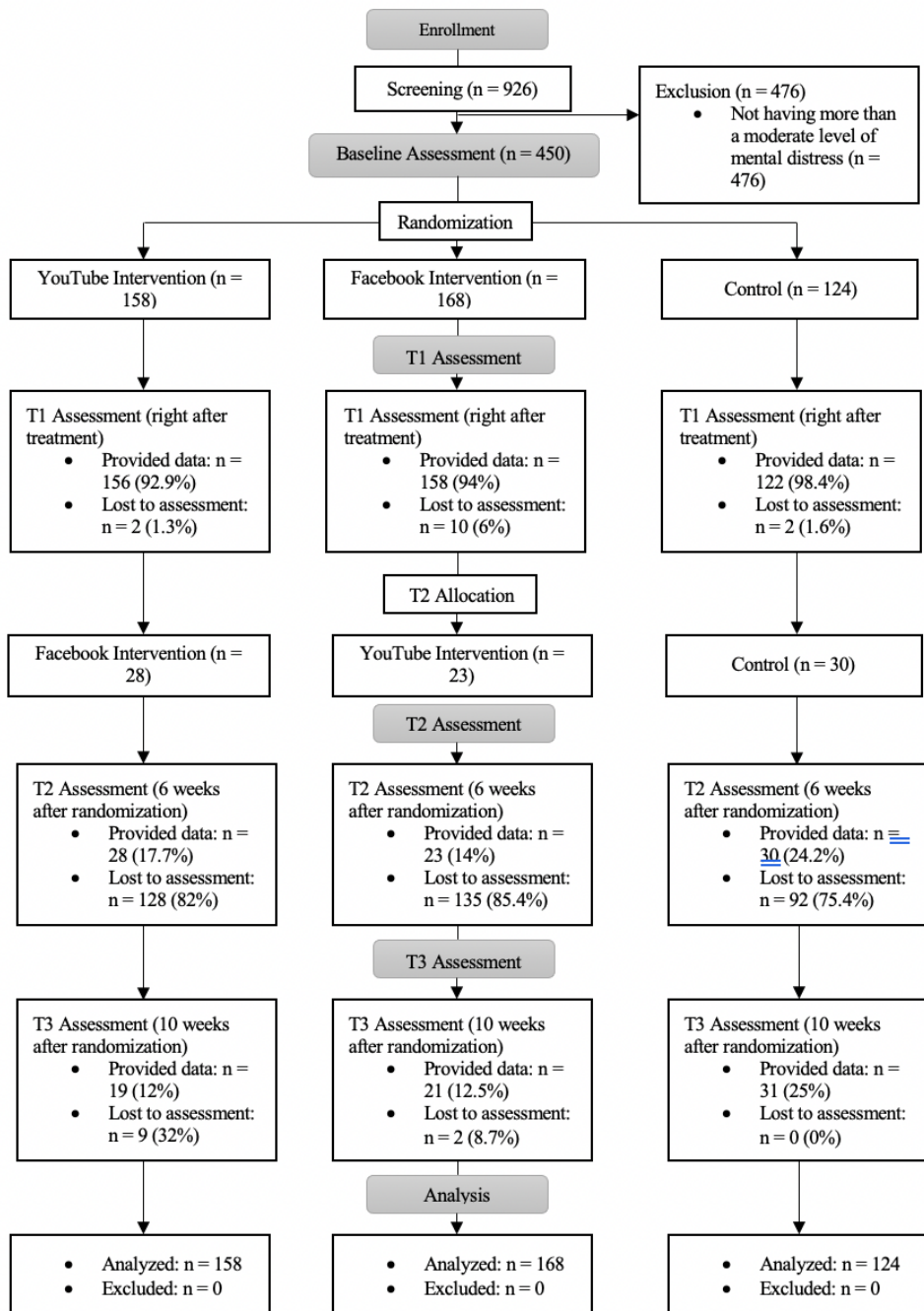
Note. The control groups were combined into one group in this graph to represent the weighted randomization.

Time One

Time one (T1) assessment included a baseline survey, a task, and a posttest survey. The baseline survey collected information on demographic, emotional health, as well as the attitudes, perceived norms, self-efficacy, intention, and behavior related to mental help-seeking. To mask the purpose of the research, the survey questions were mixed with filler questions on the attitudes, perceived norms, self-efficacy, intention, and behavior related to keeping social distance during a pandemic.

After finishing the baseline survey, participants were given one of the four tasks as described below, depending on their group assignment. Participants in one of the intervention groups were assigned to a YouTube intervention task, and those in the other intervention group were assigned to a Facebook intervention task. Both tasks were aimed at increasing students' mental help-seeking intention. For participants in the control groups, they were either assigned to a YouTube related task or a Facebook related task, while either task was set to increase students' intention to keep social distance during the COVID-19 pandemic.

YouTube Intervention Task

Participants assigned to this task were asked to search YouTube for a 5-10 minutes' video promoting mental help-seeking among college students. Then, they were expected to provide the link to the video and describe the content of the video. Next, participants were guided to form rebuttals disapproving three statements that rationalize students' low intention to seek mental help. The statements were modified from validated scales assessing one's attitude, norm, and efficacy related to mental help-

seeking (Fischer & Farina, 1995; Levin et al., 2018; Shi & Kim, 2020). As the participants to be analyzed had over a moderate level of mental distress and might have beliefs against mental-help-seeking, completing the rebuttals in the YouTube intervention task may create cognitive dissonance for these participants. To reconcile with such dissonance, the participants may increase their intention to seek help.

The question prompts for this task are listed as below:

"Many college students suffer from mental problems but tend not to seek professional help. As a current student at Texas A&M, please find a 5-10 mins' YouTube video that relates to student life and seriously advocates mental help-seeking for the incoming students and answer the following questions.

1. What is the URL of the video: _____?

2. Briefly describe the content of the video:

   _____.

3. Imagine that you shared this video with your friend, but s/he strongly disagrees with what was shown in the video and provided the following three opinions about mental help. Please write one rebuttal disapproving each of his/her statements:

   (a) The idea of talking about problems with a psychologist strikes me as a poor way to get rid of emotional conflicts.

   (b) College students do not approve of the use of mental help resources for addressing mental health issues.

(c) I am not confident in seeking mental help when I experience mental

health issues as I am busy with my commitments (e.g., school,

extracurricular activities).”

Facebook Intervention Task

Participants in the other experimental group were assigned to a Facebook

intervention task. This task was to draft a Facebook message for the participants' fellow

students. In their message, participants were expected to list three reasons for seeking

mental help. The length of the message was not pre-determined. The purpose of this task

was also to create cognitive dissonance in the participants and increase the participants'

intentions to seek mental help by letting them resolve their dissonance. Different from

the YouTube task that required more effort for completing multiple questions, the

Facebook message task only had one question.

The prompt for this task is presented as below:

“As you are getting knowledgeable about mental health, your institution's social

media committee invites you to create a Facebook message advocating mental

help-seeking on campus. Your message must include three reasons why one

needs to seek professional help when experiencing mental problems. This

message will be shared on Facebook with all your fellow students. What would

you write? Please draft this message below.”

YouTube and Facebook-related Tasks for Control Groups

Likewise, participants in both control groups were either assigned a YouTube or Facebook message task advocating social distancing during a pandemic. The question prompts for both tasks are modified from the tasks for the experimental groups.

To validate the task intensity for the YouTube and Facebook interventions, all participants were asked to rate on an item, "I did my best trying to complete the YouTube/Facebook task" (1 = strongly disagree, 5 = strongly agree). Significant mean difference (p = .03) was found between participants' efforts spent in the YouTube (M = 4.14, SD = .974) and Facebook interventions (M = 3.89, SD = 1.062). Then, participants completed the baseline questionnaire again as a posttest assessment.

At the end of the T1 assessment, participants were rewarded with a course credit and were invited to take part in another two studies at times two and three. The incentive for participating at each time point was $10. Interested participants left their university email to the researcher as contact information. Then, they were contacted for follow-up participation. Following informed consent, they began new assessments.

Participants who chose not to continue their participation received an automatic message, directing them to the mental health resources on campus. Participants who chose to continue their participation received the same information when their participation ended.

Time Two

Time two (T2) assessment was around early December 2020. It included participation in another task and a post-task survey.

Participants in the intervention groups at T1 were switched to a different intervention group at T2. That is, those who did the YouTube intervention task (on mental health) at T1 were assigned the Facebook intervention task (on mental health) at T2, and vice versa. Likewise, participants in the control groups also switched tasks within the two groups. After completing such tasks, participants finished the same posttest survey they did at T1. Then, all (T1 and T1) participants were invited for another follow-up assessment.

Time Three

Time three (T3) assessment took place in mid-January 2021. Participants finished the same posttest survey as they did at T1 and T2.

After completing the study, all participants received an automatic message, directing them to the mental health resources on campus.

Primary Outcome Measures

Help-Seeking Intention was measured by one item created based on recommendations by Ajzen (2002). Measured on a 5-point scale (1 = *extremely unlikely*, 5 = *extremely likely*), this item asked, "If you have a personal-emotional problem, how likely is it that you would seek help from a mental health professional (a psychologist, psychologist, or psychotherapist)?" Higher scores on this item suggest higher intentions to seek professional mental help.

Help-Seeking Behavior was measured by a validated item modified from previous research based on the transtheoretical model (Sarkin et al., 2001). The item asked about if a participant has sought mental help from a health care professional. Answers to this item included "1 = *not intending to seek help in the next six months*," "2 = *intending to seek help in the next six months*," "3 = *planning to seek help in the next 30 days*," "4 = *have already sought help but for less than six months*," and "5 = *have been under treatment for more than six months*." This item was recoded into a dummy variable, with "0" being having not sought mental help and "1" being having sought help.

<div align="center">Secondary Outcome Measures</div>

For *mental help-seeking attitudes*, participants rated 1 ("*strongly disagree*") to 5 ("*strongly agree*") on ten items of the Attitudes Toward Seeking Professional Psychological Help Scale-Short Form (ATSPPHS-SF) (Fischer & Farina, 1995). Sample items included "If I believed I was having a mental breakdown, my first inclination would be to get professional attention" and "The idea of talking about problems with a psychologist strikes me as a poor way to get rid of emotional conflicts." All items were summed to create a composite (Cronbach's alpha = .748~.791), and it ranges from 10 to 50 (M = 33.07~34.82, SD = 6.236~6.639).

For *self-stigma of seeking mental help*, participants rated 1 ("*strongly disagree*") to 5 ("*strongly agree*") on ten items adopted from the Self-Stigma of Seeking Help (SSOSH) scale (Vogel et al., 2006). Originally, the SSOSH scale has excellent reliability between .86 and .90. Sample items of this scale included "I would feel inadequate if I

went to a therapist for psychological help" and "Seeking psychological help would make me feel less intelligent." All items were summed to create a composite (Cronbach's alpha = .86~.901), ranging from 10 to 50 (M = 24.11~24.68, SD = 7.654~8.665).

Mental Help-Seeking Efficacy was measured by five items modified from previous research (Mo & Mak, 2009) and recommendations (Ajzen, 2002). Participants rated 1 ("*strongly disagree*") to 5 ("*strongly agree*") on the answers, which included sample items such as "I can seek mental health service if I like to do so." and "I am confident in seeking counseling services when I experience mental health issues." All items were summed to create a composite (Cronbach's alpha = .726~.775), ranging from 5 to 25 (M = 19.04~19.77, SD = 3.535~3.95).

For *demographic* variables, participants reported their *gender* (0 = male, 1 = female) and *mental health status*. The two questions measuring mental health status were explained in the "Participant Recruitment" section. Both questions were summed after reverse coding to represent a participant's mental health status (Cronbach's alpha = .812~.858, M = 6.46~6.5, SD = 1.784~2.302).

Finally, any survey items mentioned above were reverse coded if deemed appropriate. Therefore, a higher score of a study measure indicated a higher level of that variable.

SPSS 26.0 was used for data analysis.

Randomization and Study Groups

the study's randomization was examined using ANOVA tests. As a result, the four study groups were statistically different regarding all study measures, including mental status ($F(3, 904) = .498$, $p = .684$), gender ($F(3, 903) = .024$, $p = .995$), mental help-seeking attitude ($F(3, 903) = .181$, $p = 910$), stigma ($F(3, 900) = .335$, $p = .8$), efficacy ($F(3, 902) = .488$, $p = .691$), intention ($F(3, 903) = .883$, $p = .449$), and behavior ($F(3, 905) = .860$, $p = .461$). The randomization is validated.

The two control conditions were combined into one control group for analysis, as both conditions did not differ in the assessments at baseline (T0) and T1 regarding all outcome variables (Table 3).

Table 3 t-tests for Control Conditions.

	t	**df**	**p**
Attitude (T0)	-.344	267	.731
Attitude (T1)	-.698	265	.486
Stigma (T0)	.725	266	.469
Stigma (T1)	.168	259	.867
Efficacy (T0)	.869	266	.386
Efficacy (T1)	.217	265	.828
Intention (T0)	.239	267	.811

Intention (T1)	.374	263	.708
Behavior (T0)	.103	268	.918
Behavior (T1)	.773	268	.440

Primary Analysis

To test (a) whether or not the groups' outcomes were different at each time (H1) and (b) whether or not each group's outcomes changed across time (H2), Chi-square difference tests were performed using multigroup SEM (Yuan & Chan, 2016). The Chi-square test examines the null hypothesis that the studied parameters (e.g., means) are invariant within and across groups by estimating if constrained parameters significantly increase the model's Chi-square value from a freely estimated model with no constrained parameters. This method is analogous to the matched-paired t tests but can more efficiently assess the mean differences within and between groups while considering the interrelations between different mean values.

To estimate the intervention effect, Cohen's d was calculated at T1, T2, and T3, by subtracting the mean of a control group's outcome (e.g., intention) from the mean of an intervention group's outcome divided by the pooled standard deviation. Since Cohen's d can be biased, especially for smaller sample sizes obtained from the T2 and T3 assessments, adjusted Hedge's g was used as an effect size measure (Hedges & Olkin, 2014).

Confidence intervals (95%CL) were also calculated to determine the significance of the effect sizes. If the upper and lower CLs were on different sides of the "zero" point,

the effect size is not significant; otherwise, the effect size is significant. The magnitude of the effect sizes were interpreted as "no to very small" ($0 \leq d < .2$), small ($.2 \leq d < .5$), medium ($5 \leq d < .8$), and large ($d \geq .8$) (J. Cohen, 2013).

Sensitivity Analysis

To complement the pair t-tests analysis, linear mixed modeling (LMM) was performed to explore the longitudinal changes of students' mental help-seeking intention and behavior. Compared with traditional repeated measures analysis of variance, this method helps understand the data's chronological development despite the missing data caused by the study's attrition, which is a common challenge in behavior research (Krueger & Tian, 2004). To cope with the missing data, unstructured covariance method was used (Acock, 2005).

LMM has hierarchical structures. In this study, the measures collected at each time point are lower-level values, nested in each participant who are considered at a higher level. Due to the study's exploratory nature, the simplest longitudinal development—linear growth—was assumed for the study's primary outcomes. Specifically, in each intervention and control condition, time (as denoted as T0 to T3) should have a linear relationship with participants' intention and help-seeking behavior.

The modeling estimated the linear model's intercept and coefficient. The intercepts show the mean baseline measures for each study group; the coefficients account for the longitudinal within-subject change of the outcome variables, revealing the intervention effects of each condition. For instance, a higher coefficient reflects a higher increase of help-seeking pr behavioral intention at each time point, suggesting a

stronger intervention effect. Also, intraclass correlation coefficients (ICC), which reflect the amount of outcome variance explained by individual differences (Singer & Willett, 2003), were reported for each model.

Results

Demographics

Most participants were female (N = 319, 70.9%). Of the 450 participants, 272 (60.4%) were White, 14 (3.1%) were African Americans, 109 (24.2%) were Hispanic, 45 (10%) were Asian, and 9 (2%) belonged to other racial groups. In terms of mental help-seeking, 348 participants (77.3%) had not sought any mental help at baseline.

On average, participants had neutral to slightly positive attitudes toward mental help-seeking (M = 33.77, SD = 6.194), low to medium help-seeking stigma (M = 24.89, SD = 7.613), moderate efficacy for seeking mental help (M = 18.79, SD = 3.719), and approximately medium intention to seek mental help (M = 3.28, SD = 1.171).

Mean Differences and Effect Sizes

Unconstrained Means

The unconstrained models showed how students' help-seeking intention and behaviors changed over time (Table 4-5, Figure 5-6). Specifically, in the group that did the YouTube task first, mental help-seeking intention was little more than "neutral" (M = 3.4) at baseline (T1), and it changed to 3.473 at T1, and further changed to 3.648 and 3.547 at T2 and T3. In the group that did the Facebook first, help-seeking intention changed from 3.129 at baseline (T0) to 3.384 at T2 and reduced to 3.261 at T3. Contrarily, the help-seeking intention remained similar from T0 to T3.

Table 4 Means and Variances of Intention.

	YouTube first	Facebook first	Control
T0	3.216 (1.42)	3.129 (1.479)	3.064 (1.28)
T1	3.473 (1.396)	3.298 (1.454)	3.142 (1.518)
T2	3.648 (1.141)	3.384 (1.419)	3.167 (1.561)
T3	3.547 (1.377)	3.261 (1.466)	3.111 (1.685)

Note. The table lists the means. The variances are in brackets.

For mental help-seeking behavior, the three groups were at a similar level at the baseline. Surprisingly, the help-seeking in all three groups declined over time. At T3, all three groups reached their lowest mean of the help-seeking behavior. Namely, the group that did the YouTube task first were at .019, the group that did the Facebook first was at .016, and the control group was at .038.

Table 5 Means and Variances of Behavior.

	YouTube first	Facebook first	Control
T0	0.184 (.15)	0.185 (.151)	0.132 (.115)
T1	0.172 (.142)	0.16 (.134)	0.139 (.12)
T2	0.038 (.036)	0.022 (.021)	0.049 (.046)
T3	0.019 (.018)	0.016 (.015)	0.038 (.037)

Note. The table lists the means. The variances are in brackets.

Figure 5 Estimated Intention Over Time.
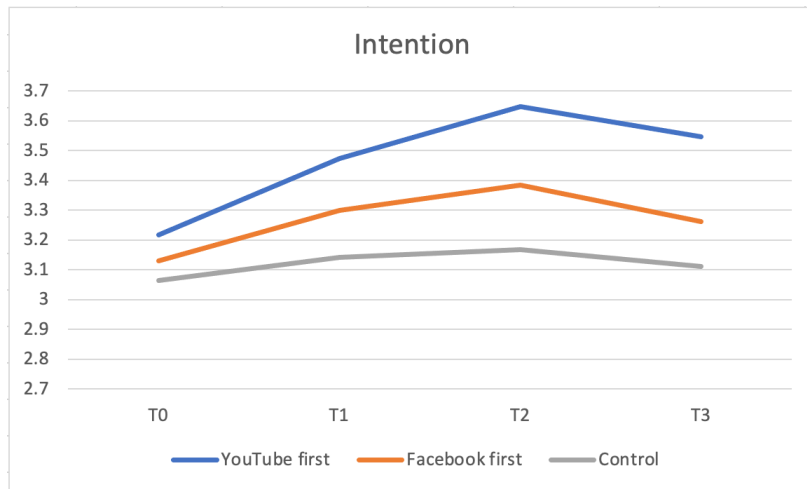
Figure 6 Estimated Behavior Over Time.
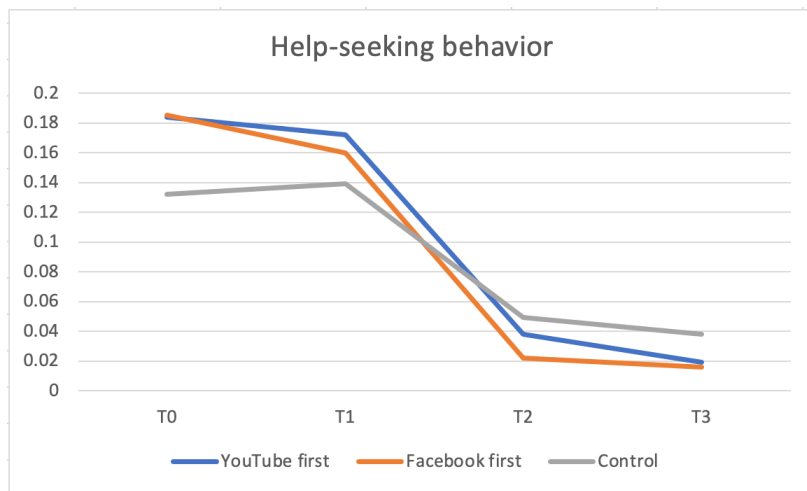
Constrained Means: Moderation

As shown in Table 6, the significant Chi-square test found within group difference in the YouTube-first ($Chi^2_{(3)} = 27.9$, $p < .01$) and the Facebook-first ($Chi^2_{(3)} = 13.91$, $p < .01$) groups, suggesting that the help-seeking intentions changed significantly over time for the two groups. Specifically, consistent with H1, both groups had increase in their help-seeking intention from T0 to T2, suggesting that the self-generated

113

arguments helped enhance students' mental help-seeking intention during that time.

However, between T2 and T3, this intention declined for both YouTube-first and

Facebook-first groups, suggesting that the interventions' effects might reduce over time

after the intervention stopped. As shown in Table 7, the significant Chi-square test found

within group difference in the YouTube-first ($Chi^2_{(3)}$ = 63.42, $p < .01$) and the Facebook-

first ($Chi^2_{(3)}$ = 55.464, $p < .01$) groups, suggesting that the help-seeking behaviors also

changed significantly over time for the two groups. However, contrary to H1, the self-

persuasion interventions did not increase students' mental help-seeking behavior.

Students' help-seeking behavior reduced over time. Therefore, H1 was only partially

supported.

Table 6 Model Comparison and Moderation: Intention.

	Log-likelihood (constrained)	Log-likelihood (unconstrained)	X^2 difference	p
Between group	-2899.361	-2891.124	16.47	0.04
df	8	0	8	
YouTube first group	-2905.074	-2891.124	27.9	< .01
df	3	0	3	
Facebook first group	-2898.081	-2891.124	13.91	< .01
df	3	0	3	
Control	-2892.498	-2891.124	2.75	0.43
df	3	0	3	

As shown in Table 6, the significant Chi-square test found group difference among the intervention and control groups ($Chi^2_{(8)}$ = 16.47, p = .04), suggesting that the type of groups moderated the help-seeking intentions observed at each time point. Considering the mean distribution in the unconstrained model, it showed that the group that did the YouTube task first ranked the first regarding the help-seeking intention outcome, followed by the group that did the Facebook task first and the control group. This is consistent with H2 that more task-intensive self-persuasion intervention generated higher help-seeking intention than less task-intensive self-persuasion. As shown in Table 7, the significant Chi-square test also found group difference among the intervention and control groups ($Chi^2_{(8)}$ = 17.06, p = .03), suggesting that the type of groups moderated the help-seeking behavior observed at each time point. Specifically, regarding the help-seeking behavior, the YouTube-first group (M = .172) ranked the first at T1, whereas the control group ranked the first at T2 (M = .049) and T3 (M = .038). However, from T1 to T3, the help-seeking behavior of the YouTube-first group was higher than that of the Facebook-first group. Although both groups had declined help-seeking behavior overall, this result is still consistent with H2, suggesting that the more task-intensive self-persuasion intervention generated higher help-seeking behavior than the less task-intensive self-persuasion. Therefore, H2 was supported.

Table 7 Model Comparison and Moderation: Behavior.

	Log-likelihood (constrained)	Log-likelihood (unconstrained)	X^2 difference	p
Between group	17.064	0	17.06	0.03
df	8	0	8	
YouTube first group	63.417	0	63.42	< .01
df	3	0	3	
Facebook first group	55.464	0	55.46	< .01
df	3	0	3	
Control	26.242	0	26.242	< .01
df	3	0	3	

Effect Sizes at T1

Compared with the control group, the YouTube intervention showed significant effects on some primary and secondary outcomes. For example, it raised the intention (g = .32, 95%CL = [0.0866, 0.5634]) and efficacy (g = .30, 95%CL = [0.0647, 0.5383]) to seek help. It also lowered the stigma of help-seeking (g = -.31, 95%CL = [-0.5538, -0.0723]). However, the YouTube intervention did not significantly improve help-seeking attitude (g = .18, 95%CL = [-0.0522,0.4204] or the actual help-seeking behavior (g = -.05, 95%CL = [-0.2842, 0.1861].

For the Facebook group, it showed small and not significant intervention effects on all the study outcomes, including intention (g = .20, 95%CL = [-0.0365, 0.4371]),

help-seeking behavior (g = -.02, 95%CL = [-0.2563, 0.2078]), attitude (g = .12, 95%CL

= [-0.1099, 0.3583]), stigma (g = -0.11, 95%CL = [-0.3462, 0.1294]), and efficacy (g =

0.09, 95%CL = [-0.1429, 0.3238]).

The T1 results suggests that the more task-intensive YouTube intervention

showed better effectiveness than the less task-intensive Facebook intervention in

motivating participants' intention, increase self-efficacy to seek mental help, and reduce

the stigma related to mental help-seeking behavior.

Effect Sizes at T2

Compared with the control group, the YouTube-first intervention generated a

moderate effect on participants' intention to seek help (g = .52, 95%CL = [0.0153,

1.0639]), but had no significant effect on other outcomes, such as help-seeking behavior

(g = 0, 95%CL = [-0.2351, 0.2351]), attitude (g = .42, 95%CL = [-0.0924, 0.9677]),

stigma (g = -.30, 95%CL = [-0.8293, 0.207]), and efficacy (g = .34, 95%CL = [-0.167,

0.871]).

Contrarily, the Facebook-first intervention generated no significant effect on the

study outcomes, including intention (g = .21, 95%CL = [-0.3302, 0.7592]), help-seeking

behavior (g = -.09, 95%CL = [-0.3256, 0.1387]), attitude (g = .48, 95%CL = [-0.0701,

1.0635], stigma (g = -.49, 95%CL = [-1.0598, 0.0437]), and efficacy (g = .18, 95%CL =

[-0.3572, 0.7315]).

At T2, as the intervention groups switched tasks, the YouTube-first group had

attenuated intervention effects, but the Facebook-first group continued to have no

significant intervention effects.

Effect Sizes at T3

As a result, the YouTube-first intervention started to show a moderate to high intervention effect on mental help-seeking attitude (g = .66, 95%CL = [0.1016, 1.2751]) and self-efficacy (g = .69, 95%CL = [0.1239, 1.2995]. However, it showed no significant effect on other outcomes, including help-seeking intention (g = .55, 95%CL = [-0.0148, 1.1487], behavior (g = -.10, 95%CL = [-0.3383, 0.1323], and stigma (g = -.51, 95%CL = [-1.1042, 0.0563]).

Similar to the T2 results, the Facebook-first intervention generated no significant effect on the study outcomes, including intention (g = .08, 95%CL = [-0.4743, 0.634]), help-seeking behavior (g = -.16, 95%CL = [-0.3974, 0.0675]), attitude (g = -.03, 95%CL = [-0.5809, 0.5271], stigma (g = -.18, 95%CL = [-0.7397, 0.3705]), and efficacy (g = -.18, 95%CL = [-0.7444, 0.3658]).

Linear Growth Models

Intention

Three linear models were generated (Figure 7). The line for the YouTube-first group had an intercept of 3.39 (*p* < .001) and a slop of .173 (*p* = .001), with the ICC being .75. The line for the Facebook-first group has a similar intercept (ß = 3.30, *p* < .001) but a smaller coefficient (ß = .105, *p* = .039), and the ICC was .80. For the control group, since the coefficient was not significant (ß = .004, *p* = .405), the line is a flat, with the intercept being 3.14 (*p* < .001) and ICC being .77.

Figure 7 Longitudinal Growth of Intention.
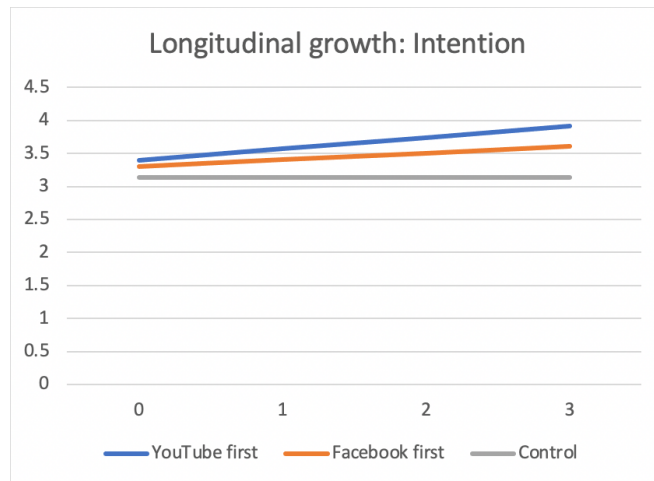
Behavior

Three lines modeling the relationship between time and the behavior outcome, mental help-seeking, were generated (Figure 8). The line for the YouTube-first group had an intercept of .25 ($p < .001$) and a slop of -.07658 ($p < .001$), with the ICC being .84. The line for the Facebook-first group was almost the same. It has an intercept of .25 ($p < .001$) and a coefficient near -.08 ($p < .001$), and the ICC was .84. The intercept of the control group was .22 ($p < .001$) and the coefficient was -.06 ($p < .001$), and the individual difference accounted for 82% of the variance in the outcome behavior (ICC = .77).

Figure 8 Longitudinal Growth of Help-Seeking Behavior.
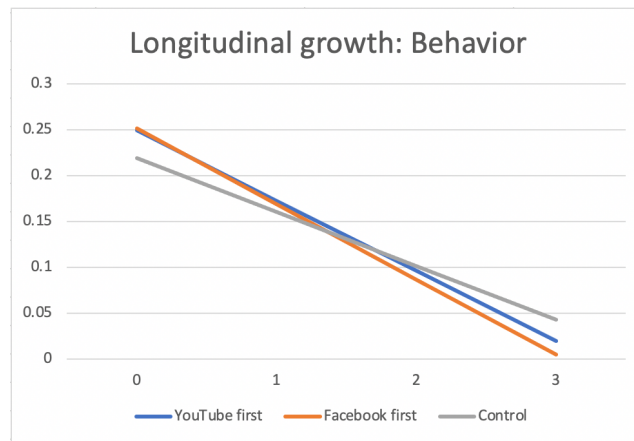
Discussion

This study was to explore the effectiveness of self-persuasion in motivating college students' mental help-seeking intention and behavior. More specifically, students who participated in the study were given two tasks of different intensity (i.e., the YouTube and the Facebook tasks) to persuade their peers with mental distress to seek professional help. These tasks may actually persuade the participants to seek help because they might induce cognitive dissonance between the written arguments and students' prior beliefs.

The results showed that the two tasks significantly increased students' help-seeking intention, attitude, and efficacy at different time points. It also significantly reduced mental help-seeking-related stigma after the first intervention. Comparatively, the control group did not have significant changes across all study measures.

Also, interestingly, while the two intervention groups both received a YouTube and a Facebook task at either T1 or T2, the group that did the YouTube task first generated higher growth in help-seeking intention over time than the group that had the Facebook task first.

These results have theoretical and practical implications for using self-persuasion interventions to enhance young people's mental help-seeking during the COVID-19 pandemic.

Effect of Self-persuasion

This study's self-persuasion method differs from traditional persuasion methods (e.g., gain/loss framing) guided by researchers. Empirically, research found the effect of self-persuasion strategies to be strong and persistent (Petty & Brinol, 2010). However, in this study, the self-persuasion intervention effect was not statistically "high" but seemed to increase over time and last even after the intervention. For instance, the YouTube-first group only had a small intervention effect (g = .3) at T1 for the self-efficacy for seeking mental help. However, it reached a very close to high effect (g = .69) at T3, one month after the second intervention. Also, the YouTube-first group only had a small effect (g = .32) at T1 for increasing help-seeking intention. However, the intervention effect became moderate (g = .52) at T2 after another intervention task was introduced.

The reason why the intervention did not have a very strong effect may be due to the nature of the mental help-seeking behavior. The literature has documented the deep-rooted stigmatization of mental illness. For example, young people, especially men and those whose cultural backgrounds are primarily collective (e.g., the Asian communities),

tend to perceive mental illness as a personal weakness (Subramaniam et al., 2017). Also, since media has a history of portraying mental illness as mad, violent, and criminal (Parrott & Parrott, 2015), young people who grew up consuming such media products may have cultivated unfavorable attitudes towards mental help-seeking (Dey, 2017), which may be difficult to change.

Even so, this study's intervention improved the mental help-seeking-related intention, behavior, and some secondary outcomes, such as attitude, stigma, and self-efficacy. Since the previously guided interventions targeting young people's mental help-seeking were unsuccessful, this study's results suggest that self-persuasion can be a new approach to effectively improve the mental status of a young population that is at high risk (even without pre-existing mental conditions) for mental disorders during the emotional crisis of COVID-19 that is characterized by the uncertainties in personal health and finances (Holingue et al., 2020).

Since the previously guided interventions targeting young people's mental help-seeking were unsuccessful (Demyan & Anderson, 2012; Gulliver et al., 2012), using self-persuasion in such interventions was a new approach to effectively improve the help-seeking intention/behavior among such a population at high risk for mental disorder, especially during the global emotional crisis in COVID-19.

Task Intensity and Intention Change

Compared with the Facebook task, the more task-intensive YouTube task produced more significant and persistent changes in students' mental help-seeking intention when the YouTube task was performed first.. This confirms the results of

previous research that higher engagement in the creation of hypocrisy may generate

greater intention changes (e.g., safe sex measures) (Stone et al., 1994).

Theoretically, how individuals' commitment to the self-persuasion task relates to

more potent persuasion effects also resonates with the Elaboration Likelihood Model

(ELM) (Petty & Cacioppo, 1986), which suggests that the amount of people's cognitive

efforts in processing the persuasive materials would determine how likely they may

reach a reasoned attitude (based on the materials and other supporting information). For

instance, as students spent efforts in generating the written argument for the YouTube

task, they might cognitively process why one should seek professional help when they

are mentally distressed. Such cognitive processing should be more profound than that of

the Facebook task since the latter was an easier task requiring less cognitive effort to

justify why one should seek mental help.

Moreover, even though the two intervention groups did both the YouTube and

Facebook tasks but with different orders, the longitudinal changes in their mental help-

seeking intentions were not the same. Interestingly, for the less task-intensive Facebook

task, the lower persuasive effect it generated did not catch up even after the YouTube

task was introduced to the same group. Such a result may reflect the inoculation effect

(McGuire, 1964), hypothesizing that individuals' exposure to a weakened argument can

make them develop resistance against future arguments that are logically stronger.

As the students did not spend much effort on the Facebook task, their arguments

for mental help-seeking generated for that task were reasonably weaker than those

generated for the YouTube task. Therefore, when the students who did the Facebook

task (at T1) were introduced to the YouTube task (at T2), they might have developed resistance against the stronger mental help-seeking arguments, resulting in their reluctance to further change their minds about mental help-seeking.

Barriers to the Help-Seeking Behavior: Implications for the Coverage of Online Services

Interestingly, while students' mental help-seeking intention in the intervention groups increased over time, the mental help-seeking behavior of all the student participants experienced almost the same decline during the study. This result suggests that students did not or could not seek mental help even when they intended to.

Based on the theory of planned behavior (Ajzen, 1991), external barriers (e.g., finances and transportation) may prevent individuals from conducting health-related behaviors, such as seeking medical attention for mental distress, even if these individuals have intentions to do so. In this study's context, while health care resources have gone mainly online since the start of the global pandemic, students may not have been fully informed or aware of where they could seek help regarding their mental health due to the pandemic information overflow from entities, such as the local government, the university, and their workplaces. Therefore, mental health services, especially those on campus, need to reach their student customers more efficiently and market their online services using strategies such as social media that students can find personally relevant.

Also, research has documented that technological glitches, such as insufficient Internet bandwidth, are the major barriers to patients' use of telehealth during the COVID-19 pandemic. Along the same line, spotty internet may have also impeded students, especially those who live in remote areas, from using telehealth for mental

124

counseling. While accessibility has been one of the most significant barriers to ZOOM teaching after college courses were transitioned online (L. Taylor, Raisborough, Harrison, & Dulson, 2020), the results of this study further confirm the urgent need to address the Internet disparities facing college students because it can adversely impact on their mental health when they have no access to online mental counseling services. As such, mental health providers may use mobile strategies (e.g., phone calls) to enhance students' accessibility to mental care in a cost-efficient way (Neufeld, Yellowlees, Hilty, Cobb, & Bourgeois, 2007).

Prior Clinical Experiences: Implications for the Quality of Mental Services

This intervention did not significantly improve students' mental help-seeking behavior. The reason may be the students' lack of prior help-seeking experience (H. Chang, 2008), as most students who participated in this study reported not having sought help from mental health professionals. Also, since college students is a typical subgroup of young adults who are the most likely to forego mental help across all age groups (APA, 2019), this study's participants might have a strong existing tendency to perceive mental treatment as unnecessary and avoid using mental health services (Garlow et al., 2008). Indeed, research showed that people's previous communication experiences with mental professionals and/or the general health practitioners lead to the increased likelihood to seek help for mental problems (Jennifer et al., 2008; Tijhuis et al., 1990). Based on the results of Study 1 and 2, providers may improve college students' mental help-seeking intentions by reducing their stigma of mental illness, increasing the quality of care, and enhance their trust in mental treatments.

125

Specifically, providers should help reduce patients' stigma of mental illness by using more objective language when discussing mental treatment (Priest et al., 1996). As exaggerated media production penetrates the criminalized mental illness stereotypes (Klin & Lemish, 2008), providers should conduct non-stigmatizing conversations with college students over mental treatments (Priest et al., 1996). Although there lacks research addressing how exactly providers should talk about mental illness, the literature on other stigmatized conditions (e.g., overweight) suggested that providers' attributing the cause of illness to patients' characters can lead to patients' self-blame and stigmatization of having that illness (Persky & Street Jr, 2015). Therefore, providers should be aware of the social stigmatization of mental illness and be sensitive of their communication's impact when talking with people who are mentally distressed.

Also, while research showed that prior help-seeking experience (positive or negative) may add to the person's positive attitude towards using mental health services (Tijhuis et al., 1990), mental health providers should use patient-centered communication to improve the quality of care patients receive. As research showed, patients who had post-traumatic stress can better manage their emotions if their providers attend to their psychological needs (Nieforth & Craig, 2020). Also, patients feel more positive about seeking mental help, when their providers offer more reassurances for their emotional needs (Dang et al., 2017).

Also, by building trust and providing sufficient information around mental treatment, providers may reduce patients' barriers to seek mental help. As research suggested, trusting relationships between patients and providers improved patients'

126

attitudes toward seeking help for mental problems. Patients can also be more aware of their mental health issues and take active action to seek help, when their providers' communication is informative and educational (Lee, 2019).

Therefore, to increase college students' mental help-seeking, mental health providers and general practitioners need to reduce the stigma of mental illness, build trust with patients, and attend to patient's psychological needs. In addition, during pandemic times when health services go online, providers can also maintain college students' treatment continuity by introducing them to online counseling services to help them seek mental help online (Lazuras & Dokou, 2016).

Limitations

This study is not without limitations. First, this study's attrition might have influenced the results. Future explorations can examine the relationships between students' dropout and their mental status to further understand college students' mental health during the pandemic. Second, this study did not explore how college students' different cultural backgrounds influence their mental help-seeking. Future research can investigate how health interventions can benefit different college populations, such as Asian American college students and other minority students. Third, the cycle of student life might also have influenced this study's results in a way that students' mental status and help-seeking intentions can fluctuate due to the school-related stress they experience throughout the course of the longitudinal experiment. Specifically, the T0, T1, and T3 assessments happened at the beginning of a semester, when students' stress level may be relatively low, whereas the T2 assessment took place in the middle of a semester, when

students' stress level may be relatively high. Nevertheless, students recruited in this study had already been experiencing more than a moderate level of mental distress at T0 (the beginning of a semester), which may have helped reduce the recruitment bias and target the individuals who may generally experience distress. Finally, this study's longitudinal growth analysis did not control for students' mental health status, which may also have influenced the results. Even so, the student participants all reported a similar level of mental distress at baseline, which was also a strategy to control for different mental status. Future research may use more precision when analyzing longitudinal interventions related to mental health and related behaviors.

CHAPTER V

CONCLUSION

General Discussion

Mental disorders have been a global problem. Especially for the young adults, such as college students, they endure the worst mental health status while lacking the motivation to seek professional help. The outbreak of the COVID-19 pandemic has exacerbated this situation by introducing new stressors (e.g., travel bans, lockdowns, face covering, and social distancing) to individuals. The primary goal of this dissertation was to conduct an effective mental health intervention to increase college students' use of mental health services. Three studies were conducted to address this issue.

Study 1 focused on understanding people's avoidance of seeking health-related help. Based on social cognitive theory, it analyzed the 2019 HINTS data to explore how personal, health care, and the media environments affect people's avoidance of seeking care. It showed that younger people with higher mental distress, less social support, poorer health care experiences, and frequently seek health information online were more likely than other populations to avoid visiting a doctor when something goes wrong. The results of Study 1 contribute to the existing literature on people's health-related help-seeking behavior in several ways. First, it recognized the importance of the environmental factors influencing people's avoidance of seeking a doctor. As the study suggested, people's engagement in this maladaptive coping mechanism is not only due to their low perceived need to seek a doctor or having prior help-seeking experience per

se. Rather, it is determined by a constellation of communication experiences that shape their trust and expectations around receiving health care services. Second, this study highlighted the importance of patient-centered communication and quality of care in patients' use of health care services and continuity of care. Especially for patients with mental distress, providers' communication can improve their access to mental help, increase their knowledge on how to navigate the mental counseling system, and reduce stigma of mental illness created by mass media and society, which may motivate patients to seek help when they need it. Third, it also confirmed the influence of the media environment. Specifically, since individuals who frequently seek health information online may reduce their need to present to professional help, interventions are needed for those who habitually rely on the Internet to manage their health.

Study 2 focused specifically on college students' intention and behavior to seek mental help. Based on the theory of planned behavior, this study used a cross-sectional survey to explore how three types of interpersonal environments college students are connected tightly with influence their use of mental health services through empirically supported factors, such as attitude towards seeking help, personal stigma of mental illness, and self-efficacy to manage one's mental health. The three environments included the family, clinical, and online contexts, and the factors related to these environments (e.g., family conformity, openness of family conversation, patient-centered communication, and online support) were studied. The results showed connections between the communicative environments and the personal attitude, stigma, and self-efficacy, which led to the intention to seek mental help. Within the personal factors,

higher mental health-related stigma and self-efficacy to manage mental health predicted negative attitudes toward seeking mental help. As previous research on college students' (or young people's) mental help-seeking primarily focused on the personal factors, this study contributes to this line of literature by underlining the impact of communicative environments. It also enhances the understanding of how the changes in these environments can lead to behavioral changes. The study's results contributed to the design of Study 3, as it showed that students who felt supported online tended to manage their mental health on their own. The results may also inform future mental health interventions conducted in families, clinics, and online.

Following the self-persuasion paradigm, Study 3 was a longitudinal social media-based intervention to increase college students' intention to seek mental help. The study participants were randomized into one control and two intervention groups. They participated in data collection at three time points. At each of the first two time points, each intervention condition gave the participants a task to form arguments that support mental help-seeking. The two intervention tasks were of different task-intensity, and they were designed based on theories, such as cognitive dissonance, self-affirmation, and self-relevance. The result showed that the intervention group which received the more intense self-persuasion task at T1 was able to have significant increase in their intention, attitude, and self-efficacy related to mental help-seeking overtime. Also, all groups, whether intervention or control, had almost the same decline in their help-seeking behavior over the course of this intervention, suggesting that students might have experienced barriers to seek mental help during the pandemic. Using a new intervention

131

method based on self-persuasion, this study contributes to the understanding of this method's application in persuading college students to seek mental help. The significant intervention effects showed that self-persuasion may be more powerful than guided intervention in persuading hard-to-change beliefs (e.g., seeking mental help) deeply rooted in the larger social norms. Greater processing of intervention messages may generate better behavior outcomes because more cognitive effort may help maintain people's objectivity when they face a health message contradicting their beliefs. Also, assigning students as the opinion leader on social media can make them be more conscious of their strength in accepting a persuasive health message. Moreover, this study has some practical implications for mental health practices. First, as mental health services went online due to the pandemic precautions, the service providers may need to inform students of this change and give them sufficient guidance on how to seek mental help via online platforms. Second, college students who lived in remote areas might not have stable Internet connections to participate in the online consultations. Therefore, mental health professionals may need to use phones to conduct counseling sessions, and they may also need to make sure that such strategies protect the privacy of the students. Third, media platforms need to take more responsibilities and depict mental illness in a more scientific and objective way to reduce social stigmatization of mental illness.

Limitations and Future Directions

This dissertation also had some limitations. First, Study 1 used public survey data, which could only provide limited insights to the research questions due to the availability of survey questions. Second, Study 1's outcome variable, avoidance to visit a

132

doctor, is a dummy variable, which might not capture the full variance of this behavior. Future research may use a continuous variable or validated scales to reexamine the avoidance of seeking care. Third, Study 2 only used undergraduate student sample at one university, limiting the generalizability of the results. Thus, future research may expand the data collection and observe how communicative environment influence people's use of mental health services at a larger scale. Fourth, the models in Study 2 did not control for race and ethnicity, which limited the understanding of how people's racial and ethnical background play a role in their mental help-seeking. Future research may dive this and investigate how tailored interventions can benefit college students with minority cultural backgrounds. Fifth, Study 3 should be interpreted with caution, as the attrition rate was very high. Future longitudinal interventions, especially those conducted in special times (e.g., during a pandemic), should use strategies to prevent similar dropout rates. The strategies may include a little higher compensation, shorter testing time, and enrollment of new samples at each data collection time.

REFERENCES

Abrams, D. B., Herzog, T. A., Emmons, K. M., & Linnan, L. (2000). Stages of change versus addiction: a replication and extension. *Nicotine & Tobacco Research, 2*(3), 223-229.

Ackerson, L. K., & Viswanath, K. (2009). The social context of interpersonal communication and health. *Journal of Health Communication, 14*(S1), 5-17.

Acock, A. C. (2005). Working with missing values. *Journal of Marriage and family, 67*(4), 1012-1028.

Ahmadi, J., Sarani, E. M., & Jahromi, M. S. (2020). Rapid effect of a single-dose buprenorphine on reduction of opioid craving and suicidal ideation: A randomized, double blind, placebo-controlled study. *Tzu Chi Medical Journal, 32*(1), 58.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211.

Ajzen, I. (2002). Constructing a TPB questionnaire: Conceptual and methodological considerations. Retrieved from http://www-unix.oit.umass.edu/~aizen/tpb.html

Albert, M., Rui, P., & Ashman, J. J. (2017). Physician office visits for attention-deficit/hyperactivity disorder in children and adolescents aged 4-17 years: United States, 2012-2013.

AlGhamdi, K. M., & Moussa, N. A. (2012). Internet use by the public to search for health-related information. *International journal of medical informatics, 81*(6), 363-373.

Amsalem, D., Dixon, L. B., & Neria, Y. (2021). The coronavirus disease 2019 (COVID-19) outbreak and mental health: current risks and recommended actions. *JAMA psychiatry, 78*(1), 9-10.

An, R., Ji, M., & Zhang, S. (2017). Effectiveness of social media-based interventions on weight-related behaviors and body weight status: review and meta-analysis. *American journal of health behavior, 41*(6), 670-682.

Anglin, D. M., Alberti, P. M., Link, B. G., & Phelan, J. C. (2008). Racial differences in beliefs about the effectiveness and necessity of mental health treatment. *American Journal of Community Psychology, 42*(1-2), 17.

APA. (2019). *Americans Becoming More Open About Mental Health*. Retrieved from https://www.apa.org/news/press/releases/apa-mental-health-report.pdf

Arnaez, J. M., Krendl, A. C., McCormick, B. P., Chen, Z., & Chomistek, A. K. (2020). The association of depression stigma with barriers to seeking mental health care: A cross-sectional analysis. *Journal of Mental Health, 29*(2), 182-190.

Aronson, E. (1999). The power of self-persuasion. *American Psychologist, 54*(11), 875.

Asbury, M. E., & Woszidlo, A. D. (2016). Understanding the relationship between family communication and the development of weight stigma.

Auerbach, R. P., Alonso, J., Axinn, W. G., Cuijpers, P., Ebert, D. D., Green, J. G., . . . Mortier, P. (2016). Mental disorders among college students in the World Health Organization world mental health surveys. *Psychological medicine, 46*(14), 2955-2970.

Auxier, B., & Anderson, M. (2021). *Social Media Use in 2021*. Retrieved from Pew Research Center: https://www.pewresearch.org/internet/2021/04/07/social-media-use-in-2021/

Baiocchi-Wagner, E. A., & Talley, A. E. (2013). The role of family communication in individual health attitudes and behaviors concerning diet and physical activity. *Health Communication, 28*(2), 193-205.

Baker, K. D., & Ray, M. (2011). Online counseling: The good, the bad, and the possibilities. *Counselling Psychology Quarterly, 24*(4), 341-346.

Baldwin, A. S., Rothman, A. J., Vander Weg, M. W., & Christensen, A. J. (2013). Examining causal components and a mediating process underlying self-generated health arguments for exercise and smoking cessation. *Health psychology, 32*(12), 1209.

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological review, 84*(2), 191.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2), 122.

Bandura, A. (2009). Social cognitive theory of mass communication. In *Media effects* (pp. 110-140): Routledge.

Bao, C., Bardhan, I. R., Singh, H., Meyer, B. A., & Kirksey, K. (2020). PATIENT–PROVIDER ENGAGEMENT AND ITS IMPACT ON HEALTH OUTCOMES: A LONGITUDINAL STUDY OF PATIENT PORTAL USE. *MIS Quarterly, 44*(2).

Barker, V. (2018). Text You Pictures: The Role of Group Belonging, Race Identity, Race, and Gender in Older Adolescents' Mobile Phone Use. *Social Sciences, 7*(7), 115.

Batterham, P. J., Calear, A. L., Sunderland, M., Carragher, N., & Brewer, J. L. (2016). Online screening and feedback to increase help-seeking for mental health problems: population-based randomised controlled trial. *BJPsych open, 2*(1), 67-73.

Bayer, J. K., & Peay, M. Y. (1997). Predicting intentions to seek help from professional mental health services. *Australian and New Zealand Journal of Psychiatry, 31*(4), 504-513.

Bech‑Larsen, T., & Grønhøj, A. (2013). Promoting healthy eating to children: a text message (SMS) feedback approach. *International Journal of Consumer Studies, 37*(3), 250-256.

Becker, A. E., & Kleinman, A. (2013). Mental health and the global agenda. *New England Journal of Medicine, 369*(1), 66-73.

Bekalu, M. A., McCloud, R. F., & Viswanath, K. (2019). Association of social media use with social well-being, positive mental health, and self-rated health: disentangling routine use from emotional connection to use. *Health Education & Behavior, 46*(2_suppl), 69S-80S.

Berryman, C., Ferguson, C. J., & Negy, C. (2018). Social media use and mental health among young adults. *Psychiatric Quarterly, 89*(2), 307-314.

Bethune, S. (2019). *Gen Z more likely to report mental health concerns*. Retrieved from https://www.apa.org/monitor/2019/01/gen-z

Bohon, L. M., Cotter, K. A., Kravitz, R. L., Cello Jr, P. C., & Fernandez y Garcia, E. (2016). The Theory of Planned Behavior as it predicts potential intention to seek mental health services for depression among college students. *Journal of American College Health, 64*(8), 593-603.

Boonroungrut, C., & Fei, H. (2018). The Theory of Planned Behavior and Transtheoretical Model of Change: a systematic review on combining two behavioral change theories in research. *Journal of Public Health and Development, 16*(1), 75-87.

Booth‐Butterfield, M., & Sidelinger, R. (1998). The influence of family communication on the college‐aged child: Openness, attitudes and actions about sex and alcohol. *Communication Quarterly, 46*(3), 295-308.

Brown, P., & Calnan, M. (2012). *Trusting on the edge: Managing uncertainty and vulnerability in the midst of serious mental health problems*: Policy Press.

Bruine de Bruin, W. (2020). Age differences in COVID-19 risk perceptions and mental health: Evidence from a national US survey conducted in March 2020. *The Journals of Gerontology: Series B*.

Calhoun, A. J., & Gold, J. A. (2020). "I Feel Like I Know Them": the Positive Effect of Celebrity Self-disclosure of Mental Illness. *Academic Psychiatry*, 1-5.

Canary, H. E. (2012). Children with Invisible Disabilities: Communicating to Manage Family Contradiction. In F. C. Dickson & L. M. Webb (Eds.), *Communication for families in crisis: Theories, research, strategies*. New York: Peter Lang Publishing.

Chan, J. Y. N., Mak, W. W. S., & Law, L. S. C. (2009). Combining education and video-based contact to reduce stigma of mental illness: "The Same or Not the Same" anti-stigma program for secondary schools in Hong Kong. *Social Science & Medicine, 68*(8), 1521-1526.

Chan, Y. M., & Laster, C. (2015). EVALUATION OF HEALTHCARE AVOIDANCE BEHAVIOR USING THE HEALTHCARE NATIONAL TRENDS SURVEY. *American Journal of Health Studies, 30*(1).

Chang, H. (2008). Help-seeking for stressful events among Chinese college students in Taiwan: Roles of gender, prior history of counseling, and help-seeking attitudes. *Journal of College Student Development, 49*(1), 41-51.

Chang, T., Chopra, V., Zhang, C., & Woolford, S. J. (2013). The role of social media in online weight management: systematic review. *Journal of medical Internet research, 15*(11), e262.

Cheng, C., Ebrahimi, O. V., & Lau, Y. c. (2020). Maladaptive coping with the infodemic and sleep disturbance in the COVID‐19 pandemic. *Journal of Sleep Research*, e13235.

Cheng, V., Davenport, T., Johnson, D., Vella, K., Mitchell, J., & Hickie, I. B. (2020). Naturalistic evaluation of a mental health and wellbeing app incorporating

applied video games and gamification (MindMax): Wellbeing, resilience, and help-seeking outcomes. *Internet Interventions*, Article-number.

Cheung, Y. T. D., Chan, C. H. H., Lai, C.-K. J., Chan, W. F. V., Wang, M. P., Li, H. C. W., . . . Lam, T.-H. (2015). Using WhatsApp and Facebook online social groups for smoking relapse prevention for recent quitters: a pilot pragmatic cluster randomized controlled trial. *Journal of medical Internet research, 17*(10), e238.

Clement, S., Lassman, F., Barley, E., Evans‐Lacko, S., Williams, P., Yamaguchi, S., . . . Thornicroft, G. (2013). Mass media interventions for reducing mental health‐related stigma. *Cochrane Database of Systematic Reviews*(7).

Clement, S., Schauman, O., Graham, T., Maggioni, F., Evans-Lacko, S., Bezborodovs, N., . . . Thornicroft, G. (2015). What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychological medicine, 45*(1), 11-27.

Cohen, G. L., & Sherman, D. K. (2014). The psychology of change: Self-affirmation and social psychological intervention. *Annual review of psychology, 65*.

Cohen, J. (2013). *Statistical power analysis for the behavioral sciences*: Routledge.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological bulletin, 98*(2), 310.

Cole, D. A., Nick, E. A., & Pulliam, K. A. (2020). Are Massively Multiplayer Online Role-Playing Games healthy or not and why? Preliminary support for a Compensatory Social Interaction model. *Computers in Human Behavior, 102*, 57-66.

Connor, C., Greenfield, S., Lester, H., Channa, S., Palmer, C., Barker, C., . . . Birchwood, M. (2016). Seeking help for first‐episode psychosis: A family narrative. *Early Intervention in Psychiatry, 10*(4), 334-345.

Corrigan, P. W., Edwards, A. B., Green, A., Diwan, S. L., & Penn, D. L. (2001). Prejudice, social distance, and familiarity with mental illness. *Schizophrenia bulletin, 27*(2), 219-225.

Corrigan, P. W., Morris, S. B., Michaels, P. J., Rafacz, J. D., & Rüsch, N. (2012). Challenging the public stigma of mental illness: a meta-analysis of outcome studies. *Psychiatric Services, 63*(10), 963-973.

Corrigan, P. W., & Watson, A. C. (2002). The paradox of self‐stigma and mental illness. *Clinical Psychology: Science and Practice, 9*(1), 35-53.

Cortes, D. E., Mulvaney-Day, N., Fortuna, L., Reinfeld, S., & Alegría, M. (2009). Patient—provider communication: understanding the role of patient activation for Latinos in mental health treatment. *Health Education & Behavior, 36*(1), 138-154.

Dang, B. N., Westbrook, R. A., Njue, S. M., & Giordano, T. P. (2017). Building trust and rapport early in the new doctor-patient relationship: a longitudinal qualitative study. *BMC Med Educ, 17*(1), 32. doi:10.1186/s12909-017-0868-5

Daniali, H., & Flaten, M. A. (2019). A qualitative systematic review of effects of provider characteristics and nonverbal behavior on pain, and placebo and nocebo effects. *Frontiers in psychiatry, 10*, 242.

Davenport, R. G. (2017). The integration of health and counseling services on college campuses: Is there a risk in maintaining student patients' privacy? *Journal of College Student Psychotherapy, 31*(4), 268-280.

De Choudhury, M., & De, S. (2014). *Mental health discourse on reddit: Self-disclosure, social support, and anonymity*.

Demyan, A. L. (2009). The Effects of a Brief, Mass-Media Intervention on Attitude and Intention to Seek Professional Psychological Treatment.

Demyan, A. L., & Anderson, T. (2012). Effects of a brief media intervention on expectations, attitudes, and intentions of mental health help seeking. *Journal of counseling psychology, 59*(2), 222.

Derksen, F., Bensing, J., & Lagro-Janssen, A. (2013). Effectiveness of empathy in general practice: a systematic review. *British Journal of General Practice, 63*(606), e76-e84.

Dey, B. W. (2017). The Effects of Popular Media on College Students' Attitudes and Perceptions of Substance Abuse Treatment.

Diefenbach, D. L., & West, M. D. (2007). Television and attitudes toward mental health issues: Cultivation analysis and the third‐person effect. *Journal of Community Psychology, 35*(2), 181-195.

Downs, M. F., & Eisenberg, D. (2012). Help seeking and treatment use among suicidal college students. *Journal of American College Health, 60*(2), 104-114.

Dusselier, L., Dunn, B., Wang, Y., Shelley iI, M. C., & Whalen, D. F. (2005). Personal, health, academic, and environmental predictors of stress for residence hall students. *Journal of American College Health, 54*(1), 15-24.

Ebert, D. D., Lehr, D., Heber, E., Riper, H., Cuijpers, P., & Berking, M. (2016). Internet- and mobile-based stress management for employees with adherence-focused guidance: efficacy and mechanism of change. *Scandinavian journal of work, environment & health*, 382-394.

Edwards, L., Thomas, C., Gregory, A., Yardley, L., O'Cathain, A., Montgomery, A. A., & Salisbury, C. (2014). Are people with chronic diseases interested in using telehealth? A cross-sectional postal survey. *Journal of medical Internet research, 16*(5), e123.

Egan, K. G., Koff, R. N., & Moreno, M. A. (2013). College students' responses to mental health status updates on Facebook. *Issues in Mental Health Nursing, 34*(1), 46-51.

Eisenberg, D., Downs, M. F., Golberstein, E., & Zivin, K. (2009). Stigma and help seeking for mental health among college students. *Medical Care Research and Review, 66*(5), 522-541.

Eisenberg, D., Golberstein, E., & Gollust, S. E. (2007). Help-seeking and access to mental health care in a university student population. *Medical care*, 594-601.

Eisenberg, D., Nicklett, E. J., Roeder, K., & Kirz, N. E. (2011). Eating disorder symptoms among college students: Prevalence, persistence, correlates, and treatment-seeking. *Journal of American College Health, 59*(8), 700-707.

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends:" Social capital and college students' use of online social network sites. *Journal of Computer-Mediated Communication, 12*(4), 1143-1168.

Epstein, R. M., & Street, R. L. (2007). *Patient-centered communication in cancer care: promoting healing and reducing suffering. National Cancer Institute; Bethesda*. Retrieved from

Essler, V., Arthur, A., & Stickley, T. (2006). Using a school-based intervention to challenge stigmatizing attitudes and promote mental health in teenagers. *Journal of Mental Health, 15*(2), 243-250.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior research methods, 41*(4), 1149-1160.

Fergie, G., Hilton, S., & Hunt, K. (2016). Young adults' experiences of seeking online information about diabetes and mental health in the age of social media. *Health expectations, 19*(6), 1324-1335.

Ferring, D. (2017). The family in us: Family history, family identity and self-reproductive adaptive behavior. *Integrative Psychological and Behavioral Science, 51*(2), 195-204.

Festinger, L. (1957). *A theory of cognitive dissonance* (Vol. 2): Stanford university press.

Finkelstein, J., Lapshin, O., & Wasserman, E. (2008). Randomized study of different anti-stigma media. *Patient education and counseling, 71*(2), 204-214.

Fischer, E. H., & Farina, A. (1995). Attitudes toward seeking professional psychologial help: A shortened form and considerations for research. *Journal of College Student Development*.

Fishbein, M. (2000). The role of theory in HIV prevention. *AIDS care, 12*(3), 273-278.

Fishbein, M., & Ajzen, I. (2005). Theory-based behavior change interventions: Comments on Hobbis and Sutton. *Journal of health psychology, 10*(1), 27-31.

Fishbein, M., & Ajzen, I. (2011). *Predicting and changing behavior: The reasoned action approach*: Psychology press.

Fishbein, M., & Cappella, J. N. (2006). The role of theory in developing effective health communications. *Journal of Communication, 56*, S1-S17.

Fishbein, M., Hennessy, M., Yzer, M., & Douglas, J. (2003). Can we explain why some people do and some people do not act on their intentions? *Psychology, health & medicine, 8*(1), 3-18.

Fishbein, M., & Yzer, M. C. (2003). Using theory to design effective health behavior interventions. *Communication Theory, 13*(2), 164-183.

Fisher, C. L., & Nussbaum, J. F. (2012). "Linked Lives" : Mother-Adult Daughter Communication after a Breast Cancer Diagnosis. In F. C. Dickson & L. M. Webb (Eds.), *Communication for families in crisis: Theories, research, strategies*. New York: Peter Lang Publishing.

Fitzpatrick, M. A., & Ritchie, L. D. (1994). Communication schemata within the family: Multiple perspectives on family interaction. *Human Communication Research, 20*(3), 275-301.

Flynn, B. S., Worden, J. K., Bunn, J. Y., Connolly, S. W., & Dorwaldt, A. L. (2011). Evaluation of smoking prevention television messages based on the elaboration likelihood model. *Health education research, 26*(6), 976-987.

Fox, S., & Duggan, M. (2013). *Information Triage*. Retrieved from Pew Research Center: https://www.pewresearch.org/internet/2013/01/15/information-triage/

Francis, P. C., & Horn, A. S. (2017). Mental Health Issues and Counseling Services in US Higher Education: An Overview of Recent Research and Recommended Practices. *Higher Education Policy, 30*(2), 263-277.

Frazier, P., Meredith, L., Greer, C., Paulsen, J. A., Howard, K., Dietz, L. R., & Qin, K. (2015). Randomized controlled trial evaluating the effectiveness of a web-based stress management program among community college students. *Anxiety, Stress, & Coping, 28*(5), 576-586.

Freijy, T., & Kothe, E. J. (2013). Dissonance‐based interventions for health behaviour change: A systematic review. *British journal of health psychology, 18*(2), 310-337.

Frison, E., & Eggermont, S. (2016). Exploring the relationships between different types of Facebook use, perceived online social support, and adolescents' depressed mood. *Social Science Computer Review, 34*(2), 153-171.

Fu, W., Yan, S., Zong, Q., Anderson-Luxford, D., Song, X., Lv, Z., & Lv, C. (2021). Mental health of college students during the COVID-19 epidemic in China. *Journal of affective disorders, 280*, 7-10.

Funk, M. (2008). *Integrating mental health into primary care: a global perspective*: World Health Organization.

Gaebel, W., Muijen, M., Baumann, A. E., Bhugra, D., Wasserman, D., Van der Gaag, R. J., . . . Zielasek, J. (2014). EPA guidance on building trust in mental health services. *European Psychiatry, 29*(2), 83-100.

Gao, J., Zheng, P., Jia, Y., Chen, H., Mao, Y., Chen, S., . . . Dai, J. (2020). Mental health problems and social media exposure during COVID-19 outbreak. *PLoS One, 15*(4), e0231924.

Garlow, S. J., Rosenberg, J., Moore, J. D., Haas, A. P., Koestner, B., Hendin, H., & Nemeroff, C. B. (2008). Depression, desperation, and suicidal ideation in college students: results from the American Foundation for Suicide Prevention College Screening Project at Emory University. *Depression and anxiety, 25*(6), 482-488.

Gask, L., Kendrick, T., Peveler, R., & Chew-Graham, C. A. (2018). *Primary care mental health*: Cambridge University Press.

Glanz, K., Rimer, B. K., & Viswanath, K. (2008). *Health behavior and health education: theory, research, and practice*: John Wiley & Sons.

Gowen, K., Deschaine, M., Gruttadara, D., & Markey, D. (2012). Young adults with mental health conditions and social networking websites: Seeking tools to build community. *Psychiatric rehabilitation journal, 35*(3), 245.

Gowen, L. K. (2013). Online mental health information seeking in young adults with mental health challenges. *Journal of Technology in Human Services, 31*(2), 97-111.

Guidry, J. P. D., Jin, Y., Orr, C. A., Messner, M., & Meganck, S. (2017). Ebola on Instagram and Twitter: How health organizations address the health crisis in their social media engagement. *Public Relations Review, 43*(3), 477-486.

Gulliver, A., Griffiths, K. M., & Christensen, H. (2010). Perceived barriers and facilitators to mental health help-seeking in young people: a systematic review. *BMC psychiatry, 10*(1), 113.

Gulliver, A., Griffiths, K. M., Christensen, H., Mackinnon, A., Calear, A. L., Parsons, A., . . . Stanimirovic, R. (2012). Internet-based interventions to promote mental health help-seeking in elite athletes: an exploratory randomized controlled trial. *Journal of medical Internet research, 14*(3), e69.

Hadlaczky, G., Hökby, S., Mkrtchian, A., Carli, V., & Wasserman, D. (2014). Mental Health First Aid is an effective public health intervention for improving knowledge, attitudes, and behaviour: A meta-analysis. *International Review of Psychiatry, 26*(4), 467-475.

Hall, G. C. N., Berkman, E. T., Zane, N. W., Leong, F. T. L., Hwang, W.-C., Nezu, A. M., . . . Huang, E. R. (2021). Reducing mental health disparities by increasing the personal relevance of interventions. *American Psychologist, 76*(1), 91.

Hammond, W. P. (2010). Psychosocial correlates of medical mistrust among African American men. *American Journal of Community Psychology, 45*(1-2), 87-106.

Han, C. J., Lee, Y. J., & Demiris, G. (2018). Interventions using social media for cancer prevention and management: a systematic review. *Cancer nursing, 41*(6), E19-E31.

Han, D. Y., Chen, S. H., Hwang, K. K., & Wei, H. L. (2006). Effects of psychoeducation for depression on help‐seeking willingness: Biological attribution versus destigmatization. *Psychiatry and Clinical Neurosciences, 60*(6), 662-668.

Han, Y., & Hansen, H. (2012). Determinants of Sustainable Food Consumption: A meta-analysis using a traditional and a structura equation modelling approach. *International Journal of Psychological Studies, 4*(1), 22.

Harrer, M., Adam, S. H., Fleischmann, R. J., Baumeister, H., Auerbach, R., Bruffaerts, R., . . . Lehr, D. (2018). Effectiveness of an internet-and app-based intervention for college students with elevated stress: randomized controlled trial. *Journal of medical Internet research, 20*(4), e136.

Harris, P. R., & Epton, T. (2009). The impact of self‐affirmation on health cognition, health behaviour and other health‐related responses: A narrative review. *Social and Personality Psychology Compass, 3*(6), 962-978.

Haverfield, M. C., & Theiss, J. A. (2016). Parent's alcoholism severity and family topic avoidance about alcohol as predictors of perceived stigma among adult children of alcoholics: Implications for emotional and psychological resilience. *Health Communication, 31*(5), 606-616.

Hedges, L. V., & Olkin, I. (2014). *Statistical methods for meta-analysis*: Academic press.

Hemati, Z., Abbasi, S., Oujian, P., & Kiani, D. (2020). Relationship between parental communication patterns and self-efficacy in adolescents with parental substance abuse. *Iranian journal of child neurology, 14*(1), 49.

Hendriks, H., van den Putte, B., de Bruijn, G.-J., & de Vreese, C. H. (2014). Predicting health: the interplay between interpersonal communication and health campaigns. *Journal of Health Communication, 19*(5), 625-636.

Henry, S. G., Fuhrel-Forbis, A., Rogers, M. A. M., & Eggly, S. (2012). Association between nonverbal communication during clinical interactions and outcomes: a systematic review and meta-analysis. *Patient education and counseling, 86*(3), 297-315.

Hibbard, J. H., & Greene, J. (2013). What the evidence shows about patient activation: better health outcomes and care experiences; fewer data on costs. *Health affairs, 32*(2), 207-214.

High, A. C., & Scharp, K. M. (2015). Examining family communication patterns and seeking social support direct and indirect effects through ability and motivation. *Human Communication Research, 41*(4), 459-479.

Hirai, K., Harada, K., Seki, A., Nagatsuka, M., Arai, H., Hazama, A., . . . Shibuya, D. (2013). Structural equation modeling for implementation intentions, cancer worry, and stages of mammography adoption. *Psycho‐Oncology, 22*(10), 2339-2346.

Hoffman, E. W., Pinkleton, B. E., Weintraub Austin, E., & Reyes-Velázquez, W. (2014). Exploring college students' use of general and alcohol-related social media and their associations with alcohol-related behaviors. *Journal of American College Health, 62*(5), 328-335.

Hogan, B. E., Linden, W., & Najarian, B. (2002). Social support interventions: Do they work? *Clinical psychology review, 22*(3), 381-440.

Holingue, C., Badillo-Goicoechea, E., Riehm, K. E., Veldhuis, C. B., Thrul, J., Johnson, R. M., . . . Kalb, L. G. (2020). Mental distress during the COVID-19 pandemic among US adults without a pre-existing mental health condition: findings from American trend panel survey. *Preventive Medicine, 139*, 106231.

Holman, E. A., Thompson, R. R., Garfin, D. R., & Silver, R. C. (2020). The unfolding COVID-19 pandemic: A probability-based, nationally representative study of mental health in the United States. *Science advances, 6*(42), eabd5390.

Huang, Y., & Shen, F. (2016). Effects of cultural tailoring on persuasion in cancer communication: a meta-analysis. *Journal of Communication, 66*(4), 694-715.

Hunt, J., & Eisenberg, D. (2010). Mental health problems and help-seeking behavior among college students. *Journal of adolescent health, 46*(1), 3-10.

Hunter, W. G., Zhang, C. Z., Hesson, A., Davis, J. K., Kirby, C., Williamson, L. D., . . . Ubel, P. A. (2016). What strategies do physicians and patients discuss to reduce out-of-pocket costs? Analysis of cost-saving strategies in 1,755 outpatient clinic visits. *Medical Decision Making, 36*(7), 900-910.

Ibrahim, N., Amit, N., Shahar, S., Wee, L.-H., Ismail, R., Khairuddin, R., . . . Safien, A. M. (2019). Do depression literacy, mental illness beliefs and stigma influence mental health help-seeking attitude? A cross-sectional study of secondary school

and university students from B40 households in Malaysia. *BMC Public Health, 19*(4), 544.

Jacobson, D. E. (1986). Types and timing of social support. *Journal of Health and Social Behavior*, 250-264.

Jang, Y., Chiriboga, D. A., & Okazaki, S. (2009). Attitudes toward mental health services: Age-group differences in Korean American adults. *Aging and mental health, 13*(1), 127-134.

Janis, I. L. (1967). Effects of fear arousal on attitude change: Recent developments in theory and experimental research. *Advances in experimental social psychology, 3*, 166-224.

Jennifer, W. Y., Adams, S. H., Burns, J., Brindis, C. D., & Irwin Jr, C. E. (2008). Use of mental health counseling as adolescents become young adults. *Journal of adolescent health, 43*(3), 268-276.

Jerusalem, M., & Schwarzer, R. (1995). Generalized self-efficacy scale. *Measures in health psychology: A user's portfolio. Causal and control beliefs*, 35-37.

Jessop, D. C., Simmonds, L. V., & Sparks, P. (2009). Motivational and behavioural consequences of self-affirmation interventions: A study of sunscreen use among women. *Psychology and health, 24*(5), 529-544.

Jha, A., Lin, L., & Savoia, E. (2016). The use of social media by state health departments in the US: analyzing health communication through Facebook. *Journal of community health, 41*(1), 174-179.

Jo, B. (2002). Statistical power in randomized intervention studies with noncompliance. *Psychological methods, 7*(2), 178.

Kaplan, K., Salzer, M. S., Solomon, P., Brusilovskiy, E., & Cousounis, P. (2011). Internet peer support for individuals with psychiatric disabilities: a randomized controlled trial. *Social Science & Medicine, 72*(1), 54-62.

Keller, D. S., & Galanter, M. (1999). Technology Transfer of Network Therapy to Community-Based Addictions Counselors: New York, New York. *Journal of substance abuse treatment, 16*(2), 183-189.

Kent de Grey, R. G., Uchino, B. N., Baucom, B. R. W., Smith, T. W., Holton, A. E., & Diener, E. F. (2019). Enemies and friends in high-tech places: the development and validation of the Online Social Experiences Measure. *DIGITAL HEALTH, 5*, 2055207619878351.

Kim, H. K. (2016a). Efficacy of value-expressive messages at improving attitudes toward psychiatric help seeking for depression treatment among young adults. *Journal of Communication in Healthcare, 9*(4), 288-297.

Kim, H. K. (2016b). Motivational bases of negative attitudes toward psychiatric help-seeking. *Asia Pacific J Adv Business Soc Stud, 3*, 731-739.

Kim, K., & Kwon, N. (2010). Profile of e-patients: analysis of their cancer information-seeking from a national survey. *Journal of Health Communication, 15*(7), 712-733.

King, D. K., Glasgow, R. E., Toobert, D. J., Strycker, L. A., Estabrooks, P. A., Osuna, D., & Faber, A. J. (2010). Self-efficacy, problem solving, and social-

environmental support are associated with diabetes self-management behaviors. *Diabetes Care, 33*(4), 751-753.

Kisch, J., Leino, E. V., & Silverman, M. M. (2005). Aspects of suicidal behavior, depression, and treatment in college students: Results from the Spring 2000 National College Health Assessment Survey. *Suicide and Life-Threatening Behavior, 35*(1), 3-13.

Kitzrow, M. A. (2009). The mental health needs of today's college students: Challenges and recommendations. *NASPA Journal, 46*(4), 646-660.

Klin, A., & Lemish, D. (2008). Mental disorders stigma in the media: review of studies on production, content, and influences. *J Health Commun, 13*(5), 434-449. doi:10.1080/10810730802198813

Klobas, J. E., McGill, T. J., Moghavvemi, S., & Paramanathan, T. (2018). Compulsive YouTube usage: A comparison of use motivation and personality effects. *Computers in Human Behavior, 87*, 129-139.

Koerner, A. F., & Fitzpatrick, M. A. (2006). Family communication patterns theory: A social cognitive approach. *Engaging theories in family communication: Multiple perspectives*, 50-65.

Koesten, J., Schrodt, P., & Ford, D. J. (2009). Cognitive flexibility as a mediator of family communication environments and young adults' well-being. *Health Communication, 24*(1), 82-94.

Krueger, C., & Tian, L. (2004). A comparison of the general linear mixed model and repeated measures ANOVA using a dataset with multiple missing data points. *Biological research for nursing, 6*(2), 151-157.

Kujawa, A., Green, H., Compas, B. E., Dickey, L., & Pegg, S. (2020). Exposure to COVID‐19 pandemic stress: Associations with depression and anxiety in emerging adults in the United States. *Depression and anxiety, 37*(12), 1280-1288.

Laranjo, L., Arguel, A., Neves, A. L., Gallagher, A. M., Kaplan, R., Mortimer, N., . . . Lau, A. Y. S. (2014). The influence of social networking sites on health behavior change: a systematic review and meta-analysis. *Journal of the American Medical Informatics Association, 22*(1), 243-256.

Lazuras, L., & Dokou, A. (2016). Mental health professionals' acceptance of online counseling. *Technology in Society, 44*, 10-14.

Lederer, A. M., Hoban, M. T., Lipson, S. K., Zhou, S., & Eisenberg, D. (2020). More than inconvenienced: the unique needs of US college students during the CoViD-19 pandemic. *Health Education & Behavior*, 1090198120969372.

Lee, J. (2019). "Self" Takes it All in Mental Illness: Examining the Dynamic Role of Health Consciousness, Negative Emotions, and Efficacy in Information Seeking. *Health Communication, 34*(8), 848-858.

Lelorain, S., Brédart, A., Dolbeault, S., & Sultan, S. (2012). A systematic review of the associations between empathy measures and patient outcomes in cancer care. *Psycho‐Oncology, 21*(12), 1255-1264.

Leung, L. (2011). Loneliness, social support, and preference for online social interaction: the mediating effects of identity experimentation online among children and adolescents. *Chinese Journal of Communication, 4*(4), 381-399.

Levin, M. E., Stocke, K., Pierce, B., & Levin, C. (2018). Do college students use online self-help? A survey of intentions and use of mental health resources. *Journal of College Student Psychotherapy, 32*(3), 181-198.

Li, W., Dorstyn, D. S., & Denson, L. A. (2016). Predictors of mental health service use by young adults: A systematic review. *Psychiatric Services, 67*(9), 946-956.

Li, Y., Guan, M., Hammond, P., & Berrey, L. E. (2021). Communicating COVID-19 information on TikTok: a content analysis of TikTok videos from official accounts featured in the COVID-19 information hub. *Health education research*.

Lillevoll, K. R., Vangberg, H. C. B., Griffiths, K. M., & Eisemann, M. R. (2014). Uptake and adherence of a self-directed internet-based mental health intervention with tailored e-mail reminders in senior high schools in Norway. *BMC psychiatry, 14*(1), 14.

Livingston, J. D., Cianfrone, M., Korf-Uzan, K., & Coniglio, C. (2014). Another time point, a different story: one year effects of a social media intervention on the attitudes of young people towards mental health issues. *Social psychiatry and psychiatric epidemiology, 49*(6), 985-990.

Loman, J. G. B., Müller, B. C. N., Oude Groote Beverborg, A., van Baaren, R. B., & Buijzen, M. (2018). Self-persuasion on facebook increases alcohol risk perception. *Cyberpsychology, Behavior, and Social Networking, 21*(11), 672-678.

Lubman, D. I., Cheetham, A., Sandral, E., Wolfe, R., Martin, C., Blee, F., . . . Allen, N. B. (2020). Twelve-month outcomes of MAKINGtheLINK: A cluster randomized controlled trial of a school-based program to facilitate help-seeking for substance use and mental health problems. *EClinicalMedicine, 18*, 100225.

Luca, N. R., & Suggs, L. S. (2013). Theory and model use in social marketing health interventions. *Journal of Health Communication, 18*(1), 20-40.

Lustria, M. L. A., Noar, S. M., Cortese, J., Van Stee, S. K., Glueckauf, R. L., & Lee, J. (2013). A meta-analysis of web-delivered tailored health behavior change interventions. *Journal of Health Communication, 18*(9), 1039-1069.

Mackenzie, C. S., Gekoski, W. L., & Knox, V. J. (2006). Age, gender, and the underutilization of mental health services: The influence of help-seeking attitudes. *Aging and mental health, 10*(6), 574-582.

Mackenzie, C. S., Pagura, J., & Sareen, J. (2010). Correlates of perceived need for and use of mental health services by older adults in the collaborative psychiatric epidemiology surveys. *The American Journal of Geriatric Psychiatry, 18*(12), 1103-1115.

MacKinnon, D. P., & Fairchild, A. J. (2009). Current directions in mediation analysis. *Current Directions in Psychological Science, 18*(1), 16-20.

Malotte, C. K., Jarvis, B., Fishbein, M., Kamb, M., Iatesta, M., & Hoxworth, T. (2000). Stage of change versus an integrated psychosocial theory as a basis for developing effective behaviour change interventions. *AIDS care, 12*(3), 357-364.

Mansfield, A. K., Addis, M. E., & Courtenay, W. (2005). Measurement of Men's Help Seeking: Development and Evaluation of the Barriers to Help Seeking Scale. *Psychology of Men & Masculinity, 6*(2), 95.

Marco-Ruiz, L., Wynn, R., Oyeyemi, S. O., Budrionis, A., Yigzaw, K. Y., & Bellika, J. G. (2020). Impact of Illness on Electronic Health Use (The Seventh Tromsø Study - Part 2): Population-Based Questionnaire Study. *J Med Internet Res, 22*(3), e13116. doi:10.2196/13116

McCombs, M. E., Shaw, D. L., & Weaver, D. H. (2014). New directions in agenda-setting theory and research. *Mass Communication and Society, 17*(6), 781-802.

McGuire, W. J. (1964). Inducing resistance to persuasion. Some contemporary approaches.

Meskó, B., Radó, N., & Győrffy, Z. (2019). Opinion leader empowered patients about the era of digital health: a qualitative study. *BMJ Open, 9*(3), e025267.

Miller, G. R. (1966). On defining communication: another stab. *Journal of Communication*.

Mitchell, K. S., Mazzeo, S. E., Rausch, S. M., & Cooke, K. L. (2007). Innovative interventions for disordered eating: Evaluating dissonance‐based and yoga interventions. *International Journal of Eating Disorders, 40*(2), 120-128.

Mo, P. K. H., & Mak, W. W. S. (2009). Help-seeking for mental health problems among Chinese. *Social psychiatry and psychiatric epidemiology, 44*(8), 675-684.

Montano, D. E., & Kasprzyk, D. (2015). Theory of reasoned action, theory of planned behavior, and the integrated behavioral model. *Health behavior: Theory, research and practice, 70*(4), 231.

Moorhead, S. A., Hazlett, D. E., Harrison, L., Carroll, J. K., Irwin, A., & Hoving, C. (2013). A new dimension of health care: systematic review of the uses, benefits, and limitations of social media for health communication. *Journal of medical Internet research, 15*(4), e85.

Moreno, M. A., Jelenchick, L. A., Egan, K. G., Cox, E., Young, H., Gannon, K. E., & Becker, T. (2011). Feeling bad on Facebook: Depression disclosures by college students on a social networking site. *Depression and anxiety, 28*(6), 447-455.

Morton, T. A., & Duck, J. M. (2001). Communication and health beliefs: Mass and interpersonal influences on perceptions of risk to self and others. *Communication Research, 28*(5), 602-626.

Nabi, R. L., Prestin, A., & So, J. (2013). Facebook friends with (health) benefits? Exploring social network site use and perceptions of social support, stress, and well-being. *Cyberpsychology, Behavior, and Social Networking, 16*(10), 721-727.

Nam, S. K., Choi, S. I., Lee, J. H., Lee, M. K., Kim, A. R., & Lee, S. M. (2013). Psychological factors in college students' attitudes toward seeking professional psychological help: A meta-analysis. *Professional Psychology: Research and Practice, 44*(1), 37.

Nearchou, F. A., Bird, N., Costello, A., Duggan, S., Gilroy, J., Long, R., . . . Hennessy, E. (2018). Personal and perceived public mental-health stigma as predictors of help-seeking intentions in adolescents. *Journal of adolescence, 66*, 83-90.

Neufeld, J. D., Yellowlees, P. M., Hilty, D. M., Cobb, H., & Bourgeois, J. A. (2007). The e-Mental Health Consultation Service: providing enhanced primary-care mental health services through telemedicine. *Psychosomatics, 48*(2), 135-141.

Nguyen-Feng, V. N., Frazier, P. A., Greer, C. S., Howard, K. G., Paulsen, J. A., Meredith, L., & Kim, S. (2015). A randomized controlled trial of a web-based intervention to reduce distress among students with a history of interpersonal violence. *Psychology of Violence, 5*(4), 444.

Nick, E. A., Cole, D. A., Cho, S.-J., Smith, D. K., Carter, T. G., & Zelkowitz, R. L. (2018). The Online Social Support Scale: Measure development and validation. *Psychological Assessment, 30*(9), 1127.

Nieforth, L. O., & Craig, E. A. (2020). Patient-centered communication (PCC) in equine assisted mental health. *Health Communication*, 1-10.

Nisbet, M. C., & Kotcher, J. E. (2009). A two-step flow of influence? Opinion-leader campaigns on climate change. *Science Communication, 30*(3), 328-354.

Oh, H. J., Lauckner, C., Boehmer, J., Fewins-Bliss, R., & Li, K. (2013). Facebooking for health: An examination into the solicitation and effects of health-related social support on social networking sites. *Computers in Human Behavior, 29*(5), 2072-2080.

Olson, L. N., Baiocchi-Wagner, E. A., Kratzer, J. M. W., & Symonds, S. E. (2012). *The dark side of family communication*: Polity.

Oswalt, S. B., Lederer, A. M., Chestnut-Steich, K., Day, C., Halbritter, A., & Ortiz, D. (2020). Trends in college students' mental health diagnoses and utilization of services, 2009–2015. *Journal of American College Health, 68*(1), 41-51.

Papacharissi, Z. (2002). The self online: The utility of personal home pages. *Journal of Broadcasting & Electronic Media, 46*(3), 346-368.

Park, H., Reber, B. H., & Chon, M.-G. (2016). Tweeting as health communication: health organizations' use of Twitter for health promotion and public engagement. *Journal of Health Communication, 21*(2), 188-198.

Parrott, S., & Parrott, C. T. (2015). Law & disorder: The portrayal of mental illness in US crime dramas. *Journal of Broadcasting & Electronic Media, 59*(4), 640-657.

Patel, V., Flisher, A. J., Hetrick, S., & McGorry, P. (2007). Mental health of young people: a global public-health challenge. *The Lancet, 369*(9569), 1302-1313.

Persky, S., & Street Jr, R. L. (2015). Evaluating approaches for communication about genomic influences on body weight. *Annals of behavioral Medicine, 49*(5), 675-684.

Petty, R. E., & Brinol, P. (2010). Attitude change.

Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In *Communication and persuasion* (pp. 1-24): Springer.

Pfefferbaum, B., & North, C. S. (2020). Mental health and the Covid-19 pandemic. *New England Journal of Medicine, 383*(6), 510-512.

Prati, G., Pietrantoni, L., & Cicognani, E. (2010). Self-efficacy moderates the relationship between stress appraisal and quality of life among rescue workers. *Anxiety, Stress, & Coping, 23*(4), 463-470.

Priest, R. G., Vize, C., Roberts, A., Roberts, M., & Tylee, A. (1996). Lay people's attitudes to treatment of depression: results of opinion poll for Defeat Depression Campaign just before its launch. *Bmj, 313*(7061), 858-859.

Primack, B. A., Shensa, A., Sidani, J. E., Whaite, E. O., yi Lin, L., Rosen, D., . . . Miller, E. (2017). Social media use and perceived social isolation among young adults in the US. *American journal of preventive medicine, 53*(1), 1-8.

Priniski, S. J., Hecht, C. A., & Harackiewicz, J. M. (2018). Making learning personally meaningful: A new framework for relevance research. *The Journal of Experimental Education, 86*(1), 11-29.

Pulliam, K. (2018). Guild Play in Massively Multiplayer Online Role-Playing Games (MMORPGS) as a Predictor of Online Social Support and Victimization.

Qian, H., & Yuan, C. (2012). Factors associated with self-care self-efficacy among gastric and colorectal cancer patients. *Cancer nursing, 35*(3), E22-E31.

Quinn, D. M., Williams, M. K., & Weisz, B. M. (2015). From discrimination to internalized mental illness stigma: The mediating roles of anticipated discrimination and anticipated stigma. *Psychiatric rehabilitation journal, 38*(2), 103.

Rathore, F. A., & Farooq, F. (2020). Information overload and infodemic in the COVID-19 pandemic. *J Pak Med Assoc, 70*(suppl 3), S162-S165.

Renfrew, M. E., Morton, D. P., Morton, J. K., Hinze, J. S., Beamish, P. J., Przybylko, G., & Craig, B. A. (2020). A Web-and Mobile App–Based Mental Health Promotion Intervention Comparing Email, Short Message Service, and Videoconferencing Support for a Healthy Cohort: Randomized Comparative Study. *Journal of medical Internet research, 22*(1), e15592.

Rickard, N., Arjmand, H.-A., Bakker, D., & Seabrook, E. (2016). Development of a mobile phone app to support self-monitoring of emotional well-being: a mental health digital innovation. *JMIR mental health, 3*(4), e49.

Rickwood, D., Deane, F. P., Wilson, C. J., & Ciarrochi, J. (2005). Young people's help-seeking for mental health problems. *Australian e-journal for the Advancement of Mental health, 4*(3), 218-251.

Rickwood, D. J., Deane, F. P., & Wilson, C. J. (2007). When and how do young people seek professional help for mental health problems? *Medical journal of Australia, 187*(S7), S35-S39.

Ritchie, L. D., & Fitzpatrick, M. A. (1990). Family communication patterns: Measuring intrapersonal perceptions of interpersonal relationships. *Communication Research, 17*(4), 523-544.

Romain, A. J., & Abdel-Baki, A. (2017). Using the transtheoretical model to predict physical activity level of overweight adults with serious mental illness. *Psychiatry research, 258*, 476-480.

Rote, A. E., Klos, L. A., Brondino, M. J., Harley, A. E., & Swartz, A. M. (2015). The efficacy of a walking intervention using social media to increase physical activity: a randomized trial. *Journal of Physical Activity and Health, 12*(s1), S18-S25.

Rotondi, A. J., Anderson, C. M., Haas, G. L., Eack, S. M., Spring, M. B., Ganguli, R., . . . Rosenstock, J. (2010). Web-based psychoeducational intervention for persons with schizophrenia and their supporters: one-year outcomes. *Psychiatric Services, 61*(11), 1099-1105.

Rüsch, N., Angermeyer, M. C., & Corrigan, P. W. (2005). Mental illness stigma: Concepts, consequences, and initiatives to reduce stigma. *European Psychiatry, 20*(8), 529-539.

Rüsch, N., Müller, M., Ajdacic-Gross, V., Rodgers, S., Corrigan, P. W., & Rössler, W. (2014). Shame, perceived knowledge and satisfaction associated with mental health as predictors of attitude patterns towards help-seeking. *Epidemiology and psychiatric sciences, 23*(2), 177-187.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68.

Samp, J. A., & Abbott, T. J. (2012). Women Coping with Cancer: Family Communication, Conflict, and Support. In F. C. Dickson & L. M. Webb (Eds.), *Communication for families in crisis: Theories, research, strategies*. Ner York: Peter Lang Pub.

Sarkin, J. A., Johnson, S. S., Prochaska, J. O., & Prochaska, J. M. (2001). Applying the transtheoretical model to regular moderate exercise in an overweight population: validation of a stages of change measure. *Preventive Medicine, 33*(5), 462-469.

Saunders, N. R., Gill, P. J., Holder, L., Vigod, S., Kurdyak, P., Gandhi, S., & Guttmann, A. (2018). Use of the emergency department as a first point of contact for mental health care by immigrant youth in Canada: a population-based study. *CMAJ, 190*(40), E1183-E1191.

Schaeffer, K. (2019). *U.S. has changed in key ways in the past decade, from tech use to demographics*. Retrieved from https://www.pewresearch.org/fact-tank/2019/12/20/key-ways-us-changed-in-past-decade/

Schomerus, G., Matschinger, H., & Angermeyer, M. C. (2009). Attitudes that determine willingness to seek psychiatric help for depression: a representative population survey applying the Theory of Planned Behaviour. *Psychological medicine, 39*(11), 1855-1865.

Schrodt, P., & Ledbetter, A. M. (2007). Communication processes that mediate family communication patterns and mental well-being: A mean and covariance structures analysis of young adults from divorced and nondivorced families. *Human Communication Research, 33*(3), 330-356.

Schrodt, P., Ledbetter, A. M., & Ohrt, J. K. (2007). Parental confirmation and affection as mediators of family communication patterns and children's mental well-being. *The Journal of Family Communication, 7*(1), 23-46.

Schrodt, P., Witt, P. L., & Messersmith, A. S. (2008). A meta-analytical review of family communication patterns and their associations with information processing, behavioral, and psychosocial outcomes. *Communication Monographs, 75*(3), 248-269.

Schwarzer, R., Bäßler, J., Kwiatek, P., Schröder, K., & Zhang, J. X. (1997). The assessment of optimistic self‑beliefs: comparison of the German, Spanish, and Chinese versions of the general self‑efficacy scale. *Applied Psychology, 46*(1), 69-88.

Shaw, R. J., & Johnson, C. M. (2011). Health information seeking and social media use on the Internet among people with diabetes. *Online journal of public health informatics, 3*(1).

Sheehy, S., Cohen, G., & R Owen, K. (2014). Self-management of diabetes in children and young adults using technology and smartphone applications. *Current diabetes reviews, 10*(5), 298-301.

Shensa, A., Sidani, J. E., Escobar-Viera, C. G., Chu, K.-H., Bowman, N. D., Knight, J. M., & Primack, B. A. (2018). Real-life closeness of social media contacts and depressive symptoms among university students. *Journal of American College Health, 66*(8), 747-753.

Shi, J., & Kim, H. K. (2020). Integrating risk perception attitude framework and the theory of planned behavior to predict mental health promotion behaviors among young adults. *Health Communication, 35*(5), 597-606.

Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*: Oxford university press.

Smith, C. L. (2007). *The impact of educational advertising on attitudes toward help-seeking, stigma, and utilization of mental health services*: ProQuest.

So, J. (2013). A further extension of the extended parallel process model (E-EPPM): Implications of cognitive appraisal theory of emotion and dispositional coping style. *Health Communication, 28*(1), 72-83.

Sommerhalder, K., Abraham, A., Zufferey, M. C., Barth, J., & Abel, T. (2009). Internet information and medical consultations: experiences from patients' and physicians' perspectives. *Patient education and counseling, 77*(2), 266-271.

Steele, C. M. (1988). The psychology of self-affirmation: Sustaining the integrity of the self. *Advances in experimental social psychology, 21*(2), 261-302.

Steinberg, J. W., & Daniel, J. (2020). Depression as a major mental health problem for the behavioral health care industry. *Journal of Health Sciences Management and Public Health, 1*, 44-49.

Stice, E., Marti, C. N., Spoor, S., Presnell, K., & Shaw, H. (2008). Dissonance and healthy weight eating disorder prevention programs: long-term effects from a randomized efficacy trial. *Journal of consulting and clinical psychology, 76*(2), 329.

Stone, J., Aronson, E., Crain, A. L., Winslow, M. P., & Fried, C. B. (1994). Inducing hypocrisy as a means of encouraging young adults to use condoms. *Personality and social psychology bulletin, 20*(1), 116-128.

Stone, J., & Fernandez, N. C. (2008). To practice what we preach: The use of hypocrisy and cognitive dissonance to motivate behavior change. *Social and Personality Psychology Compass, 2*(2), 1024-1051.

Street, R. (1991). Physicians' communication and parents' evaluations of pediatric consultations. *Medical care, 29*(11), 1146-1152.

Street, R. (2013). How clinician–patient communication contributes to health improvement: modeling pathways from talk to outcome. *Patient education and counseling, 92*(3), 286-291.

Street, R., Makoul, G., Arora, N. K., & Epstein, R. M. (2009). How does communication heal? Pathways linking clinician-patient communication to health outcomes. *Patient Educ Couns, 74*(3), 295-301. doi:10.1016/j.pec.2008.11.015

Stuart, H. (2006). Reaching out to high school youth: the effectiveness of a video-based antistigma program. *The Canadian Journal of Psychiatry, 51*(10), 647-653.

Subramaniam, M., Abdin, E., Picco, L., Shahwan, S., Jeyagurunathan, A., Vaingankar, J. A., & Chong, S. A. (2017). Continuum beliefs and stigmatising beliefs about mental illness: results from an Asian community survey. *BMJ Open, 7*(4), e014993.

Sweeney, A. M., & Moyer, A. (2015). Self-affirmation and responses to health messages: A meta-analysis on intentions and behavior. *Health psychology, 34*(2), 149.

Taylor, L., Raisborough, J., Harrison, K., & Dulson, S. (2020). 'It's like Going to the Regular Class but without Being there': A Qualitative Analysis of Older people's Experiences of Exercise in the Home during Covid-19 Lockdown in England. *International Journal of the Sociology of Leisure*, 1-16.

Taylor, N., Conner, M., & Lawton, R. (2012). The impact of theory on the effectiveness of worksite physical activity interventions: a meta-analysis and meta-regression. *Health Psychology Review, 6*(1), 33-73.

Teng, E. J., & Friedman, L. C. (2009). Increasing mental health awareness and appropriate service use in older Chinese Americans: A pilot intervention. *Patient education and counseling, 76*(1), 143-146.

Teo, T., Shi, W., Huang, F., & Hoi, C. K. W. (2020). Intergenerational differences in the intention to use psychological cybercounseling: A Chinese case study. *Patient education and counseling*.

Tijhuis, M. A. R., Peters, L., & Foets, M. (1990). An orientation toward help-seeking for emotional problems. *Social Science & Medicine, 31*(9), 989-995.

Tiro, J. A., Lee, S. C., Marks, E. G., Persaud, D., Skinner, C. S., Street, R. L., . . . Fuller, S. (2016). Developing a tablet-based self-persuasion intervention promoting adolescent HPV vaccination: protocol for a three-stage mixed-methods study. *JMIR research protocols, 5*(1), e19.

Tomczyk, S., Schomerus, G., Stolzenburg, S., Muehlan, H., & Schmidt, S. (2020). Ready, Willing and Able? An Investigation of the Theory of Planned Behaviour in Help-Seeking for a Community Sample with Current Untreated Depressive Symptoms. *Prevention Science*, 1-12.

Topa, G., & Moriano, J. A. (2010). Theory of planned behavior and smoking: Meta-analysis and SEM model. *Substance abuse and rehabilitation, 1*, 23.

Tran, L. D., & Ponce, N. A. (2017). Who gets needed mental health care? Use of mental health services among adults with mental health need in California. *Californian journal of health promotion, 15*(1), 36.

Tustin, N. (2010). The role of patient satisfaction in online health information seeking. *Journal of Health Communication, 15*(1), 3-17.

Twenge, J. M., & Campbell, W. K. (2019). Media use is linked to lower psychological well-being: evidence from three datasets. *Psychiatric Quarterly, 90*(2), 311-331.

Ubel, P. A., Zhang, C. J., Hesson, A., Davis, J. K., Kirby, C., Barnett, J., & Hunter, W. G. (2016). Study of physician and patient communication identifies missed opportunities to help reduce patients' out-of-pocket spending. *Health affairs, 35*(4), 654-661.

Välimäki, M., Athanasopoulou, C., Lahti, M., & Adams, C. E. (2016). Effectiveness of social media interventions for people with schizophrenia: a systematic review and meta-analysis. *Journal of medical Internet research, 18*(4), e92.

Van Voorhees, B. W., Fogel, J., Houston, T. K., Cooper, L. A., Wang, N.-Y., & Ford, D. E. (2005). Beliefs and attitudes associated with the intention to not accept the diagnosis of depression among young adults. *The Annals of Family Medicine, 3*(1), 38-46.

Vanheusden, K., Mulder, C. L., van der Ende, J., van Lenthe, F. J., Mackenbach, J. P., & Verhulst, F. C. (2008). Young adults face major barriers to seeking help from mental health services. *Patient education and counseling, 73*(1), 97-104.

Verhaeghe, M., & Bracke, P. (2011). Stigma and trust among mental health service users. *Archives of psychiatric nursing, 25*(4), 294-302.

Verhulst, F. C., Achenbach, T. M., Van der Ende, J., Erol, N., Lambert, M. C., Leung, P. W. L., . . . Zubrick, S. R. (2003). Comparisons of problems reported by youths from seven countries. *American Journal of Psychiatry, 160*(8), 1479-1485.

Victora, C. G., Habicht, J.-P., & Bryce, J. (2004). Evidence-based public health: moving beyond randomized trials. *American Journal of Public Health, 94*(3), 400-405.

Viera, A. J., & Bangdiwala, S. I. (2007). Eliminating bias in randomized controlled trials: importance of allocation concealment and masking. *FAMILY MEDICINE-KANSAS CITY-, 39*(2), 132.

Vindegaard, N., & Benros, M. E. (2020). COVID-19 pandemic and mental health consequences: Systematic review of the current evidence. *Brain, behavior, and immunity, 89*, 531-542.

Vogel, D. L., Wade, N. G., & Haake, S. (2006). Measuring the self-stigma associated with seeking psychological help. *Journal of counseling psychology, 53*(3), 325.

Vogel, D. L., & Wei, M. (2005). Adult Attachment and Help-Seeking Intent: The Mediating Roles of Psychological Distress and Perceived Social Support. *Journal of counseling psychology, 52*(3), 347.

Walters, K. S., Bulmer, S. M., Troiano, P. F., Obiaka, U., & Bonhomme, R. (2018). Substance use, anxiety, and depressive symptoms among college students. *Journal of Child & Adolescent Substance Abuse, 27*(2), 103-111.

Wang, P. S., Berglund, P., Olfson, M., Pincus, H. A., Wells, K. B., & Kessler, R. C. (2005). Failure and delay in initial treatment contact after first onset of mental disorders in the National Comorbidity Survey Replication. *Archives of general psychiatry, 62*(6), 603-613.

Wang, X., Hegde, S., Son, C., Keller, B., Smith, A., & Sasangohar, F. (2020). Investigating mental health of US college students during the COVID-19 pandemic: cross-sectional survey study. *Journal of medical Internet research, 22*(9), e22817.

Ware, J. E., Kosinski, M., Dewey, J. E., & Gandek, B. (2001). How to score and interpret single-item health status measures: a manual for users of the SF-8 health survey. *Lincoln, RI: QualityMetric Incorporated, 15*(10), 5.

Webb, T., Joseph, J., Yardley, L., & Michie, S. (2010). Using the internet to promote health behavior change: a systematic review and meta-analysis of the impact of theoretical basis, use of behavior change techniques, and mode of delivery on efficacy. *Journal of medical Internet research, 12*(1), e4.

Weine, S., Kulauzovic, Y., Klebic, A., Besic, S., Mujagic, A., Muzurovic, J., . . . Feetham, S. (2008). Evaluating a multiple‐family group access intervention for refugees with PTSD. *Journal of marital and family therapy, 34*(2), 149-164.

Weine, S. M. (2011). Developing preventive mental health interventions for refugee families in resettlement. *Family process, 50*(3), 410-430.

Williams, G., Hamm, M. P., Shulhan, J., Vandermeer, B., & Hartling, L. (2014). Social media interventions for diet and exercise behaviours: a systematic review and meta-analysis of randomised controlled trials. *BMJ Open, 4*(2), e003926.

Witte, K. (1992). Putting the fear back into fear appeals: The extended parallel process model. *Communications Monographs, 59*(4), 329-349.

Witte, K. (1994). Fear control and danger control: A test of the extended parallel process model (EPPM). *Communications Monographs, 61*(2), 113-134.

Wong, Y. J., McDermott, R. C., Zounlome, N. O. O., Klann, E. M., & Peterson, Z. D. (2020). Self-persuasion: an experimental evaluation of a sexual aggression preventive intervention for US college men. *Journal of Interpersonal Violence*, 0886260520936369.

Woods, H. C., & Scott, H. (2016). # Sleepyteens: Social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem. *Journal of adolescence, 51*, 41-49.

Woods-Giscombé, C. L., & Gaylord, S. A. (2014). The cultural relevance of mindfulness meditation as a health intervention for African Americans: Implications for reducing stress-related health disparities. *Journal of Holistic Nursing, 32*(3), 147-160.

Wu, Q. L., & Street Jr, R. L. (2020). Factors affecting cancer patients' electronic communication with providers: Implications for COVID-19 induced transitions to telehealth. *Patient education and counseling, 103*(12), 2583-2587.

Wu, Q. L., & Street, R. L. (2020). The Communicative Ecology of Chinese Patients' Experiences with Health Care. *Journal of Health Communication, 25*(6), 463-473.

Wu, Q. L., & Tang, L. (2021). What Satisfies Parents of Pediatric Patients in China: A Grounded Theory Building Analysis of Online Physician Reviews. *Health Communication*, 1-8.

Wun, Y. T., Lam, T. P., Lam, K. F., Goldberg, D., Li, D. K. T., & Yip, K. C. (2010). How do patients choose their doctors for primary care in a free market? In (Vol. 16, pp. 1215-1220).

Wyker, B. A., & Davison, K. K. (2010). Behavioral change theories can inform the prediction of young adults' adoption of a plant-based diet. *Journal of nutrition education and behavior, 42*(3), 168-177.

Yang, H., & Ma, J. (2020). How an epidemic outbreak impacts happiness: Factors that worsen (vs. protect) emotional well-being during the coronavirus pandemic. *Psychiatry research, 289*, 113045.

Yap, M. B. H., Wright, A., & Jorm, A. F. (2011). The influence of stigma on young people's help-seeking intentions and beliefs about the helpfulness of various sources of help. *Social psychiatry and psychiatric epidemiology, 46*(12), 1257-1265.

Ye, J., Shim, R., & Rust, G. (2012). Health care avoidance among people with serious psychological distress: analyses of 2007 Health Information National Trends Survey. *Journal of health care for the poor and underserved, 23*(4), 1620.

Yorgason, J. B., Linville, D., & Zitzman, B. (2008). Mental health among college students: do those who need services know about and use them? *Journal of American College Health, 57*(2), 173-182.

Young, H. N., Len-Rios, M. E., Brown, R., Moreno, M. M., & Cox, E. (2017). How does patient-provider communication influence adherence to asthma medications? *Patient education and counseling, 100*(4), 696-702.

Yuan, K.-H., & Chan, W. (2016). Measurement invariance via multigroup SEM: Issues and solutions with chi-square-difference tests. *Psychological methods, 21*(3), 405.

Yzer, M. C., & Southwell, B. G. (2008). New communication technologies, old questions. *American Behavioral Scientist, 52*(1), 8-20.

Zartaloudi, A., & Madianos, M. G. (2010). Mental health treatment fearfulness and help-seeking. *Issues in Mental Health Nursing, 31*(10), 662-669.

Zivin, K., Eisenberg, D., Gollust, S. E., & Golberstein, E. (2009). Persistence of mental health problems and needs in a college student population. *Journal of affective disorders, 117*(3), 180-185.

Zorrilla, M. M., Modeste, N., Gleason, P. C., Sealy, D.-A., Banta, J. E., & Trieu, S. L. (2019). Depression and help-seeking intention among young adults: the theory of planned behavior. *American Journal of Health Education, 50*(4), 236-244.

APPENDIX A

STUDY 2 SURVEY ITEMS

Mental health

1. During the past 4 weeks, how much have you been bothered by emotional problems (such as feeling anxious, depressed or irritable)?
   A. Not at all
   B. Slightly
   C. Moderately
   D. Very
   E. Extremely

2. During the past 4 weeks, how much did personal or emotional problems keep you from doing your usual work, school or other daily activities?
   A. Not at all
   B. Slightly
   C. Moderately
   D. Very
   E. Extremely

Online social support

1. People encourage me when I'm online.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. People support me online.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. I am part of groups online.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

4. Online, people provide me with helpful information.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Social media use

1. Please estimate the total time per day you usually spend on social media for personal use.
   A. 0 ~ 3 hours 59 minutes
   B. 4 hours ~ 7 hours 59 minutes
   C. 8 hours ~ 11 hours 59 minutes
   D. 12 hours ~ 15 hours 59 minutes
   E. 16 hours ~ 19 hours 59 minutes
   F. 20 hours ~ 24 hours
   G. I don't use social media

Social media importance

1. I feel disconnected from friends when I have not logged into social media.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. I would like it if everyone used social media to communicate
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. I would be disappointed if I could not use social media at all.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

4. I get upset when I can't log on to social media.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

5. I prefer to communicate with others mainly through social media.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

6. Social media plays an important role in my social relationships.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

7. I enjoy checking my social media account.
   A. Strongly disagree
   B. Disagree
   C. Undecided

D. Agree

E. Strongly agree

8. I respond to content that others share using social media.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Family communication pattern

1. My parents often ask my opinion when the family is talking about something. (Family conversation-orientation)
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. My parents encourage me to challenge their ideas and beliefs. (Family conversation-orientation)
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. I can tell my parents almost anything. (Family conversation-orientation)
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

4. In our family we often talk about our feelings and emotions. (Family conversation-orientation)

A. Strongly disagree
B. Disagree
C. Undecided
D. Agree
E. Strongly agree

5. My parents encourage me to express my feelings. (Family conversation-orientation)
A. Strongly disagree
B. Disagree
C. Undecided
D. Agree
E. Strongly agree

6. When anything really important is involved, my parents expect me to obey without question. (Family conformity-orientation)
A. Strongly disagree
B. Disagree
C. Undecided
D. Agree
E. Strongly agree

7. My parents tend to be very open about their emotions. (Family conversation-orientation)
A. Strongly disagree
B. Disagree
C. Undecided
D. Agree
E. Strongly agree

8. In our home, my parents usually have the last word. (Family conformity-orientation)
A. Strongly disagree
B. Disagree
C. Undecided
D. Agree
E. Strongly agree

9. My parents feel that it is important that they are the boss. (Family conformity-orientation)
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

10. My parents sometimes become irritated with my views if they are different from theirs. (Family conformity-orientation)
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

11. If my parents don't approve of it, they don't want to know about it. (Family conformity-orientation)
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

12. When I am at home, I am expected to obey my parents' rules. (Family conformity-orientation)
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

Patient-centered communication

1. On a typical doctor's visit, the doctor's explanations and recommendations are usually clear and easy to understand.
   A. Strongly disagree
   B. Disagree

C. Undecided
D. Agree
E. Strongly agree

2. On a typical doctor's visit, the doctor usually thoroughly explains everything to me.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. On a typical doctor's visit, the doctor usually seems to care about my feelings.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

4. Typically, the doctor I visit shows a genuine interest in my health.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

5. On a typical doctor's visit, the doctor asked for my thoughts about my health.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

6. On a typical doctor's visit, I usually feel we needed a longer consultation.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

7. On a typical doctor's visit, the doctor usually makes me feel completely at ease during the consultation.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

8. On a typical doctor's visit, the doctor usually encourages me to express my concerns and worries.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Self-efficacy for mental health

1. I can solve most my mental problems if I invest the necessary effort.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. When I am confronted with a mental problem, I can usually find several solutions.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. Thanks to my resourcefulness, I know how to handle unforeseen mental breakdowns.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

4. When I am confronted with a problem, I can usually find several solutions.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

5. I can solve most problems if I invest the necessary effort.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

6. If I am in some mental distress, I can usually think of a solution.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

7. I can usually handle whatever comes my way.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Intention

1. Regarding any complaints you have about your mental health, have you sought help with a (general practitioner, psychologist, psychotherapist and psychiatrist)?
   A. I am not intending to seek help in the next 6 months
   B. I am intending to seek help in the next 6 months
   C. I am planning to seek help in the next 30 days
   D. I have already sought help but for less than 6 months
   E. I have been under treatment for more than 6 months

Attitude

1. If I believed I was having a mental breakdown, my first inclination would be to get professional attention.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. The idea of talking about problems with a psychologist strikes me as a poor way to get rid of emotional conflicts.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. If I were experiencing a serious emotional crisis at this point in my life, I would be confident that I could find relief in psychotherapy.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

4. There is something admirable in the attitude of a person who is willing to cope with his or her conflicts and fears without resorting to professional help.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

5. I would want to get psychological help if I were worried or upset for a long period of time.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

6. I might want to have psychological counseling in the future.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

7. A person with an emotional problem is not likely to solve it alone; he or she is likely to solve it with professional help.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

8. Considering the time and expense involved in psychotherapy, it would have doubtful value for a person like me.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

9. A person should work out his or her own problems; getting psychological counseling would be a last resort.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

10. Personal and emotional troubles, like many things, tend to work out by themselves.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Self-stigma of seeking help

1. I would feel inadequate if I went to a therapist for psychological help.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. My self-confidence would NOT be threatened if I sought professional help.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. Seeking psychological help would make me feel less intelligent.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

4. My self-esteem would increase if I talked to a therapist.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

5. My view of myself would not change just because I made the choice to see a therapist.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

6. It would make me feel inferior to ask a therapist for help.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

7. I would feel okay about myself if I made the choice to seek professional help.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

8. If I went to a therapist, I would be less satisfied with myself.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

9. My self-confidence would remain the same if I sought help for a problem I could not solve.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

10. I would feel worse about myself if I could not solve my own problems.
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

APPENDIX B

STUDY 3 QUESTIONNAIRE

Age

1. Are you 18 years old or above?
   A. Yes
   B. No

Mental Health

2. During the past 4 weeks, how much have you been bothered by emotional problems (such as feeling anxious, depressed or irritable)?
   A. Not at all
   B. Slightly
   C. Moderately
   D. Very
   E. Extremely

3. During the past 4 weeks, how much did personal or emotional problems keep you from doing your usual work, school or other daily activities?
   A. Not at all
   B. Slightly
   C. Moderately
   D. Very
   E. Extremely

Pretest Questionnaire

Attitude (social distancing)

1. Keeping social distance during this pandemic is UNPLEASANT.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. Keeping social distance is going to save lives.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. The idea of keeping social distance strikes me as a poor way to get rid of pandemic.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Attitude (mental help)

1. If I believed I was having a mental breakdown, my first inclination would be to get professional attention.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. The idea of talking about problems with a psychologist strikes me as a poor way to get rid of emotional conflicts.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. If I were experiencing a serious emotional crisis at this point in my life, I would be confident that I could find relief in psychotherapy.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

4. There is something admirable in the attitude of a person who is willing to cope with his or her conflicts and fears without resorting to professional help.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

5. I would want to get psychological help if I were worried or upset for a long period of time.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

6. I might want to have psychological counseling in the future.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

7. A person with an emotional problem is not likely to solve it alone; he or she is likely to solve it with professional help.
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

8. Considering the time and expense involved in psychotherapy, it would have doubtful value for a person like me.
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

9. A person should work out his or her own problems; getting psychological counseling would be a last resort.
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

10. Personal and emotional troubles, like many things, tend to work out by themselves.
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

Subjective norm (Norm for social distancing)

1. College students around me do not approve of the idea of keeping social distance because they think talking/hearing from a distance is rude.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. People who are important to me practice social distancing.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Subjective norm (Mental help)

1. Many college students who struggle with mental health issues use professional mental health resources for support.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. College students approve of the use of professional mental resources for addressing mental health issues.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. Mental health professionals approve of the use of professional mental resources for addressing mental health issues.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

4. People who are important to me approve of the use of professional mental resources for addressing mental health issues.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Efficacy (social distancing)

1. I am confident that I can keep social distance when required.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. I think I can decide whether to keep social distance or not.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. Keeping social distance is dependent on my choice.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Efficacy (mental help)

1. I am confident in engaging in seeking mental help when I experience mental health issues even if I am busy with my commitments (e.g., school, extracurricular activities).
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. I am confident in seeking counseling services when I experience mental health issues.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. I think I can decide whether to seek mental health service or not.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

4. Seeking mental health service is dependent on my choice.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

5. I can seek mental health service if I like to do so.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Self-stigma (social distancing)

1. I would feel inadequate if I have social distance.
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

2. My self-confidence would NOT be threatened if I keep social distance.*
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

3. I would feel okay about myself if I practice social distance.*
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

Self-stigma (mental help)

1. I would feel inadequate if I went to a therapist for psychological help.
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

4. My self-confidence would NOT be threatened if I sought professional help.
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

5. Seeking psychological help would make me feel less intelligent.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

6. My self-esteem would increase if I talked to a therapist.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

7. My view of myself would not change just because I made the choice to see a therapist.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

8. It would make me feel inferior to ask a therapist for help.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

9. I would feel okay about myself if I made the choice to seek professional help.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

10. If I went to a therapist, I would be less satisfied with myself.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

11. My self-confidence would remain the same if I sought help for a problem I could not solve.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

12. I would feel worse about myself if I could not solve my own problems.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Intention (social distancing)

1. If this pandemic will not end any time soon, how likely is it that you would keep social distance until it ends?
   A. Extremely unlikely
   B. Unlikely
   C. Neutral
   D. Likely
   E. Extremely likely

Intention (mental help)

1. If you have a personal-emotional problem, how likely is it that you would seek help from a mental health professional (a psychologist, psychologist, or psychotherapist)?
   A. Extremely unlikely
   B. Unlikely
   C. Neutral
   D. Likely
   E. Extremely likely

Behavior (social distancing)

1. To be honest, have you been practicing social distancing?
   A. I am not intending to socially distance from people in the next 6 months
   B. I am intending to socially distance from people in the next 6 months
   C. I am planning to socially distance from people in the next 30 days
   D. I have already socially distanced from people in but for less than 6 months
   E. I have been socially distancing from people in for more than 6 months

Behavior (mental help)

1. Regarding any complaints you have about your mental health, have you sought help with a (general practitioner, psychologist, psychotherapist and psychiatrist)?
   A. I am not intending to seek help in the next 6 months
   B. I am intending to seek help in the next 6 months
   C. I am planning to seek help in the next 30 days
   D. I have already sought help but for less than 6 months
   E. I have been under treatment for more than 6 months

Race: What is your race/ethnicity?

   A. White/Caucasian (1)
   B. African American (2)
   C. Hispanic (3)
   D. Native American (4)
   E. Asian (5)
   F. Other (6)

Age: What is your age? _____.

Gender: What is your gender?

    A. Male
    B. Female

YouTube Task

Many college students suffer from mental problems but tend not to seek professional help. Please search for a 5-10 mins' YouTube video that relates to student life and advocates mental help-seeking for college students who are feeling sad, depressed and/or anxious and answer the following questions.

4. What is the URL of the video: _____?

5. Briefly describe the content of the video:

   _____.

6. Imagine that you shared this video with your friend, but s/he strongly disagrees with what was shown in the video. S/he gave you the following three opinions about mental help-seeking. For each, write a rebuttal (argument) against each of these beliefs:

   (d) The idea of talking about problems with a psychologist is a poor way to get rid of emotional conflicts.

   (e) College students do not approve of the use of mental help resources for addressing mental health issues.

   (f) Even if I am experiencing mental problems, I am not confident in seeking help given my commitments and busy schedules (e.g., school, extracurricular activities).

Facebook Message Task

Suppose the social media committee at Texas A&M has asked you to create a Facebook message advocating mental help-seeking on campus. Your message must include three reasons why one should seek professional help when experiencing mental problems. This message will be shared on Facebook with all your fellow Aggies. Please draft this message below.

YouTube Task (Control Group)

As Texas A&M reopened, everyone was ordered to follow social distancing rules and wear a face mask to prevent infection of the novel coronavirus. However, many students do not comply. As a student at Texas A&M, please find a 5-10 mins' YouTube video that strongly advocates keeping social distancing and wearing a mask for students coming to college. Please answer the following questions.

1. What is the URL of the video: _____?

2. Briefly describe the content of the video:

    _____.

3. Imagine that you shared this video with your friend, but s/he strongly disagrees with what was shown in the video. S/he gave you the following three opinions about keeping social distancing. For each, write a rebuttal (argument) against each of these beliefs

    (a) The idea of keeping social distance is a poor way to get rid of pandemic.

    (b) College students do not like the idea of keeping social distance because they think hearing from a distance is rude.

    (c) I am not confident in keeping social distance from others because they may think I am not interested in talking to them.

Facebook Task (Control Group)

Suppose the social media committee at Texas A&M has asked you to create a Facebook message advocating keeping social distancing and wearing a mask on campus. Your message must include three reasons why one should keep social distance and wear a mask. This message will be shared on Facebook with all your fellow Aggies. Please draft this message below.

Time 1 Posttest Questionnaire

Task effort:

Reflecting on the tasks you just did…

1. I did my best trying to complete the YouTube/Facebook task ("YouTube task" for Groups that did the YouTube tasks, "Facebook task" for those who did the Facebook tasks).
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Attitude (social distancing)

1. Keeping social distance during this pandemic is UNPLEASANT.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. Keeping social distance is going to save lives.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. The idea of keeping social distance strikes me as a poor way to get rid of pandemic.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Attitude (mental help)

1. If I believed I was having a mental breakdown, my first inclination would be to get professional attention.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. The idea of talking about problems with a psychologist strikes me as a poor way to get rid of emotional conflicts.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. If I were experiencing a serious emotional crisis at this point in my life, I would be confident that I could find relief in psychotherapy.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

4. There is something admirable in the attitude of a person who is willing to cope with his or her conflicts and fears without resorting to professional help.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

5. I would want to get psychological help if I were worried or upset for a long period of time.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

6. I might want to have psychological counseling in the future.
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

7. A person with an emotional problem is not likely to solve it alone; he or she is likely to solve it with professional help.
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

8. Considering the time and expense involved in psychotherapy, it would have doubtful value for a person like me.
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

9. A person should work out his or her own problems; getting psychological counseling would be a last resort.
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

10. Personal and emotional troubles, like many things, tend to work out by themselves.
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

Subjective norm (Norm for social distancing)

1. College students around me do not approve of the idea of keeping social distance because they think talking/hearing from a distance is rude.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. People who are important to me practice social distancing.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Subjective norm (Mental help)

1. Many college students who struggle with mental health issues use professional mental health resources for support.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. College students approve of the use of professional mental resources for addressing mental health issues.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. Mental health professionals approve of the use of professional mental resources for addressing mental health issues.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

4. People who are important to me approve of the use of professional mental resources for addressing mental health issues.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Efficacy (social distancing)

1. I am confident that I can keep social distance when required.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. I think I can decide whether to keep social distance or not.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. Keeping social distance is dependent on my choice.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Efficacy (mental help)

1. I am confident in engaging in seeking mental help when I experience mental health issues even if I am busy with my commitments (e.g., school, extracurricular activities).
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. I am confident in seeking counseling services when I experience mental health issues.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. I think I can decide whether to seek mental health service or not.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

4. Seeking mental health service is dependent on my choice.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

5. I can seek mental health service if I like to do so.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Self-stigma (social distancing)

1. I would feel inadequate if I have social distance.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. My self-confidence would NOT be threatened if I keep social distance.*
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. I would feel okay about myself if I practice social distance.*
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

Self-stigma (mental help)

1. I would feel inadequate if I went to a therapist for psychological help.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

2. My self-confidence would NOT be threatened if I sought professional help.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

3. Seeking psychological help would make me feel less intelligent.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

4. My self-esteem would increase if I talked to a therapist.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

5. My view of myself would not change just because I made the choice to see a therapist.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

6. It would make me feel inferior to ask a therapist for help.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

7. I would feel okay about myself if I made the choice to seek professional help.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

8. If I went to a therapist, I would be less satisfied with myself.
   A. Strongly disagree
   B. Disagree
   C. Undecided
   D. Agree
   E. Strongly agree

9. My self-confidence would remain the same if I sought help for a problem I could not solve.
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

10. I would feel worse about myself if I could not solve my own problems.
    A. Strongly disagree
    B. Disagree
    C. Undecided
    D. Agree
    E. Strongly agree

Intention (social distancing)

1. If this pandemic will not end any time soon, how likely is it that you would keep social distance until it ends?
    A. Extremely unlikely
    B. Unlikely
    C. Neutral
    D. Likely
    E. Extremely likely

Intention (mental help)

1. If you have a personal-emotional problem, how likely is it that you would seek help from a mental health professional (a psychologist, psychologist, or psychotherapist)?
    A. Extremely unlikely
    B. Unlikely
    C. Neutral
    D. Likely
    E. Extremely likely

Behavior (social distancing)

1. To be honest, have you been practicing social distancing?
   A. I am not intending to socially distance from people in the next 6 months
   B. I am intending to socially distance from people in the next 6 months
   C. I am planning to socially distance from people in the next 30 days
   D. I have already socially distanced from people in but for less than 6 months
   E. I have been socially distancing from people in for more than 6 months

Behavior (mental help)

1. Regarding any complaints you have about your mental health, have you sought help with a (general practitioner, psychologist, psychotherapist and psychiatrist)?
   A. I am not intending to seek help in the next 6 months
   B. I am intending to seek help in the next 6 months
   C. I am planning to seek help in the next 30 days
   D. I have already sought help but for less than 6 months
   E. I have been under treatment for more than 6 months

Further participation

1. Would you be willing to participate in two follow-up studies? We are offering a $10 Amazon eGift card for each of the two follow-up studies:
   A. Yes, I would like to continue participation.
   B. No, I would like to finish my participation.

Email

11. If you would like to participate, please enter your TAMU email address: _____. We will send you email notifications once it is time for further participation.