

**The Role of Knowledge as a Mediating Factor of Stigma towards Mental Health:
The Impact of Knowledge about Mental Illness and Stigma Levels**

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Mackenzie Ann Gammans

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Author Note

Mackenzie A. Gammans, Department of Graduate Psychology, Purdue University
Global.

The author wishes to express appreciation to my family and friends who supported me
during all of my educational endeavors.

Correspondence concerning this thesis should be addressed to Mackenzie Gammans,
mackgammans@gmail.com.

Abstract

The present study examined the impact of knowledge on stigma levels. Online participants in the United States (N=205) completed a survey containing measures for levels of stigma and mental health literacy. Correlations were conducted, analyzed, and found that as knowledge increased, stigma decreased. Each of the correlations between stigma and knowledge were significant at $<.001$. Two of the correlations showed a moderate effect and two showed a small effect between the stigma and knowledge. Finding support knowledge can be used as a tool to decrease stigma. Future research should focus on using a more random sample.

Keywords: stigma, mental health, mental health literacy, correlation, knowledge

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The Role of Knowledge as a Mediating Factor of Stigma towards Mental Health:

The Impact of Knowledge about Mental Illness and Stigma Levels

In 2020 there were 52.9 million adults in the United States living with a mental illness (Substance Abuse and Mental Health Services [SAMHSA], 2020). While mental health conditions affect millions of adults, many people do not take them seriously. In a survey conducted in 2018, 42% of people strongly agreed that mental health is not taken as seriously as physical health (YouGov, 2018). Stigma may be a large reason that mental health is not taken seriously and or talked about despite its prevalence.

The concept of stigma garners many definitions in the literature. It may be vaguely defined as a mark of shame or disgrace. Link and Phelan (2001) propose a broader definition of stigma. They suggest that there are many components that act together to form stigma. First mental illness has to be distinguished and labeled as a difference. Second, the differences must be tied to undesirable characteristics. Third, the people labeled need to be seen as different from the dominant group in society. Fourth, the stigmatized groups are devalued and systematically deprived of access to goods and services (Link & Phelan, 2001).

This study defines stigma as limiting or negative beliefs and attitudes held by the general public about mental illness. Knowledge of mental illness can be associated with the level of mental health literacy a person has. Mental health literacy has been conceptualized as knowledge and beliefs about mental illnesses that help people recognize, manage, or prevent them (Kutcher et al., 2016). This study aims to investigate the link between knowledge and stigmatizing beliefs. Reducing stigma could help many people and will allow more people to acknowledge their

struggles and receive the help they deserve. The current literature points to an association but there are few studies that focus on the U.S. population. This study could help develop guidelines for programs to help combat stigma in the U.S.

Literature Review

There have been many studies that analyzed the connection between knowledge and stigma. These studies tend to either use an adolescent or adult population. Many have found correlations between knowledge and stigma and are an important foundation for this thesis. The following articles offer information on the current literature regarding knowledge and stigma.

Stigma and Knowledge in Adolescents

Some studies examined adolescents to determine if the correlation between knowledge and stigma was seen in youth. Milin et al. (2016) studied the effectiveness of a school-based mental health literacy program for adolescents. They examined the effect of knowledge on stigma. A total of 24 high schools and 534 students in Canada were included in the study. The study included a curriculum that was integrated into grade 11 and 12 “Healthy Living” courses and the curriculum was delivered by teachers. They used a pre and post test to measure their variables. They included multiple choice questions to measure knowledge and a Likert scale to measure attitudes towards mental illness. They found a significant improvement in mental health knowledge and overall comprehension in the groups that received the curriculum. They also found a significant reduction in stigma compared to the control group. Additionally, it was found that increases in knowledge predicted an improvement in attitudes toward mental illness resulting in a reduction of stigma.

Goodfellow et al. (2021) aimed to gain information about adolescent mental health literacy and stigma in a general population. They administered a survey to adolescents 12-17 in schools in Scotland. A total of 734 participants were included. The sample was 52% female, 88.4% white, and had an average age of 14.23 years. The survey included measures of mental health literacy, personal and perceived stigma, and help-seeking intention. They found that older participants and girls had higher mental health literacy scores. This literacy was associated with reduced personal stigma. The knowledge of treatment efficacy was associated with increased help-seeking intention. They also found that boys reported higher a personal stigma and higher levels of perceived stigma from friends and parents.

Chisholm et al. (2016) investigated the impact of intergroup contact and education to determine whether the combination instead of just education was more effective in reducing stigma against mental illness. The population included six secondary schools and 31 classes in the United Kingdom. There were 769 participants that provided baseline data. 657 participants were included in the intervention. They were aged 11-13 years old. Classes within the school were randomly assigned to have a person reveal they lived with a mental illness during an intervention. They used the Reported and Intended Behavior Scale (RIBS) to measure stigma and the Mental Health Knowledge Schedule (MAKS) to assess stigma-related knowledge. They found that intergroup contact did not reduce stigma anymore than education alone in adolescents.

Studies in adolescents are important because it can help determine when the stigma against mental illness is formed and help find ways to combat it. These studies indicate that knowledge in adolescents is useful in decreasing stigma against mental illness. This could help scientists create interventions that target youth to help eliminate stigma against mental illness.

While looking at youth is helpful, this thesis aims to examine the connection of stigma and knowledge in the adult population.

Studies of the Adult Population

Other studies have looked at the adult population. These studies largely looked at previous knowledge and current level of stigma. Many studies have taken place across the world with only a few taking place in the United States.

International Studies

International studies offer insight into the correlation between stigma and knowledge in a global perspective. These studies are useful in helping identify if the trend is seen in one population or whether it is more universal. While this study is focused on the United States as the population, international studies can help provide information about trends other countries are seeing. Svensson and Hansson (2015) aimed to investigate the relationship between mental health literacy, experience of mental illness, and stigmatizing attitudes towards people with either depression or psychosis. They surveyed 1027 staff members from public services in Sweden. The design of the study was cross-sectional study. They found no difference in background or familiarity with mental health problems within each group. The sample was split with about half receiving a vignette about depression and the others about psychosis. The researchers used measures of social distance to determine how comfortable the sample would be with people with mental illness. They found that there were significant differences between the depression and psychosis conditions and amount of social distance. The researchers found that people wanted more social distance in the psychosis condition. They also asked participants to identify the condition in the vignette. 50.1% made the correct identification in the depression condition and

38.1% made the right identification for the psychosis condition. They argue that correct identification of the condition is evidence of mental health literacy. It was also found that for people that correctly identified depression, they had lower social distance and reported more positive attitudes. Additionally, they found that the same did not hold true for the psychosis vignette. For people in the psychosis vignette who correctly identified the condition there was only an increase in positive attitudes in personal stigma.

Buizza et al., (2017) studied attitudes toward mental illness. Their sample included 486 staff at a university in Italy. The sample was 59.4% female and average age was 47.6 years. Sixty-four percent of the sample had greater than 13 years of education. They used the Community Attitudes toward the Mentally Ill [CAMI] to measure public stigma (Taylor & Dear, 1981). They also conducted a semi-structured interview. They found that those who had a higher level of education and higher direct knowledge or experience held lower public stigmas. People with higher education were more open to working with people with mental illness.

Robinson and Henderson (2019) investigated the patterns of change in public knowledge, attitudes, desire for social distance, and reporting of contact with people with mental illness in England following the implementation of a program aimed at reducing stigma and discrimination. Their data was collected each year from 2009-2017. There were approximately 1700 respondents for each survey year. They used the Mental Health Knowledge Schedule (MAKS; Evans-Lacko et al., 2010) to measure the public knowledge of mental health issues. To measure public attitudes toward mental illness they used a questionnaire that included items from the CAMI Scale (Taylor & Dear, 1981). They found that there had been an improvement of mental health knowledge when comparing results from 2009 to 2017. They also noted an

improvement in public attitudes towards mental health with participants scoring 0.25 standard deviation units higher on the CAMI in 2017 compared to 2008. While this study did not directly examine the connection between knowledge and attitudes toward mental illness it leaves open an opportunity to speculate the cause of the improved attitudes.

Fang et al. (2021) examined the mediating role of knowledge on contact, stigmatizing attitudes, and behaviors towards people with mental illness. The sample consisted of 366 participants. They had three main groups in their study: family members, mental health practitioners, and community residents. The majority were female (75.4%) and the average age was 44 years old. All participants were from Hong Kong and either worked at or lived in a community with a community mental health center. They measured knowledge of mental health using the MAKS (Evans-Lacko et al., 2010). To measure prejudicial attitudes they used an abbreviated version of the AQ-27 (Corrigan et al., 2014). Finally, they used the Social Distance Scale (Link et al., 1987) to measure discriminatory behaviors toward people with mental illness in conjunction with a vignette that depicted a person with mental illness. They found that knowledge was significantly associated with prejudicial attitudes and the association between stigma and knowledge was negative. They found that knowledge did not significantly impact discriminatory behaviors. The results suggest that contact with people with mental illness has a positive correlation with knowledge. Contact was also found to be negatively linked to stigmatizing attitudes and behavior. Their study supports the idea that knowledge helps eliminate stigmatizing attitudes toward people with mental illness.

Adults Studies in the United States

Only two studies found have looked at the United States. These studies provide a useful look at the trends in the United States, but fail to study the general population. Lee et al. (2020) examined the degree to which mental health literacy was related to mental health attitudes. They also considered the effect of gender in mental health attitudes. They used a convenience sample that consisted of 732 adults. The average age of the sample was 42.14 years old and 67.7% had a bachelor's degree or higher. A little over half the population (59.3%) identified as female. They used the Mental Health Literacy Scale ([MHLS]; O'Conner & Casey, 2015) to measure both mental health attitudes and mental health literacy. They also examined covariates such as social support, depression level, and mental health facility use. They found mental health attitudes varied significantly by gender and age groups. They found that men and the oldest age group had less positive mental health attitudes. Their main finding was that mental health literacy was the strongest factor associated with attitudes toward mental health.

Rafal et al. (2018) examined mental health literacy, stigma, and help-seeking behaviors in a male population. The population consisted of undergraduate and graduate students at universities in the United States. They had 1,242 participants. They used a 71-item online survey using pre-existing measures for mental health literacy, attitudes towards mental health, and help-seeking behaviors. Mental health literacy was captured using a scale that measured knowledge of signs and symptoms of mental health issues, mental health beliefs, and knowledge of mental health resources. They used a modified version of the Self-Stigma of Seeking Help scale (Vogel et al., 2006) to measure stigma toward seeking help. They also used the short-form of the Attitudes Toward Seeking Help scale (Fischer & Farina, 1995). The majority of the sample identified as white, non-hispanic, and heterosexual. They found that undergraduate men had lower mean

scores for mental health knowledge and mental health attitudes compared to graduate men. They found that when mental health literacy scores were low, so were attitudes toward mental health.

Intervention Studies

A few studies looked at the effect of an educational intervention and its impact on levels of stigma. For example, Simmons et al. (2017) explored the impact of knowledge on attitude change. They used a pretest/post-test quasi experimental design with knowledge as the independent variable and level of stigma as the dependent variable. They used the Attitudes to Severe Mental Illness (ASMI, Madianos et al., 2012) to assess stigma. The ASMI includes items from many scales. They had 39 participants of which 18 were male and 21 female. They were all undergraduate psychology students aged 16 to 34 years old. The participants were given the questionnaire then exposed to the manipulation. Simmons et al. (2017) manipulated the variable of knowledge by providing a vignette describing some of the most common mental illnesses and their treatments followed by a distractor task. They then repeated the MAKS and CAMI sections of the questionnaire. Interestingly, they found a decrease in level of knowledge measured after their manipulation. They also found a statistically significant decrease in stigma in the post-test condition. They were unable to ascertain what caused the stigma levels to go down given that the knowledge levels decreased.

Bamgbade et al. (2016) conducted a study to determine if an educational intervention impacted pharmacy students' stigma against people with mental illness and their knowledge. The design was a pre/posttest intervention. They presented information in two class periods over two days. The information included presentations, videos, discussion, and active-learning exercises. They used the Social Distance Scale to measure separation and the rest of the items were taken

from various surveys or created by the authors. There were 88 students who completed the intervention and pre and posttest (?). The students averaged 25.2 years old and were primarily female (67.1%). The majority identified as either Asian (37.5%) or White (31.8%). Forty-six percent reported having a family member or close friend diagnosed with a mental illness. They found that after the intervention the students' knowledge was higher and stigma levels toward people with depression and schizophrenia were lower. Their stigma was significantly lower in the recovery, safety, separation, and comfort domains. There was no correlation calculated but the results suggest that as knowledge increased stigma against people with mental illness decreased.

Wei et al. (2020) examined the effectiveness of a professional development program in increasing mental health knowledge and reducing stigma in a group of preservice educators. The sample consisted of 162 students training to become teachers. They conducted three different conditions of the program. These were in-person, online, and a control group. All the groups completed a survey to measure mental health knowledge, attitudes toward mental health and mental illness, and outlook toward help-seeking. They found there was a significant increase in knowledge in the posttest condition. Their results indicated that there was a significant difference in attitude scores in the posttest compared to the control group. They found that participating in the program had a positive effect on the participants' attitudes about mental health compared to the control group. They also found that the results persisted after three months for those who participated in the program. This also held true regardless of whether they were in the online or in-person group. They also found that those that participated in the program were more likely to seek help in the future if they needed it.

These studies indicate that interventions might be helpful and can help people with the development of stigma. These studies are useful in showing that stigma can be manipulated by introducing information on mental health issues. This literature review has shown that there tends to be a correlation between stigma and knowledge about mental illness. It has also illustrated that stigma seems to be able to be changed by introducing someone to information about mental illness.

Summary and Research Question

There have been many different avenues used to examine stigma and its association with knowledge. Milin et al. (2016) found that a school-based mental health literacy program resulted in increased knowledge that was significantly correlated with the reduction of stigma against mental illness. Goodfellow et al. (2021) found that mental health literacy was associated with decreased stigma and increased help-seeking intention in adolescents. Chisholm et al. (2016) found that intergroup contact with a person with mental illness did not reduce stigma any more than education alone in a study of adolescents. Adolescent studies provide an interesting background and can help researchers determine if stigma is something that is present in adolescence and continues into adulthood. This study aims to look at current adult stigmas and its association with knowledge about the causes of mental illness, but acknowledges that stigma may be present from adolescence.

Studies of adults offer the following findings. Svensson and Hannsson (2015) found that mental health literacy was associated with more positive attitudes in personal stigma. Buizza et al., (2017) found that people with a higher level of education or experience of mental illness held lower stigmatizing views. Lee et al. (2020) found that increased mental health literacy was a

strong factor in predicting increased attitudes toward mental health. Robinson and Henderson (2019) found that between 2009 and 2017 both mental health knowledge and attitudes toward mental illness increased independently. Fang et al. (2020) found that as knowledge increased, prejudicial attitudes decreased, but that behaviors were less likely to be impacted. Rafal et al. (2018) found an association between low mental health literacy scores and more negative attitudes toward mental health.

There are a few studies that used interventions to examine the connection between mental illness knowledge and stigma and to speculate at causations. Simmons et al. (2017) found a significant decrease in stigma after exposure to information about mental illness despite a decrease in knowledge as well. Bamgbade et al. (2016) found that after an educational intervention, students' knowledge levels were higher and stigma levels were lower though they did not offer a correlation between the variables. Wei et al. (2020) found that an educational intervention on mental illness had a positive effect on participant's attitudes toward mental health.

The literature reviewed suggests that as knowledge increases, stigma tends to decrease. However, only one study looked at the association between current level of knowledge and current stigma levels in an adult population in the United States. The current research aims to address this concern. Therefore, the current study asks: How does knowledge about the causes of mental illness impact the stigma levels of adults in the United States?

Method

This study aims to examine the impact of knowledge on the causes of mental illness and the levels of stigma that people hold. This study will use a survey method to assess current levels

of knowledge as well as current levels of stigma. A correlational study will be conducted to assess if there is a connection between the variables. This information will help researchers understand how stigmas are formed and if knowledge can be a mediating factor.

Participants

Participants will be recruited to complete the study in an online format. This study aims to include 200 participants. I will first post the survey on SurveyCircle.com for three weeks and will move to Amazon's Mechanical Turk if I am unable to get enough participants on SurveyCircle.com. There is no specific target audience for this study other than being an adult. Only people 18 years or older will be able to participate. The study is also limited to participants currently residing in the United States and speak English fluently. All other demographics are welcome to participate to attempt to obtain a representative sample.

Participants learn about the study by posting it on SurveyCircle.com and then Amazon's Mechanical Turk. These websites allow these research postings; see <https://www.surveycircle.com/en/terms/> and <https://www.mturk.com/participation-agreement>. SurveyCircle is not likely to produce a representative sample on its own, but can offer a more diverse group of respondents than relying on personal connections or social networks. Amazon's Mechanical Turk offers more information on user demographics. It tends to have users that are mostly from the United States. The age of the population of MTurk workers was found to be younger than the general population (Difallah et al., 2018). MTurk provides access to a population that is more similar to the United States than I believe I will find on SurveyCircle.com. Participants will voluntarily click the link if they are willing to complete the survey. I will post the research link on SurveyCircle.com for three weeks. It will be posted on

Amazon's Mechanical Turk for one week after being taken down from SurveyCircle.com. It will be ranked depending on the number of points I have earned on the website. The higher the ranking the more likely people will see it and will earn more points for their own research. Participants will see the listing for the survey as well as the compensation amount and click it if they are interested on Amazon's Mechanical Turk platform. Participants will be compensated using points if they complete the survey through SurveyCircle.com. Participants taking the survey on Amazon's Mechanical Turk will receive small compensation of ten cents to incentivize participation. Participants will only receive points or compensation if they enter the completion code. The research posting will include a link to an anonymous survey, accessible via SurveyMonkey. The link will take the subject to SurveyMonkey, where the subject will first see and agree to the Informed Consent; see Appendix A for the text of Informed Consent. If participants agree to the Informed Consent, they will automatically receive access to the survey to complete online. If participants do not agree to the Informed Consent, they will proceed to a thank you page, and participation will terminate at that point. Although it is unlikely, should participants experience any emotional discomfort resulting from completing the survey, they can contact the Emotional Distress Hotline, a national mental health hotline, available 24/7 for free at 1-800-LIFENET. After several weeks, I will close the SurveyMonkey survey and analyze the data.

Measures

This study aims to measure the stigma against mental illness and mental health literacy. The main variables are attitudes or stigma and knowledge or mental health literacy. There will also be a demographic questionnaire to better understand the characteristics of the sample.

Stigma will be measured by examining attitudes that people hold toward people with mental illness. To measure knowledge, I intend to look at mental health literacy using a scale that assesses what people know about mental illness and its treatments.

Demographics Questionnaire

The demographics questionnaire will ask participants questions about their race/ethnicity, age, education level, gender identity, relationship status, and type of work. This information will help describe the population that takes the survey and assess for any abnormalities. The demographic questionnaire has options to not answer or write in another option when applicable. There are six demographic questions. See Appendix B for further information.

Community Attitudes to Mental Illness Scale (CAMI)

Participants will be asked to complete a modified version of the CAMI Scale that consists of 12 items (Sampogna et al., 2017). The CAMI Scale was originally designed by Taylor and Dear (1981) and assesses community attitudes toward mental illness. The items examine attitudes about social exclusion, tolerance, and support toward community mental health care. Participants will be asked to rate each question on a scale from 1, strongly disagree to 5, strongly agree. See Appendix B for CAMI Scale. A confirmatory factor analysis was performed to identify the two main dimensions of the scale (Sampogna et al., 2017). The first factor was prejudice and exclusion, which has a Cronbach's alpha value of .84 (Sampogna et al., 2017). The second was tolerance and support towards people with mental illness with a Cronbach's alpha value of .73 (Sampogna et al., 2017). According to Sampogna et al. (2017), the findings align with the longer 26-item version carried out with the general population. Permission to use this scale was obtained by complying with the conditions set forth by King's College London.

Reported and Intended Behaviour Scale (RIBS)

Participants will then be asked to complete the Reported and Intended Behaviour Scale (RIBS; Evans-Lacko et al., 2011). This scale measures behavioral discrimination among the general public against people with mental health problems. The RIBS consists of 8 items that measure reported and intended behavior in four different contexts. The questionnaire asks about living with, working with, living nearby, and continuing a relationship with someone with a mental health problem. See Appendix B for the RIBS. The scale was found to have a test-retest reliability of 0.75 (Evans-Lacko et al., 2011). The scale has a Cronbach's Alpha of 0.85 when all items were included (Evans-Lacko et al., 2011). Permission to use this scale was granted by complying with the standards set forth by King's College London.

Mental Health Literacy Scale (MHLS)

I will measure knowledge of the causes of mental illness using the Mental Health Literacy Scale (MHLS; O'Connor & Casey, 2015). The scale consists of 35 items that measure the ability to recognize disorders, knowledge of where to seek information, knowledge of risk factors and causes, knowledge of self-treatment, knowledge of professional help available, and attitudes that promote help-seeking behavior (O'Connor & Casey, 2015). The scale was found to have good internal and test/retest reliability. Cronbach's alpha for the final 35-item version was 0.87. Permission to use this scale was granted by the author. The author did suggest some minor edits to reflect the changes in the Diagnostic and Statistical Manual of Mental Disorders. See Appendix D for more information.

Mental Illness Knowledge Schedule (MAKS)

I will measure mental health-related knowledge using the Mental Illness Knowledge Schedule (MAKS; Evans-Lacko et al., 2010). It consists of 12 items that measure six stigma related mental health knowledge areas. These areas are help seeking, recognition, support, employment, treatment, and recovery. See Appendix B for full scale. There are 6 items that ask about knowledge of mental health conditions as well. The schedule had an overall test/retest reliability of .71. The MAKS was found to be a brief and feasible instrument for assessing stigma-related mental health knowledge (Evans-Lacko et al., 2010). Permission to use this scale was granted by complying with the standards set forth by King's College London.

Procedures

Participants will be asked to follow a link to SurveyMonkey.com to complete a survey. The survey will be anonymous. Participants must be over 18 years old to participate and speak English fluently. Participants will be asked to read and agree to the informed consent prior to accessing the survey. The survey will start with the demographics questionnaire. They will then complete the CAMI, followed by the RIBS. They will then complete the MHLS and MAKS. Once the survey is closed analysis of the data will be conducted.

Data Management

To ensure the anonymity of the survey participants, in using SurveyMonkey, I will not collect IP addresses. For this study, I will transfer the data from SurveyMonkey into an SPSS database for analysis. I will present all of the results in aggregate form to protect participants' identities. I will have access to the data only in the form of physically completed surveys that I will maintain on an encrypted flash drive, kept in a locked file cabinet in my home. The thesis

advisor and I will be the only parties with access to the strong password that protected the SPSS dataset. The dataset will contain no coded identifiers and, as such, will be completely anonymous.

I will store all electronic data on an encrypted flash drive and not on any computer hard drive. I will retain the data set and related files for a minimum of five years after the study completion, in case questions arise about the analyses. After five years, I will destroy the data using the current Department of Defense data destruction standards. I will likely choose an affordable technique, such as encryption, pending technology at the time.

Statistical Analysis

The data analyses will be conducted using IBM's SPSS statistical software. Descriptive statistics, such as frequencies, means, ranges, standard deviations, skewness, and kurtosis will be used. Correlational analyses will be performed where appropriate. Scores from each scale will be compared with each other to examine for statistical significance.

CAMI Scoring

The CAMI statements were phrased in both a positive and negative direction. The degree of agreement or disagreement to each statement was rated on a 5 point Likert Scale. Positive statements are scored in 25 point increments, with agree strongly getting 100 points and disagree strongly getting 0 points. Negative statements are reverse scored and range in 25 point increments from 0-100. For both positive statements and the reversed negative statements a higher score indicates a more positive attitude toward people with mental illness. The data from this scale will be presented at the aggregate level to create a score for the variable of stigma.

RIBS Scoring

Items 1-4 are not scored as they calculate the prevalence of behaviors that respondents may or may not have engaged in. Items 5-8 are scored on an ordinal scale. Items with which the respondent strongly agrees engaging in have a value of 5 while strongly disagree is given a score of 1. The total score for each participant is calculated by adding together items 5-8. “Don’t know” is coded as neutral (i.e. 3) to allow for determining a score. Both scales are important to include because it can be important to understand how reported behavior may be associated with future behavior (Evans-Lacko et al., 2011). A lower score indicates greater comfort about being around people with mental illness. The data for items 5-8 will be presented as an aggregate score for the variable of stigma. Items 1-4 will be presented on the individual level using percentages.

MHLS Scoring

The first 15 items of the scale are scored on 1-4 scale. Items 10, 12, and 15 are reverse scored. Items 16-35 are scored on a scale of 1-5 with items 20-28 being reverse scored. The total score is produced by adding together all the items. The max score is 160 and the minimum score is 35. A higher score is representative of greater understanding of mental health issues (O’Connor & Casey, 2015). The data from this scale will be presented on the aggregate level. This scale will be used to examine the variable of mental health knowledge.

MAKS Scoring

MAKS items are scored on an ordinal scale of 1-5. Items in which the respondent strongly agrees with a correct statement have a value of 5 while a 1 shows a response in which the respondent strongly disagreed with a correct statement. “Don’t know” is scored as a neutral 3. Items 6, 8, and 12 are reverse scored. Items 1-6 are used to calculate a score. Items 7-12 were

designed to establish levels of recognition of various mental health conditions and can be used to contextualize other responses. Items 7-12 are not used in calculating a score. The higher score indicates a higher level of mental health knowledge (Evans-Lacko et al., 2010). Items 1-5 will be presented on the aggregate level to create a score for mental health knowledge.. Items 7-12 will be presented on the individual level using percentages.

Statistical Analysis of the Scales and Correlations

The scales will each be scored to find a total score. The scales examining stigma (CAMI and RIBS) will be compared to the scales examining mental health knowledge (MHLS and MAKS). I will run correlations among the variables for knowledge and stigma to examine for significance. Demographic questions will be presented at the individual level and used for determining if there are any abnormalities present in the sample. The scales used for each variable will be compared for significance. More advanced statistical tests may be performed if there is significance in the first correlations.

Results

Participant and Demographic Characteristics

The original sample consisted of 226 participants. Eight participants were excluded for not completing the survey after the informed consent. Twelve were excluded for completing less than 50% of the survey and one participant was excluded for reporting an age of less than 18. The final sample included 205 participants. There were 107 men, 92 women, 2 people identified as nonbinary/nonconforming, and 1 person responded that they did not have a gender. A majority of the sample was married (73.7%). The sample was predominately White (84.4%) followed by 5.4% identifying as Asian, 2.9% as Black or African American, 2.9% as Hispanic or Latino, 1%

Multiracial/Multiethnic, 1% as Native American or Alaskan Native, less than 1% of the sample identified as Native Hawaiian or other Pacific Islander or Middle Eastern or North African. The average age of the sample ranged from 20 years to 69 years old with a mean of 38 years old (SD=11.2). The sample all had at least a high school diploma or GED, with a majority having a Bachelor's degree (62.9%) or a Master's degree (25.4%). A wide variety of industries were represented in the sample with people working and software and manufacturing being the top two represented. See Table 1 and 2 for full demographic information in Appendix C.

CAMI Results

The CAMI is the first scale used to measure the variable of stigma. A score for the CAMI scale was created by combining each question and finding the average across totals. The CAMI consists of 12 statements that were all used in calculating a score. Statement 4, 6, 7, 8, 10, and 12 were reversed before computing the average. The mean score for the CAMI was 3.04 with a standard deviation of 0.32. A higher score indicates more stigmatizing views. The possible range of scores was 1 to 5 with an actual range of 2.17 to 4 for participants in this study.

RIBS Results

The RIBS consists of 8 statements. Only statements 5-8 are included in creating a scale score. Items 5-8 were added together to create a total score. A higher score indicated greater comfort of being around people with mental illness and was used to infer levels of stigma. The options ranged from 5-strongly agree to 1-disagree strongly, the option of don't know was coded as a neutral 3 per scoring guide. The mean score of the scale (items 5-8) was 14.89 with a standard deviation of 3.98. The scale has the possibility to range from 4 to 20 with the participants in the study having the same range of scores.

Approximately 61% of the sample responded that they were currently or had ever lived with someone with a mental health problem (see table 3 for full responses in Appendix C). A similar number reported currently working with or previously working with someone with a mental health problem at 59.5% (see table 4 in Appendix C). Table 4 shows that about half the sample currently or previously had a neighbor with a mental health problem (47.3%). Finally, Table 5 in Appendix C shows that 63.9% of the sample currently or previously had a close friend with a mental health problem.

MHLS Results

The MHLS consists of 35 statements that a participant agrees or disagrees with on various rating scales. The minimum score on the scale is 35 and the maximum is 160. All items on the scale were added together after reversing statements 10, 12, 15, and 20-28 to create a score for the scale. The mean score for the scale in this sample was 99.81 with a standard deviation of 11.12. The actual range of scores for this sample was 66 to 132. A higher score on this scale indicates greater understanding of mental health issues. This scale was used to measure the variable of knowledge surrounding mental health issues.

MAKS Results

The MAKS consists of 12 statements with only items 1 through 6 used to create a scale score. The items were ranked on a 5-point scale with the option of “don’t know” coded as a neutral 3. After reversing items 6, 8, and 12, items 1-6 were added together to create a composite score. A higher score indicates a higher level of mental health knowledge. The mean score for the scale was 18.56 with a standard deviation of 4.65. The scale had the possibility to range from

a minimum of 5 to a maximum of 30 with the scale having an actual range of 7 to 26 in this study.

The results for items 7 to 12 are presented in Table 7 in Appendix C. The participants were asked to rate on scale whether they thought each condition was a type of mental illness. Depression, Schizophrenia, Bipolar Disorder, and Drug Addiction were the actual conditions listed. Stress and Grief were also listed, but are not classified as mental illnesses by the DSM-V. A majority of the sample were able to correctly identify the mental illness as represented by choosing to agree strongly or agree slightly. Of note is that approximately half (49.7%) of the sample incorrectly agreed strongly or slightly that stress was a mental illness. For grief, 39% incorrectly agreed strongly or slightly that it was a mental illness. A large portion (26.3%) neither agreed or disagreed that grief was a mental illness. See Table 7 in Appendix C for full reporting.

Correlational Analyses

Correlational analyses were conducted to examine the connection between the variables of knowledge and stigma. There were several statistically significant findings. The first is that there was a statistically significant correlation between scores on the CAMI and MHLS ($r(203) = .46, p = <.001$). This indicates that as knowledge measured by the MHLS increased, CAMI scores also increased which is indicative of a decrease in stigmatizing views. There was also a significant positive correlation between the RIBS and MHLS ($r(203) = .27, p = <.001$). As scores on the RIBS rise, stigma goes down. This indicates that as knowledge increases, stigma goes down based on these scales. The MAKS and CAMI were positively correlated ($r(203) = .28, p = <.001$). This again shows that stigma and knowledge are significantly correlated, with knowledge

decreasing stigma. The fourth correlation was also significant. The RIBS and MAKS showed a significant correlation ($r(203) = .48, p = <.001$). This supports the previous findings that as knowledge increases, stigma decreases. See Table 8 in Appendix D for the full correlations table.

The scores were summed for the CAMI and RIBS into a variable to represent stigma and summed the scores for the MHLS and MAKS to create a variable for knowledge. I then ran a correlation between these variables. A statistically significant correlation was found between knowledge and stigma ($r(203) = .43, p = <.001$). The effect size was moderate.

The MAKS and MHLS were significantly correlated ($r(203) = .20, p = <.005$). This is promising because it suggests that as knowledge increased on one scale it increased on the other. This suggests that the variables were captured accurately. While not a perfect correlation, they are still statistically significant. The RIBS and CAMI were also positively correlated ($r(203) = .32, p = <.001$). This indicates that the variables for stigma were also significantly correlated. This suggests that each scale was measuring stigma accurately. See Appendix C for full correlational data.

Discussion

The original hypothesis was that as knowledge of mental illness went up, stigma levels in the adult population of the United States would go down. The data in this study support that idea. As CAMI scores increased, so did MHLS scores. Because increased CAMI scores indicate a stigma reduction, it means that knowledge decreases stigma. The same is true for the RIBS. As RIBS scores increased, so did MAKS scores, again indicating an inverse relationship between knowledge and stigma. The effect size for each of these two correlations was moderate. The RIBS and MHLS and the MAKS and CAMI were also correlated. Both of these correlations

support the previous finding that as knowledge increased, stigma decreased though with smaller effect sizes. The CAMI and RIBS were correlated, showing that the scales measuring stigma varied together. The MAKS and MHLS were also correlated, indicating that as scores increased for knowledge on one scale, the scores on the other also increased. Each of the correlations from the study support that as knowledge increases, stigma goes down. These findings suggest that knowledge can be an important factor in combating stigma toward mental illness. These findings are in line with the previous literature.

Implications

This study has important implications for society. It suggests that knowledge can be used as a tool to combat stigma. This research highlights the importance of educating the population about mental health issues as it can impact their levels of stigma towards people with mental illness. This research could be used to support interventions that aim to reduce stigma. This research strongly implies that knowledge can be used to mitigate stigma toward people with mental illness. The variables seem to have been accurately measured with the finding that each scale used to measure them was correlated with each other.

Similarities and Differences

These results are similar to those found in the literature. Fang et al. (2021) found that as knowledge increased, prejudicial attitudes decreased. The findings of this study are in line with those findings. Lee et al. (2020) and Rafal et al. (2018) also found that as mental health literacy increased, attitudes toward people with mental illness improved. This study found the same pattern of results. This study adds to the literature because it uses a different population. The

study by Lee et al. (2020) used a convenience sample of people attending a state fair. Rafal et al. (2018) used students. Before this study, few had looked at the United States population. This used convenience sampling of Mturk and SurveyCircle, but likely reached a wider demographic than previous studies.

Limitations

One limitation is that the sample was relatively small compared to the general United States population. Because the study was conducted online, it may have overrepresented certain demographics and left out some key demographic samples when considering the United States population. For example, the study likely only included people with a computer or smartphone and internet access. Not everyone in the United States has access to both, which may represent a sampling bias. The sample was more diverse than some convenience samples, but because it had participants from a pool on a website, the results may not be as generalizable as a true random sample. Another limitation is that the sample was disproportionately more educated than the general population. Almost 90% of the sample had a bachelor's degree or higher. In the United States, only approximately 38% have a bachelor's degree or higher (U.S. Census Bureau, 2022). The study was also largely made up of people in software or manufacturing careers. This may have skewed the results. Finally, this research relied on people reporting attitudes and may not accurately represent what they would do in real life regarding attitudes toward people with mental illness.

Conclusions

This study supports the idea that stigma decreases as knowledge increases. This is important because it solidifies the importance of mental illness education among the general population. It provides an actionable tool that people can use knowledge to combat the stigma against mental health. It shows knowledge can have real-world implications in reducing stigma. It suggests that knowledge interventions can be effective and should be considered if wanting to reduce stigma. Future research could be improved by using a more random sample. Another thing to consider is what knowledge interventions could be useful and what types are effective. This research looked at current levels of knowledge and stigma and did not evaluate the effectiveness of interventions. This study provides promising evidence that stigma can be impacted by knowledge.

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Appendix A1

Purdue University Global
Consent for Participation in Research

*“The Role of Knowledge as a Mediating Factor of Stigma towards Mental Health:
The Impact of Knowledge about Mental Illness and Stigma Levels”*

CONCISE SUMMARY

The purpose of this study is to better understand the causes of stigma towards mental illness and how knowledge can be a mediating factor. Participation involves a survey and will take approximately 15 minutes to complete. This study requires that participants are over the age of 18 to participate. There are no expected risks for participation in this study. The benefits of this study are that it may help researchers better understand stigma and find ways to reduce the impact of stigma for people living with mental illness. Survey responses are anonymous.

Why am I being asked?

You are being asked to be a participant in a research study about stigma about mental illness and how knowledge impacts this. This research study is being conducted by Mackenzie Gammans, a Master’s of Science in Psychology student at Purdue University Global. You have been asked to participate in the research because you are a user of SurveyCircle.com or Mechanical Turk and may be eligible to participate. We ask that you read this form and ask any questions you may have before agreeing to be in the research.

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with Purdue University Global. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

What is the purpose of this research?

The purpose of this research is to investigate the causes of stigma and factors associated with it. It aims to determine if knowledge about the causes of mental illness impacts the levels of stigma.

What procedures are involved?

If you agree to be in this research, we would ask you to do the following things:
Complete a survey about stigma and knowledge of mental illness. You will also be asked to complete a demographics questionnaire. Participation should take less than 15 minutes to complete.

Approximately 150 may be involved in this research at Purdue University Global.

What are the potential risks and discomforts?

The research may:

There are no expected risks for participating in this research.

Are there benefits to taking part in the research?

Benefits of taking part in this research are that it may help provide information about the causes of stigma towards mental illness and help find ways to reduce stigma for people living with mental illness. If you participate on SurveyCircle.com you will receive points to use toward other research. For participants on Mechanical Turk you may receive small compensation.

What about privacy and confidentiality?

No one will know that you are a research subject because this research is totally anonymous. No information about you, or provided by you during the research, can ever be disclosed to others because no information that can possibly identify you as an individual will be collected. When the results of the research are published or discussed in conferences, no information will be included that could ever reveal your identity.

Will I be reimbursed for any of my expenses or paid for my participation in this research?

Those participating on Amazon's Mechanical Turk Platform will receive small compensation of 10 cents to incentivize participation. You will not receive payment unless the participation code is entered on Mechanical Turk.

Can I withdraw from the study?

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study.

Whom should I contact if I have questions?

The researcher conducting this study is Mackenzie Gammans. You may ask any questions you have now. If you have questions later, you may contact the researchers at: Phone: 765-210-4581. You may also contact the researcher's thesis adviser, Dr. Gabrielle Blackman PhD, at gblackman@purdueglobal.edu.

What are my rights as a research subject?

If you feel you have not been treated according to the descriptions in this form, or you have any questions about your rights as a research subject, you may contact the Institutional Review Board (IRB) at Purdue University Global through the following representative:

Susan Pettine, IRB Chair
 Email: spettine@purdueglobal.edu

Remember: Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with Purdue University Global [or insert the names of any other cooperating institutions as well]. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

You may keep a copy of this form for your information and your records.

Signature of Subject

I have read (or someone has read to me) the above information. I have been given an opportunity to ask questions and my questions have been answered to my satisfaction. I agree to participate in this research. I have been given a copy of this form.

 Signature

 Date

 Printed Name

 Signature of Researcher

 Date (must be same as subject's)

Appendix A2

Purdue University Global
Consent for Participation in Research

*“The Role of Knowledge as a Mediating Factor of Stigma towards Mental Health:
The Impact of Knowledge about Mental Illness and Stigma Levels”*

CONCISE SUMMARY

The purpose of this study is to better understand the causes of stigma towards mental illness and how knowledge can be a mediating factor. Participation involves a survey and will take approximately 15 minutes to complete. This study requires that participants are over the age of 18 to participate. There are no expected risks for participation in this study. The benefits of this study are that it may help researchers better understand stigma and find ways to reduce the impact of stigma for people living with mental illness. Survey responses are anonymous.

Why am I being asked?

You are being asked to be a participant in a research study about stigma about mental illness and how knowledge impacts this. This research study is being conducted by Mackenzie Gammans, a Master’s of Science in Psychology student at Purdue University Global. You have been asked to participate in the research because you are a user of SurveyCircle.com or Mechanical Turk and may be eligible to participate. We ask that you read this form and ask any questions you may have before agreeing to be in the research.

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with Purdue University Global. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

What is the purpose of this research?

The purpose of this research is to investigate the causes of stigma and factors associated with it. It aims to determine if knowledge about the causes of mental illness impacts the levels of stigma.

What procedures are involved?

If you agree to be in this research, we would ask you to do the following things:
Complete a survey about stigma and knowledge of mental illness. You will also be asked to complete a demographics questionnaire. Participation should take less than 15 minutes to complete.

Approximately 150 may be involved in this research at Purdue University Global.

What are the potential risks and discomforts?

The research may:

There are no expected risks for participating in this research.

Are there benefits to taking part in the research?

Benefits of taking part in this research are that it may help provide information about the causes of stigma towards mental illness and help find ways to reduce stigma for people living with mental illness. If you participate on SurveyCircle.com you will receive points to use toward other research. For participants on Mechanical Turk you may receive small compensation.

What about privacy and confidentiality?

No one will know that you are a research subject because this research is totally anonymous. No information about you, or provided by you during the research, can ever be disclosed to others because no information that can possibly identify you as an individual will be collected. When the results of the research are published or discussed in conferences, no information will be included that could ever reveal your identity.

Will I be reimbursed for any of my expenses or paid for my participation in this research?

At this time, no reimbursement is available for participation in this research for those participating on SurveyCircle.com. You will receive points that can be used for your own research or donated to someone else.

Can I withdraw from the study?

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you don't want to answer and still remain in the study.

Whom should I contact if I have questions?

The researcher conducting this study is Mackenzie Gammans. You may ask any questions you have now. If you have questions later, you may contact the researchers at: Phone: 765-210-4581. You may also contact the researcher's thesis adviser, Dr. Gabrielle Blackman PhD, at gblackman@purdueglobal.edu.

What are my rights as a research subject?

If you feel you have not been treated according to the descriptions in this form, or you have any questions about your rights as a research subject, you may contact the Institutional Review Board (IRB) at Purdue University Global through the following representative:

Susan Pettine, IRB Chair
Email: spettine@purdueglobal.edu

Remember: Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with Purdue University Global [or insert the names of any other cooperating institutions as well]. If you decide to participate, you are free to withdraw at any time without affecting that relationship.

You may keep a copy of this form for your information and your records.

Signature of Subject

I have read (or someone has read to me) the above information. I have been given an opportunity to ask questions and my questions have been answered to my satisfaction. I agree to participate in this research. I have been given a copy of this form.

Signature

Date

Printed Name

Signature of Researcher

Date (must be same as subject's)

Appendix B**Measure 1.***Demographics Survey*

1. What is your race/ethnicity?
 - a. American Indian or Alaskan Native
 - b. Asian/Pacific Islander
 - c. Black or African American
 - d. Hispanic
 - e. White/Caucasian
 - f. Multiple ethnicity/Other (please specify):
 - g. Prefer Not to Answer
2. What is your gender identity?
 - a. Woman
 - b. Man
 - c. Transgender
 - d. Non-binary/non-conforming
 - e. Other (please specify):
 - f. Prefer Not to Answer
3. What is your age?
4. What is your highest level of education you have completed?
 - a. Less than a high school degree
 - b. High School degree or equivalent (GED)

- c. Some college, but no degree
 - d. Associate degree
 - e. Bachelor degree
 - f. Masters degree
 - g. Doctoral degree
 - h. Other (please specify):
5. What is your relationship status?
- a. Single
 - b. In a relationship (not married)
 - c. Separated
 - d. Married
 - e. Widowed
 - f. Other (please specify):
 - g. Prefer not to answer
6. What type of work do you do?
- a. Healthcare and social services
 - b. Retail
 - c. Education
 - d. Agriculture, Forestry, Fishing, and Hunting
 - e. Manufacturing
 - f. Publishing
 - g. Transportation

- h. Software
- i. Broadcasting
- j. Real Estate, Rental, and Leasing
- k. Legal Services
- l. Religious
- m. Construction
- n. Government or Public Administration
- o. Scientific or Technical Services
- p. Military
- q. Finance and Insurance
- r. Arts, Entertainment, and Recreation
- s. Student
- t. Unemployed
- u. Retired
- v. Other (please specify):
- w. Prefer Not to Answer

Measure 2.

Community Attitudes Towards the Mentally Ill

| | Agree Strongly | Agree Slightly | Neither agree nor disagree | Disagree Slightly | Disagree Strongly |
|---|----------------|----------------|----------------------------|-------------------|-------------------|
| 1. One of the main causes of mental illness is lack of self-discipline and will-power | | | | | |
| 2. There is something about people with mental illness that makes it easy to tell them from normal people | | | | | |
| 3. We need to adopt a far more tolerant attitude toward people with mental illness in our society | | | | | |
| 4. People with mental illness don't deserve our sympathy | | | | | |
| 5. I would not want to live next to someone who has been mentally ill | | | | | |
| 6. It is frightening to think about people with mental problems living in residential neighborhoods | | | | | |
| 7. Mental illness is an illness like any other | | | | | |
| 8. Virtually anyone can become mentally ill | | | | | |
| 9. The best therapy for many people with mental illness is to be part of a normal community | | | | | |
| 10. People with mental health problems are far less of a danger than most people suppose | | | | | |
| 11. People with mental health problems should not be given any responsibility | | | | | |

| | | | | | |
|--|--|--|--|--|--|
| 12. Most women who were once patients in a mental hospital can be trusted as babysitters | | | | | |
|--|--|--|--|--|--|

Measure 3.

Reported and Intended Behavior Scale

1. Are you currently living with, or have you ever lived with, someone with a mental health problem?
 - a. Yes
 - b. No
 - c. Don't know

2. Are you currently working with, or have you ever worked with, someone with a mental health problem?
 - a. Yes
 - b. No
 - c. Don't know

3. Do you currently have, or have you ever had, a neighbor with a mental health problem?
 - a. Yes
 - b. No
 - c. Don't know

4. Do you currently have, or have you ever had, a close friend with a mental health problem?
 - a. Yes

- b. No
 - c. Don't know
5. In the future, I would be willing to live with someone with a mental health problem.
- a. Agree strongly
 - b. Agree slightly
 - c. Neither agree nor disagree
 - d. Disagree slightly
 - e. Strongly disagree
 - f. Don't know
6. In the future, I would be willing to work with someone with a mental health problem.
- a. Agree strongly
 - b. Agree slightly
 - c. Neither agree nor disagree
 - d. Disagree slightly
 - e. Strongly disagree
 - f. Don't know
7. In the future, I would be willing to live nearby to someone with a mental health problem.
- a. Agree strongly
 - b. Agree slightly
 - c. Neither agree nor disagree
 - d. Disagree slightly
 - e. Strongly disagree

- f. Don't know
8. In the future, I would be willing to continue a relationship with a friend who develop a mental health problem.
- a. Agree strongly
 - b. Agree slightly
 - c. Neither agree nor disagree
 - d. Disagree slightly
 - e. Strongly disagree
 - f. Don't know

Measure 4.

Mental Health Literacy Scale

The purpose of these questions is to gain an understanding of your knowledge of various aspects to do with mental health. When responding, we are interested in your degree of knowledge.

Therefore when choosing your response, consider that:

Very unlikely = I am certain that it is NOT likely

Unlikely = I think it is unlikely but am not certain

Likely = I think it is likely but am not certain

Very Likely = I am certain that it IS very likely

1. If someone became extremely nervous or anxious in one or more situations with other people (e.g., a party) or performance situations (e.g., presenting at a meeting) in which they were afraid of being evaluated by others and that they would act in a way that was

humiliating or feel embarrassed, then to what extent do you think it is likely they have

Social Phobia

- a. Very unlikely
 - b. Unlikely
 - c. Likely
 - d. Very likely
2. If someone experienced excessive worry about a number of events or activities where this level of concern was not warranted, had difficulty controlling this worry and had physical symptoms such as having tense muscles and feeling fatigued then to what extent do you think it is likely they have **Generalized Anxiety Disorder**
- a. Very unlikely
 - b. Unlikely
 - c. Likely
 - d. Very likely
3. If someone experienced a low mood for two or more weeks, had a loss of pleasure or interest in their normal activities and experienced changes in their appetite and sleep then to what extent do you think it is likely they have **Major Depressive Disorder**
- a. Very unlikely
 - b. Unlikely
 - c. Likely
 - d. Very likely

4. To what extent do you think it is likely that **Personality Disorders** are a category of mental illness
 - a. Very unlikely
 - b. Unlikely
 - c. Likely
 - d. Very likely

5. To what extent do you think it is likely that **Persistent Depressive Disorder** is a disorder
 - a. Very unlikely
 - b. Unlikely
 - c. Likely
 - d. Very likely

6. To what extent do you think it is likely that the diagnosis of **Agoraphobia** includes anxiety about situations where escape may be difficult or embarrassing
 - a. Very unlikely
 - b. Unlikely
 - c. Likely
 - d. Very likely

7. To what extent do you think it is likely that the diagnosis of **Bipolar Disorder** includes experiencing periods of elevated (i.e., high) and periods of depressed (i.e., low) mood
 - a. Very unlikely
 - b. Unlikely
 - c. Likely

- d. Very likely
8. To what extent do you think it is likely that the diagnosis of **Substance Abuse Disorder** includes physical and psychological tolerance of the drug (i.e. require more of the drug to get the same effect)
- a. Very unlikely
- b. Unlikely
- c. Likely
- d. Very likely
9. To what extent do you think it is likely that in general in the United States, **women are MORE likely to experience a mental illness of any kind compared to men**
- a. Very unlikely
- b. Unlikely
- c. Likely
- d. Very likely
10. To what extent do you think it is likely that in general, in the United States, **men are MORE likely to experience an anxiety disorder compared to women**
- a. Very unlikely
- b. Unlikely
- c. Likely
- d. Very likely

When choosing your response, consider that:

- Very unhelpful= I am certain that it is **NOT** helpful

- Unhelpful= I think it is unhelpful but am not certain
- Helpful= I think it is helpful but am not certain
- Very helpful= I am certain that it is very helpful

11. To what extent do you think it would be helpful for someone to **improve their quality of sleep** if they were having difficulties managing their emotions (e.g., becoming very anxious or depressed)

- a. Very unhelpful
- b. Unhelpful
- c. Helpful
- d. Very helpful

12. To what extent do you think it would be helpful for someone to **avoid all activities or situations that made them feel anxious** if they were having difficulties managing their emotions

- a. Very unhelpful
- b. Unhelpful
- c. Helpful
- d. Very helpful

When choosing your response, consider that:

- Very unlikely= I am certain that it is NOT likely
- Unlikely= I think it is unlikely but I am not certain
- Likely= I think it is likely but am not certain
- Very likely= I am certain that it IS very likely

13. To what extent do you think that it is likely that **Cognitive Behavior Therapy (CBT)** is a therapy based on challenging negative thoughts and increasing helpful behaviors

- a. Very unlikely
- b. Unlikely
- c. Likely
- d. Very likely

14. Mental health professionals are bound by confidentiality; however there are certain conditions under which this does not apply.

To what extent do you think it is likely that the following is a condition that would allow a mental health professional to **break confidentiality**:

If you are at immediate risk of harm to yourself or others

- a. Very unlikely
- b. Unlikely
- c. Likely
- d. Very likely

15. Mental health professionals are bound by confidentiality; however there are certain conditions under which this does not apply.

To what extent do you think it is likely that the following is a condition that would allow a mental health professional to **break confidentiality**:

If your problem is not life-threatening and they want to assist others to better support you

- e. Very unlikely
- f. Unlikely

g. Likely

h. Very likely

Please indicate to what extent you agree with the following statements:

| | Strongly Disagree | Disagree | Neither agree or disagree | Agree | Strongly agree |
|--|-------------------|----------|---------------------------|-------|----------------|
| 16. I am confident that I know where to seek information about mental illness | | | | | |
| 17. I am confident using the computer or telephone to seek information about mental illness | | | | | |
| 18. I am confident attending face to face appointments to seek information about mental illness | | | | | |
| 19. I am confident I have access to resources (e.g. GP, internet, friends) that I can use to seek information about mental illness | | | | | |
| 20. People with a mental illness could snap out of it if they wanted | | | | | |
| 21. A mental illness is a sign of personal weakness | | | | | |
| 22. A mental illness is not a real medical illness | | | | | |
| 23. People with a mental illness are dangerous | | | | | |
| 24. It is best to avoid people with a mental illness so that you don't develop this problem | | | | | |
| 25. If I had a mental illness I would not tell anyone | | | | | |

| | | | | | |
|--|--|--|--|--|--|
| 26. Seeing a mental health professional means that you are not strong enough to manage your own difficulties | | | | | |
| 27. If I had a mental illness, I would not seek help from a mental health professional | | | | | |
| 28. I believe treatment for a mental illness, provided by a mental health professional, would not be effective | | | | | |

Please indicate to what extent you agree with the following statements:

| | Definitely unwilling | Probably unwilling | Neither unwilling or willing | Probably willing | Definitely willing |
|---|----------------------|--------------------|------------------------------|------------------|--------------------|
| 29. How willing would you be to move next door to someone with a mental illness? | | | | | |
| 30. How willing would you be to spend an evening socializing with someone with a mental illness? | | | | | |
| 31. How willing would you be to make friends with someone with a mental illness? | | | | | |
| 32. How willing would you be to have someone with a mental illness start working closely with you on a job? | | | | | |
| 33. How willing would you be to have someone with a mental illness marry into your family? | | | | | |

| | | | | | |
|---|--|--|--|--|--|
| 34. How willing would you be to vote for a politician if you knew they had suffered a mental illness? | | | | | |
| 35. How willing would you be to employ someone if you knew they had a mental illness? | | | | | |

Measure 5.

Mental Health Knowledge Schedule

Instructions: For each of statements 1-6 below, respond by ticking one box only. Mental health problems here refer, for example, to conditions for which an individual would be seen by healthcare staff.

| | Agree strongly | Agree slightly | Neither agree nor disagree | Disagree slightly | Disagree strongly | Don't know |
|---|----------------|----------------|----------------------------|-------------------|-------------------|------------|
| 1. Most people with mental health problems want to have paid employment. | | | | | | |
| 2. If a friend had a mental health problem, I know what advice to give them to get professional help. | | | | | | |
| 3. Medication can be an effective treatment for people with mental health problems. | | | | | | |

| | | | | | | |
|---|--|--|--|--|--|--|
| 4. Psychotherapy (eg counseling or talking therapy) can be an effective treatment for people with mental health problems. | | | | | | |
| 5. People with severe mental health problems can fully recover. | | | | | | |
| 6. Most people with mental health problems go to health care professionals to get help. | | | | | | |

Instructions: For items 7-12, say whether you think each condition is a type of mental illness by ticking one box only.

| | Agree strongly | Agree slightly | Neither agree nor disagree | Disagree slightly | Disagree strongly | Don't know |
|---|----------------|----------------|----------------------------|-------------------|-------------------|------------|
| 7. Depression | | | | | | |
| 8. Stress | | | | | | |
| 9. Schizophrenia | | | | | | |
| 10. Bipolar disorder (manic depression) | | | | | | |
| 11. Drug addiction | | | | | | |
| 12. Grief | | | | | | |

Appendix C

Table 1*Respondents' Sociodemographic Characteristics (N=205)*

| Measure | All Subjects |
|---|---------------|
| Age | 37.83 (11.24) |
| Gender Identity | |
| Man | 52.2% |
| Woman | 44.9% |
| Nonbinary/Nonconforming | 1.0% |
| Other | 0.5% |
| Relationship Status | |
| Single | 12.7% |
| In a relationship (not married) | 12.2% |
| Married | 73.7% |
| Race and Ethnicity | |
| Asian | 5.4% |
| Black or African-American | 2.9% |
| Hispanic or Latino | 2.9% |
| Middle Eastern or North African | 0.5% |
| Native American or Alaskan Native | 1.0% |
| Native Hawaiian or Pacific Islander | 0.5% |
| White or Caucasian | 84.4% |
| Multiple ethnicities/Other (please specify) _____ | 2.0% |

Table 2*Respondents' Education and Career (N=205)*

| Measure | All Subjects |
|---|--------------|
| Education | |
| High School Diploma/GED | 5.4% |
| Some College | 1.5% |
| Associate's Degree | 2.0% |
| Bachelor's Degree | 62.9% |
| Master's Degree | 24.4% |
| Doctoral Degree | 1.5% |
| Industry/Career | |
| Agriculture, Forestry, Fishing, and Hunting | 1.0% |
| Arts, Entertainment, and Recreation | 2.0% |
| Construction | 1.5% |
| Education | 10.7% |
| Finance and Insurance | 11.7% |
| Government and Public Administration | 1.0% |
| Healthcare and Social Services | 10.7% |
| Legal Services | 1.0% |
| Manufacturing | 14.6% |
| Military | 1.0% |
| Publishing | 0.5% |

| | |
|----------------------------------|-------|
| Real Estate, Rental and Leasing | 0.5% |
| Religious | 0.5% |
| Retail | 0.5% |
| Scientific or Technical Services | 4.9% |
| Software | 17.6% |
| Transportation | 0.5% |
| Student | 11.7% |
| Unemployed | 1.5% |
| Retired | 1.0% |
| Prefer not to answer | 0.5% |
| Other | 3.9% |

Table 3

Responses to Survey Question “Are you currently living with, or have you ever lived with, someone with a mental health problem?”

| Response | <i>n</i> | % |
|------------|----------|------|
| Yes | 125 | 61.0 |
| No | 72 | 35.1 |
| Don't Know | 7 | 3.4 |
| Missing | 1 | 0.5 |

Table 4

Responses to Survey Question “Are you currently working with, or have you ever worked with, someone with a mental health problem?”

| Response | <i>n</i> | % |
|------------|----------|------|
| Yes | 122 | 59.5 |
| No | 69 | 33.7 |
| Don’t Know | 12 | 5.9 |
| Missing | 2 | 1.0 |

Table 5

Responses to Survey Question “Do you currently have, or have you ever had, a neighbor with a mental health problem?”

| Response | <i>n</i> | % |
|------------|----------|------|
| Yes | 97 | 47.3 |
| No | 86 | 42.0 |
| Don’t Know | 20 | 9.8 |
| Missing | 2 | 1.0 |

Table 6

Responses to Survey Question “Do you currently have, or have you ever had, a close friend with a mental health problem?”

| Response | <i>n</i> | % |
|------------|----------|------|
| Yes | 131 | 63.9 |
| No | 60 | 29.3 |
| Don’t Know | 9 | 4.4 |
| Missing | 5 | 2.4 |

Table 7

Responses to Survey Question “Say whether you think each condition is a type of mental illness.” MAKS items 7-12.

| Prompt | Agree Strongly | Agree Slightly | Neither agree nor disagree | Disagree Slightly | Disagree Strongly | Don’t Know | Missing |
|------------------|----------------|----------------|----------------------------|-------------------|-------------------|------------|---------|
| Depression | 40.5% | 29.3% | 11.7% | 7.8% | 9.3% | 1.5% | 0.0% |
| Stress | 23.4% | 26.3% | 17.6% | 14.1% | 14.1% | 3.4% | 1.0% |
| Schizophrenia | 39.0% | 21.0% | 18.5% | 9.8% | 7.8% | 3.4% | 0.5% |
| Bipolar Disorder | 42.4% | 20.5% | 17.6% | 10.2% | 5.4% | 3.9% | 0.0% |
| Drug Addiction | 27.8% | 32.2% | 15.1% | 13.7% | 8.8% | 2.4% | 0.0% |
| Grief | 14.6% | 24.4% | 26.3% | 15.1% | 14.1% | 3.4% | 2.0% |

Table 8*Intercorrelations for measures of stigma and knowledge.*

| Measure | 1 | 2 | 3 | 4 |
|---------|------|------|------|---|
| 1. MHLS | — | | | |
| 2. CAMI | .46* | — | | |
| 3. RIBS | .27* | .32* | — | |
| 4. MAKS | .20* | .28* | .48* | — |

Note. All coefficients are significant at $p < .01$.**Table 9***Intercorrelations for measures of stigma and knowledge.*

| Measure | 1 | 2 |
|--------------|-------|---|
| 1. Knowledge | — | |
| 2. Stigma | .430* | — |

Note. All coefficients are significant at $p < .01$.

Appendix D

Steps to use the scales

Please follow these steps to use the scales. **Only if you comply with these conditions, you will have permission for their use granted by King's College London.**

1.  Complete our short scale user **registration** questionnaire: <https://www.surveymonkey.com/s/stigmascalesregistration>
2. On completing the survey, you will be provided with a **password** allowing you to access the scales at the links below. Please contact Maria Milenova at maria.milenova@kcl.ac.uk with any technical queries.
3. Please, **do not change** or modify the scales. If you wish to do so in any way, please contact Professor Sir Graham Thornicroft (graham.thornicroft@kcl.ac.uk) to ask for permission only if you intend to carry out any modifications whatsoever.
4. When any measure is used and is cited in **any publication**, the full reference to the key paper describing the scale must be included in the footer.
5. **Do not pass the original or translated scale on to a third party.** Instead please direct them to this website. The only source of all of our stigma scales and their **translations** must be via our website.

Appendix E



Expedited Review – Final Approval

May 20, 2022

Ms. Mackenzie Gammans
Purdue University Global
mackenziegammans@student.purdueglobal.edu

Re: Protocol #22-30 – “The Role of Knowledge as a Mediating Factor of Stigma towards Mental Health: The Impact of Knowledge about Mental Illness and Stigma Levels.”

Dear Ms. Gammans:

Your proposed project was reviewed by the Purdue University Global Institutional Review Board (IRB) for the protection of human subjects under an Expedited Category. It was determined that your project activity meets the expedited criteria as defined by the DHHS Regulations for the Protection of Human Subjects (45 CFR 46), and is in compliance with this institution's Federal Wide Assurance 00010056.

Please notify the IRB immediately of any proposed changes that may affect the expedited status of your project. You should report any unanticipated problems involving risks to human subjects or others to the IRB.

If you have any questions or need additional information, please contact feel free to contact me at spettine@purdueglobal.edu. I wish you well with your project!

Sincerely,

Susan B. Pettine

Susan B. Pettine, Ph.D., CBM
IRB Chair
Purdue University Global

cc: Dr. Gabrielle Blackman