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SUICIDALITY, STIGMA, AND ONLINE HELP-SEEKING

by

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A THESIS

Submitted to the graduate faculty of The University of Alabama at Birmingham,
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2020

SUICIDALITY, STIGMA, AND ONLINE HELP-SEEKING

MERCEDES TARASOVICH

MEDICAL SOCIOLOGY

ABSTRACT

Suicide rates in the U.S. have been climbing for over two decades, driving increased suicide prevention efforts nationwide. The population of those who have experienced suicidality or attempted suicide are estimated to be at least 25 times the suicide death rate and are not as well-researched. Stigma regarding the utilization of mental health care services and a fear of institutionalization may affect help-seeking behaviors for individuals who have experienced suicidality, potentially prompting use of more anonymous online sources of support. In this study, I aimed to research whether suicidality and perceived mental health stigma can lead to increased use of online support systems for people with unmet mental health needs, as well as assessing whether stigma acts to mediate the relationship between suicidality and online help use. Results show that suicidality and perceived stigma, as well as higher levels of psychological distress, are positively associated with online help seeking. Results of mediation analysis suggest that stigma does not act as a mediator for suicidality and online help use.

Keywords: suicide, stigma, mental health, help-seeking behaviors

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INTRODUCTION

The cultural tone regarding suicide and suicidality often runs counter to the need for effective intervention options. Death by suicide occurs at almost two times the rate of death by homicide in the U.S. It is also one of the top 10 causes of death in the U.S., and one of the top three causes among teens and young adults (Centers for Disease Control 2018). For every death by suicide, there are a conservatively estimated 25 uncompleted attempts in which individuals survive (National Institutes of Mental Health 2018). Many of these suicide attempt survivors never seek professional care, often fearing a permanently stigmatized identity (O'Connor et al. 2013); others who do seek professional mental health care may never disclose their experiences with suicidality to their therapist or psychiatric practitioner, for fear of losing autonomy and their control over other roles in their life (Bruffaerts et al. 2011).

Suicide attempts and deaths have been steadily increasing in the US for three decades (National Institutes of Mental Health 2018). For individuals who have experienced suicidality but are hesitant to be labeled as such, online support systems can offer an option when seeking out professional mental health resources may be perceived as a threat to the identities and roles of a "normal life." This study questions whether individuals who have unmet mental health needs may be more likely to seek out online support networks, and if this is more likely for those who have experienced suicidality

and perceived mental illness stigma. Research has shown that online health interventions may show promise in suicide prevention and access to care, as well as facilitating early detection and social support.

Stigma and Mental Health Care

One reason online support may be helpful for those with unmet mental health needs is that it can be perceived as safe from stigma or labeling. The stigmatization of mental health issues is well-established (Corrigan 2004; Goffman 1963; Link et al. 2004; Pescosolido 2013; Townsend, Gearing, and Polyanskaya 2012), as is the persistent stigma associated with suicide and suicidal behaviors (Pescosolido and Mendelsohn 1986; Sheehan et al. 2016; Stack 2000; Timmermans 2005; Wray, Colen, and Pescosolido 2011). The stigma associated with suicide is so deeply rooted that this label often carries on after the death of an individual by suicide to then be applied to those who were close to them, particularly family members (Cerel et al. 2009; Sheehan et al. 2016; Sveen and Walby 2008; Timmermans 2005). Perceptions of suicide in society can lead to avoidance of professional mental health care services for fear of life-altering consequences with family, employment, parental custody, institutionalization, and loss of identity and respect (Corrigan 2004; Link et al. 2004; Luxton, June, and Fairall 2012; Mok, Jorm, and Pirkis 2015).

Discussion and treatment of suicidality are a point of contention, even among experienced mental health care practitioners and suicidality experts. Crisis and suicide hotlines are common tools for suicide prevention, but specific (and effective) resources

for suicide attempt survivor aftercare are far less common. As an example, suicidology.org, the website of the American Association of Suicidology [AAS], has 617 available listings for suicide survivor support groups across the U.S. for the bereaved survivors of suicide deaths. The association currently links to a mere seven recommended groups dedicated to support for suicide attempt survivors, those who have attempted suicide who have survived (American Association of Suicidology 2019). The AAS only added a membership division for suicide attempt survivors, referred to as “lived experience members,” in 2014. Some current AAS board members, representing a membership predominantly composed of psychology and psychiatry professionals, still heatedly debate the influence of suicide stigma as an informal mechanism that may actually *prevent* future suicide attempts by its very nature: a philosophical and cultural “barrier” against an unwanted and unwelcome act within our culture.

The fear of encouraging more suicide by decreasing stigma related to the act seems ill-conceived, however. Destigmatization does not equate to trivialization or glorification of suicide, and a reduction in stigma can potentially improve access to mental health care, increase help-seeking behaviors, and aid in suicide prevention. Suicide literacy and a reduction of suicide stigma are correlated with better mental health outcomes (Batterham, Calear, and Christensen 2013). Suicide stigma has been shown to be stronger than mental illness stigma and can lead to a fear of seeking help for suicidality (Reynders et al. 2015; Sheehan, Dubke, and Corrigan 2017; Sudak, Maxim, and Carpenter 2008). Qualitative research has indicated that reducing suicide stigma can increase help-seeking behaviors and effectiveness of treatment, as well as encouraging contact with lay networks within social groups (Eagles et al. 2003). Conversely, limited

research has shown that increased literacy on mental health and suicidality can lead to an increase in social network support but reduced advocacy for seeking out professional mental health care (Cruwys et al. 2018). Suicide and suicide stigma are far from straightforward, and more research is needed to untangle the complexities of how and why people choose to seek or avoid professional and social support due to stigma.

Online Support and Mental Health

Computer-mediated communication with others in online groups may offer support not readily available in face-to-face social interactions, depending on the individual and their available social ties. This is an avenue that is now beginning to be more thoroughly explored (Adler and Adler 2015; Christensen, Batterham, and O’Dea 2014; Fu et al. 2013; Luxton, June, and Fairall 2012; Mok, Jorm, and Pirkis 2015; Townsend et al. 2012). For other stigmatized conditions, such as eating disorders, online spaces can provide help and support, but can also exacerbate existing conditions by encouraging anorexia or bulimia as a “lifestyle choice” in online forums (Adler and Adler 2015). Suicide can also act as a “contagion” in online spaces, with suicide rates spiking in the wake of a suicide death (Fu et al. 2013; Mok et al. 2015). Much of the existing literature points to a need for more analysis to gain understanding of the experiences of those individuals navigating social interactions, discrimination, and stigma in the wake of attempted suicide (Luxton et al. 2012; Mok et al. 2015; Scocco et al. 2012, 2017). With increasing access to online support options in recent years, more specific research is

needed to target how people seek help for suicidality and experiences with suicide attempts, from both social networks and professional care sources.

While disclosure of suicidality may be avoided in everyday interactions and presentation of self, an individual may be more likely to disclose suicidality in their online presence, where online “safe spaces” and a protective feeling of anonymity allow for more full disclosure (Adler and Adler 2015; Christensen et al. 2014; Fu et al. 2013; Mok et al. 2015). Without the potential threat of institutionalization, identity threat, risk of stereotyped mental illness, and a mental illness “sick role,” online spaces may offer support options that hold greater appeal than traditional mental health treatment (Perry and Pescosolido 2012).

Alternately, discourse on suicide within some online communities, including social media, may pose issues that increase suicide rates. Cyberbullying, cyberstalking, and cyberharassment play some part in this, as can online pro-suicide groups, in addition to the online version of a suicide contagion effect that can play a part in “real life” experiences with suicidality (Adler and Adler 2015; Luxton et al. 2012; Mok et al. 2015; Pirkis, Mok, and Robinson 2017). The latter also relates to the suicide contagion that is feared when media accounts of celebrity suicide may cause an increase in suicide attempts (Niederkrötenhaler et al. 2012). Viewing these social and mainstream media accounts may effectively “plant the seed of thought” in an individual that may otherwise not have previously considered a suicidal act. Further research into the specific associations that may occur online with suicidality and perceived suicide/mental illness stigma are warranted, both in terms of available support networks as well as individual help-seeking behaviors.

THEORETICAL FRAMEWORK

Stigma and Suicide

Stigma has been defined as “...the co-occurrence of labeling, stereotyping, separation, status loss, and discrimination in a context in which power is exercised” (Hatzenbuehler, Phelan, and Link 2013:813). Stigma regarding mental illness has been well established in prior research. It can negatively affect self-perception and perceived social appraisals, compromising an individual’s sense of mastery over life circumstances (Wright, Gronfein, and Owens 2000). It has been shown to directly affect self-esteem, leading to feeling devalued and discriminated against, ultimately affecting recovery progress when individuals utilize “stigma withdrawal” as a protective measure to avoid discrimination and devaluation (Link et al. 2001). In the case of suicidality and attempted suicide, stigma may be permanently applied once a person is labeled as a potential harm to themselves. This stigma can have long reaching effects over the life course, as suicide, despite more awareness, prevention, and support campaigns, is still a cultural taboo for many, including those in the mental health field.

This perceived stigma and fear of disclosure can alter traditional models of help-seeking behavior, as the biographical disruption that is part of the illness career for other health issues may be something individuals seek to avoid for fear of loss of autonomy or a change in how they are treated within the healthcare system. It may lead to seeking out

online non-professional networks in lieu of in-person professional mental health treatment and counseling. In previous research on the factors that may affect online help seeking, the focus was often on mental illness in general. While related, suicide stigma can be very different from many perceptions or prejudgments about mental illnesses, as each mental health issue can carry a different level of acceptance in current culture.

Townsend et al (2012) focused on mental illness and seeking out online support, using an earlier wave of NSDUH data [2008] than proposed for this study. Results showed several predictors for increased use of internet mental health support group use, including fear of being hospitalized or taking medication, inadequate insurance coverage, and younger age. The authors concluded that among other factors, fear of coercion from both legal (courts, police) and extra-legal sources (family, co-workers, friends) was a major predictor for increased use of online support (Townsend et al. 2012). This points to perceived stigma and fear of the loss of autonomy and agency as potential predictors for increased use of similar online support systems among those experiencing suicidality.

In research into “first timers” in mental health treatment, Pescosolido (1998) also shows that almost a quarter of respondents (22.9%) reported coercion as a major factor in individuals’ first contact with the mental health system, and 31.2% recounted “muddling through,” with no clear agency in seeking help, often describing some elements of coercion which affected their illness trajectory. Active resistance to seeking mental health care was the criteria for inclusion in Pescosolido’s assessment of accounts of coercion. Taken with Townsend’s results, this shows that common fears about the mental health care system and its potential effects as a life and identity disruption could lead to avoidance of in-person care. This may result in increased likelihood of help-seeking

online. In the case of highly stigmatized mental illnesses and suicidality, this could potentially have a greater effect.

In the case of suicidality, similar measures to Link et al's (2001) 12-item Perceived Devaluation-Discrimination instrument have been utilized to assess both Stigma of Suicide Attempt (STOSA) and the Stigma of Suicide and Suicide Survivors (STOSASS), the former assessing stigma applied to those who have attempted suicide and survived the attempt, the latter to the stigma applied to death by suicide experienced by the bereaved after an event (Scocco et al. 2012). By using Link et al's (2001) survey technique of asking what "most people" would think about certain scenarios applying to suicide stigma, Scocco et al (2012) attempted to capture a better representation of "below the surface" stigma in regard to suicidality. This can affect how suicidal individuals anticipate responses from not only close ties, but from health care professionals.

Stigma as a Fundamental Cause

In the case of suicide, potentially more so than the previously established work on mental health, stigma may act as a significant barrier to health care, in the form of a fundamental cause (Corrigan 2004; Hatzenbuehler, Phelan, and Link 2013). Stigma, in the case of mental illness and suicidality, can act to label, stereotype, separate, cause status loss, and further discrimination once a stigmatized condition is known (Hatzenbuehler et al. 2013). While concealable in many situations across time and place, once an individual seeks help or enters into treatment within the mental health system, or discloses suicidality to others in their social network, a stigmatizing label is often affixed

that can lead to alterations in health outcomes, social connections, self-esteem, and identity. Better understanding of how these stigmas can act as a mechanism which interferes specifically with suicide prevention and aftercare could have a significant effect on mortality and morbidity outcomes.

Individuals may avoid professional mental health treatment for fear of institutionalization (loss of autonomy), loss of salient roles or identities, loss of employment, and other major life disruptions, based on perceived suicide stigma (Pescosolido, Gardner, and Lubell 1998). In the gap left by this avoidance of professional care, online lay networks can often take the place to provide a perceived “safe space” to gain information, support, and alternative treatment (Christensen, Batterham, and O’Dea 2014; Fu et al. 2013). More research is needed to begin to understand how and why individuals may choose to access these spaces, as well as their outcomes after accessing these spaces. There is a significant gap in existing literature regarding suicide attempt survivors, and these newer online means of help-seeking are even less understood. This area of study will continue to be pertinent to suicide prevention and treatment as technology rapidly evolves and new spaces, apps, and social norms emerge online. Relevant to the current study, suicide stigma has shown to be a particularly stubborn cultural artifact in the era of mental illness destigmatization and may lead to decreased in person help-seeking (Schwenk, Davis, and Wimsatt 2010) and an increased use of online networks for social support.

Social Organization Strategy

In many social networks, individuals rely on social interactions to make healthcare decisions, utilizing the network ties to gain access and information. Pescosolido's social organization strategy (SOS) framework offers a suitable framework for how lay networks, particularly online networks, may offer options to those who do not seek out, or have limited access to, traditional professional mental health care (Pescosolido 1992). She states, "social interaction is the basis of social life, and social networks provide the mechanism (interaction) through which individuals learn about, come to understand, and attempt to handle difficulties. This approach shifts the focus from individual "choice" to socially constructed patterns of decisions, *including consultation with others.*" [emphasis added](Pescosolido 1992:1096). In the case of online help, lay networks may be the only mental health support accessed by many suicidal individuals, particularly if they are hesitant to disclose suicidality to those around them "in real life."

Further, within the SOS framework, most illnesses cause a biographical disruption that is then perceived as a potential threat to the stability and connectedness of the social network. This biographical disruption is handled by activation of support for both existing and new social ties for most mental and physical illnesses. In the case of suicide attempt or suicidality, the fear of loss of autonomy, institutionalization, and a potentially permanently stigmatizing label can lead many to stay silent to avoid biographical disruption and activation of the social network. A framework that would normally offer protection and support in a time of crisis may be seen as a potential threat to an

individual's role identity and place in the status hierarchy, as the stigma surrounding suicide can cause a permanent status loss.

While suicide rates in the U.S. are climbing and CDC estimates show that a large part of the population has survived a suicide attempt (Centers for Disease Control 2018), research on any help-seeking and aftercare for attempted suicide is sparse. Research on how online spaces may affect suicide attempt survivors is a new area of study. Existing literature has not addressed the potential relationship between suicidality, stigma, and online help.

In this study, I questioned whether it is more likely for those who have an unmet need for professional mental health treatment to seek out online support systems, particularly those with a history of suicidality. Suicidality, due to its highly stigmatized status in society and within mental illness discussions, may be likely to increase online help seeking. Stigma may be a factor in the decision to avoid traditional treatment, whereas the perceived anonymity of online spaces may provide a "safe space" for social support, either through online counseling or lay support groups.

METHODS

Study Design and Data

Source data is from the 2014 National Survey on Drug Use and Health (Substance Abuse and Mental Health Services Administration 2014), conducted by the Substance Abuse and Mental Health Services Administration [SAMHSA]. This survey is not specifically focused on mental health measures, but rather on collection of substance use data. It has several specific survey questions about suicide-related mental health, use of formal mental health services, use of online groups, and a question that allows for measurement of perceived stigma related to mental health care. A similar study by Townsend et al (2012) used an older wave of data [2008] to measure online group use for more generalized mental health issues.

The NSDUH 2014 wave of data was collected using a representative national survey sample, using a combined approach of US geographical representation and census tract recruitment. The interviews were carried out using computer-assisted interviewing (CAI) methods. The survey uses a combination of computer-assisted personal interviewing (CAPI) conducted by an interviewer and audio computer-assisted self-interviewing (ACASI). The target population for the 2014 survey was the same as has been defined since the 1991 survey: civilian, noninstitutionalized population of the United States (including civilians living on military bases) who were 12 years of age or older at the time of the survey. The survey sample has employed a 50-state design with

an independent, multistage area probability sample for each of the 50 states and the District of Columbia. While newer waves of data might better represent newer online access options for support networks, the 2014 dataset is the most recent publicly available wave and is available through ICPSR [Inter-university Consortium for Political and Social Research, University of Michigan]. While the data collection on some mental health variables in older waves of NSDUH, which used the 2008 survey design, were considered to possibly overestimate suicidality responses, the 2014 survey uses the more well-regarded 2012 survey sampling design (Substance Abuse and Mental Health Services Administration 2018).

Measures

Mental health related and demographic control variables have been selected from the NSDUH 2014 codebook. All non-response data and missing responses have been removed by listwise deletion. While the initial sample is $n=55,271$, only a small subset of respondents were asked whether they sought help online. They were first asked if they had unmet mental health care needs with the question: “During the past 12 months, was there any time when you needed mental health treatment or counseling for yourself but didn’t get it?” If the respondent indicated that they had an unmet health care need, they were asked if they sought help online. After accounting for those who were asked whether they sought online health and had valid answers on all the other variables, the final sample size is $n=3,996$. All responses from participants ages 12-17 have been removed, to only include an adult sample of age 18+, as suicide rates between youth and

adults vary (Centers for Disease Control 2018) and youth were not asked questions concerning stigma.

Dependent variable: seeks online help

Online help (olhelp) is recoded from a question that follows the AUUNRIM2 variable about unmet need for mental health services. The AUALTYR variable asks if the respondent has sought out a non-traditional method of treatment in lieu of traditional mental health care. This is followed by AUALINET, which asks respondents if they received alternative mental health treatment from an online support or chat room in the past 12 months. This variable creates the most significant drop in sample size for this study during recoding, as this group represents a distinct sub-set of both mental health treatment needs questions and a question about one specific type of alternative treatment, bringing the sample size to n=3,999. Once all missing data is addressed, total sample size is n=3,996. The resulting sample represents individuals who had a perceived unmet need for mental health treatment in the previous 12 months, who had responded to a follow-up question about online help use.

Main Independent Variable: Suicidality

To represent suicidality as the main independent variable, five suicide-related variables have been condensed and recoded as the variable “suicide”: MHSUTK_U and MHSUITHK, which represent “serious thoughts of killing self in past year;”

MHSUIPLN, which represents “made plans to kill self in past year;” MHSUITRY, which represents “attempted to kill self in past year,” and AD_MDEA9, which represents “any thoughts or plans of suicide.” The resulting variable (suicide) is recoded to a binary yes/no response, coded as “yes” for individuals who had any of these experiences of suicidality, whether this is suicidal thought, plan, or action.

- *H1a: Individuals who have unmet mental health needs and experienced suicidality will be more likely to seek out online help.*

Independent and Mediator Variable: Stigma

Stigma is an additional independent variable and also serves as the mediator variable. The AUUNRIM2 and five related variables regarding reasons for unmet mental health care needs variable have been used to construct the “stigma” variable. Leading up to the variable questions, the responses to AUOPTYR, asking if the respondent had received any outpatient mental health treatment in the previous 12 months, dropped the sample size to 41,568, including “don’t know” or logically assigned responses. The resulting sub-sample was then asked if they had a perceived need for mental health treatment or counseling in the previous 12 months, in variable AUUNMTYR. Related variables are follow-up questions to AUUNMTYR.

Responses to the question, “Which of these statements explain why you did not get the mental health treatment or counseling you needed?,” include several which indicate stigma, such as “didn’t want others to find out,” and “concern about effect on job.” A follow-up question, AUUNRIM2, asks respondents to indicate the *most* important reason they did not get mental health treatment or counseling. Out of 37 possible

responses, eight indicate stigma (See Appendix A for full list of responses to AUUNRIM2 and related variables). These responses were recoded with the stigma-based responses from the previous question as a binary variable indicating a yes/no response to stigma.

- *H1b: Individuals who have unmet mental health needs and experienced stigma will be more likely to seek out online help.*
- *H2: Stigma will mediate the association between suicidality and online help seeking for people with unmet mental health needs.*

Stigma is a potential mediator for the relationship between suicidality (suicide) and seeking out online help (olhelp) because suicidality may increase the likelihood of perceived stigma. This relationship between suicidality and stigma may then have a positive association with online help seeking due to unmet mental health care need. If so, the relationship between suicidality and stigma would affect the dependent variable measure of seeking online help.

Control Variables

Control variables include demographic controls, such as age, race, and gender, as well as psychological distress. Psychological distress, represented as “psychstress” is collected using a standard K6 multi-item survey question series which assesses distress responses in the previous month, then totaled to show overall distress level, ranging from 0-24. Resulting responses are treated as a continuous variable. Psychological distress was

used as a control variable to avoid collinearity with suicidality within regression models, as high levels of psychological stress can be concurrent with other factors in mental health measures. Age is included as a control and is measured using five age categories. Categorical age is used due to the fact that continuous age is not provided as a variable by NSDUH 2014. Additional control variables are included for gender (IRSEX, female), race (NEWRACE2, race), education (EDUCCAT2, educ), and family income (IRFAMINC3, inc). See Appendix A for full variable responses.

Analysis

Using online help (olhelp) as the dependent variable, logistic regressions were run in Stata 12.0 to create two models with which to compare the independent variables of suicidality and stigma. All models control for gender, age, race, psychological stress, education level, and family income to represent socioeconomic status.

T-tests and Chi Square tests were run to assess variance within sub-sample groups for each variable. Regression models were run as logistic regressions with olhelp as the dependent variable, to assess if online help seeking is associated with suicidality (suicide) and perceived mental health care stigma (stigma) (Fig. 1a and 1b). These logistic regression results are presented as adjusted odds ratios. A bootstrapping analysis to test the mediation effect of stigma on suicidality and online help was conducted to test Hypothesis 2 (Figure 2). This mediation test allows for non-linear models and multiple covariates.

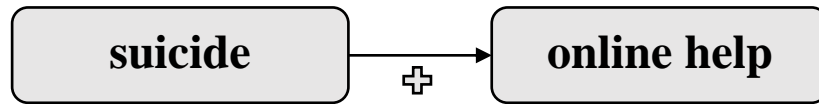


Figure 1a: Model 1



Figure 1b: Model 2

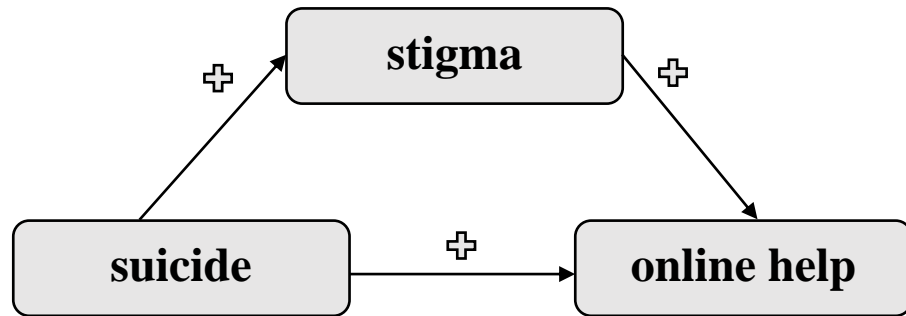


Figure 2: Model 3, Mediation Test

RESULTS

Descriptive Statistics

Descriptive statistics for the full sample are presented in Table 1. 4.45% of the sample sought online help when they had not received mental health treatment or counseling in the previous 12 months. Within the sample, 26.65% had experienced some form of suicidal ideation, planning, or attempt in the previous two months, and 5.56% gave a stigma-related response to the question, “*Which of these statements explains why you did not get the mental health treatment or counseling you needed?*” The mean score for the psychological stress control variable is 6.2 (S.D. 4.95) with a range of 0-24. Descriptive results show that the sample was majority female (68.14%) and white (74.37%). As the raw age scores were not available in this dataset, mean age is not precise, modal age is 3.46 (age 26-34). Mean family income level is 4.98, which places this high in the \$40,000-\$49,000 category. The majority of the sample have attended or graduated college (72.45% combined).

Table 1: Descriptive Statistics by Percentage or Mean (n=3,996)

	Sample Percentage			Sample Percentage		Mean	S.D.	Min	Max
Online Help			Female	2723	68.14%				
Yes	178	4.45%							
No	3818	95.55%	Age (ref=18-25)	1053	26.35%				
			26-34	917	22.95%				
Suicide			35-49	1330	33.28%				
Yes	1065	26.65%	50-64	503	12.59%				
No	2931	73.35%	65+	193	4.83%				
Stigma			Education (ref=<12 year	303	7.58%				
Yes	222	5.56%	12 years/HS	798	19.97%				
No	3774	94.44%	Some College	1287	32.21%				
			College	1608	40.24%				
Race (ref=White)	2972	74.37%							
Black	263	6.58%							
Hispanic	451	11.29%	Psych Stress	6.2	4.95	0	24		
Other	310	7.76%	Family Income	4.98	2.1	1 (<\$10K)	7 (\$75K+)		

T-tests and Chi Square Tests

Bivariate tests were conducted to assess the significance of variances in the olhelp outcome within each variable and are shown in Table 2. Chi squared tests showed significance for the main independent variable suicide ($P_{chi^2}=99.65$, $p<0.0001$), as well as the independent variable stigma ($P_{chi^2}=65.15$, $p<0.0001$). Gender (female) approached significance ($P_{chi^2}=3.71$, $p<0.054$), but did not reach threshold. T-testing showed significance for the categorical age control variable (online use mean= 3.27, online non-use mean= 3.47, $t=2.34$, $p<0.02$). The psychological stress control variable reached significance in t-test (online use mean=6.06, online non-use mean=9.38, $t=-8.84$, $p<0.00001$).

Table 2. Percentages and Means of Analytic Variables by Seeking Online Help

	Sought Online Help		p-value ¹
	Yes (n=178)	No (n=3,818)	
Suicide (%)			
Yes	58.99	25.14	
No	41.01	74.86	p<0.0001
Stigma (%)			
Yes	19.10	4.92	
No	80.90	95.08	p<0.0001
Female (%)			
Yes	67.86	25.28	
No	32.14	74.72	p<0.054
Race (%)			
White	72.47	74.46	
Black	6.18	6.60	
Hispanic	12.36	11.24	
Other	8.99	7.70	p<0.444
Age (%)			
18-25	31.46	26.11	
26-34	25.84	22.81	
35-49	30.90	33.40	
50-64	7.87	12.80	
65+	3.93	4.87	p<0.02
Education (%)			
<12 years	7.30	7.60	
12 years/HS	11.24	20.38	
Some College	40.45	31.82	
College	41.00	40.20	p<0.148
Psychological Stress (mean)	6.06	9.38	p<0.00001
Family Income (mean)	4.78	4.99	p<0.182

¹ p-value indicates significant tests between those who did and did not seek help

Table 3: Logistic Regression Results for Online Help, Adjusted Odds Ratios (n=3,996)

	Model 1		Model 2	
	OR	S.E.	OR	S.E.
Suicide	3.01	0.54 ***	2.85	0.52 ***
<i>Psych Stress</i>	1.08	0.02 ***	1.07	0.02 ***
<i>Female</i>	1.35	0.25	1.34	0.24
<i>Race (ref=White)</i>				
<i>Black</i>	0.86	0.29	0.82	0.27
<i>Hispanic</i>	1.22	0.30	1.30	0.32
<i>Other</i>	1.07	0.30	1.10	0.31
<i>Education (ref=<12 years)</i>				
<i>12 years/HS</i>	0.66	0.25	0.68	0.26
<i>Some College</i>	1.53	0.50	1.63	0.53
<i>College</i>	1.57	0.53	1.62	0.56
<i>Family Income</i>	1.02	0.04	1.02	0.04
<i>Age (ref=18-25)</i>				
<i>26-34</i>	1.10	0.24	1.15	0.25
<i>35-49</i>	0.90	0.19	0.97	0.20
<i>50-64</i>	0.62	0.19	0.70	0.22
<i>65+</i>	1.06	0.45	1.14	0.48
Stigma			2.24	0.51 ***
_cons	0.01	0.00	0.01	0.00
AIC	1355.90		1346.50	
BIC	1450.30		1447.20	

***p<.0001. Control variables are *italicized*.

Logistic Regression: Online Help

Table 3 presents findings from the nested OLS regression and tests hypotheses 1a and 1b. Model 1 predicates online help as a function of suicidality and controls. I find

that suicidality (*suicide*) is positively associated with online help-seeking behavior, independent of psychological distress (psychstress) and all other controls. Among those who did not receive in-person mental health treatment or counseling in the previous 12 months, those who have experienced suicidality were about 3 times more likely to seek out online help (OR: 3.01, $p < 0.0001$), net of all control variables. Of the control variables, only psychological stress is associated with increased use of online help. For each one-point increase on the 0-24 psychological stress scale, results show that it is 1.08 times more likely that this sub-sample would seek out online help ($p < 0.0001$), net of all other variables.

Model 2 adds stigma associated with mental health treatment and tests hypothesis 1b. Results show that stigma is significantly associated with seeking online help, independent of other variables. Those that feared stigma were 2.24 times more likely to seek out online help ($p < 0.0001$), net of all other variables. Additionally, suicidality remained significant in model 2 though I do find slight attenuation. Individuals who have experienced suicidality were 2.85 times more likely to seek out online help ($p < 0.0001$), net of all other variables. While this is suggestive of mediation, formal mediation tests are used below to examine whether the indirect path between suicide and online help through stigma is significant. Of the controls, psychological stress remained significant, with a predicted increase of being 1.07 times more likely to seek online help for every 1-point increase on the psychological stress scale ($p < 0.0001$). No other control variables showed significance. Model 2 shows support for Hypothesis 1b, stigma and suicidality are independent predictors of online help. I examined the Bayesian Information Criteria (BIC) to compare model fit between Models 1 and 2, where lower BIC indicates better

model fit. In model 1 the BIC is 1450.3 and in model 2 the BIC is 1447.2. This indicates a drop in BIC by 3.1. According to DeMaris (2008), this indicates a moderately better model fit for model 2 (2004).

Mediation Testing

To test for the mediation effect in Hypothesis 2, inverse odds weighting was estimated in Stata using bootstrapping. IORW allows testing for mediation in non-linear models that use multiple covariates. It does this by predicting the probability of treatment variable (suicidality) as a function of the covariates (i.e. controls). This predicted probability was then used to create an inverse odds ratio weight and weight those individuals who were suicidal by the inverse odds ratio created by generating inverse odds of $(1 - \text{predicted probability}) / \text{predicted probability}$. Inverse weighted odds ratios were dummy coded for weighted IOW if suicide=0 and inverse odds if suicide=1.

There are three logistic models predicting suicide, one predicting olhelp as a function of suicide and control variables but not stigma, and one that predicts olhelp as a function of suicide and controls, but weights the suicidal individuals by the first regression. The indirect coefficient is 0.025 with a standard error of 0.100 and $p=0.801$. This indicates that stigma does not statistically significantly mediate the relationship between suicide and online help. Additionally, both suicide and stigma remain significant predictors of ohelp net of controls (see table 3 model 2), indicating that suicide and stigma are both *independent* predictors of seeking olhelp. Thus, hypothesis 1b is supported and hypothesis 2 is rejected.

DISCUSSION

Suicide is the tenth leading cause of death in the U.S. for all age groups, and the second leading cause of death for ages 15-34 (Centers for Disease Control 2018). While these rates are sobering, the estimated rate of attempted suicides in the U.S. is 25 attempts for every death by suicide (Centers for Disease Control 2018). This does not take into account other experiences with suicidality, such as suicidal thoughts or planning. The resulting population of those who have experienced suicidality is large and not easily estimated from existing data. This study aimed to assess whether individuals with unmet mental health needs may be more likely to seek help online, especially if they had experienced suicidality or perceived mental health stigma. Online support groups can act as a “safe space” where fears of stigmatization and labeling can be allayed.

This study found that there was a strong positive association with suicidality and likelihood of online help use for those who did not utilize mental health treatment or counseling. Stigma also increased the likelihood of seeking online support. Stigma did not act as a statistically significant mediator on suicidality in seeking online help for this sample. Suicidality and stigma, both acting independently, increased the likelihood of seeking online help. Psychological distress, used as a control variable, was a significant factor in both models, with higher rates of psychological distress increasing the likelihood of using online help. While the mean for the non-use group was 6.06, the mean for the online help use group was significantly larger, at 9.38. Both fall in the moderate

psychological distress category for the K6 measure (6-10 on a scale of 0-24) (Forman-Hoffman et al. 2014).

Surprisingly, gender showed no significance toward online help seeking in this population. This may be a result of the relatively small subsample who indicated online help use (n=178). While the resulting subsample was approximately two thirds female, all models controlled for gender. Likewise, age did not show a significant effect on online help use as might have been expected from previous research (Townsend et al. 2012). This may be due to the exclusion of those under the age of 18, who have higher overall rates of suicidality (Centers for Disease Control 2018). Future research should examine how gender and age may differentially affect individuals' use of online supports, as women are often more likely to seek out in-person help for mental health and illness, but little is known about use of online support for mental health care (Calear, Batterham, and Christensen 2014).

Perceived mental health care stigma, as used in this study, indicates that stigma may have acted as a fundamental cause of differences in mental health care for this population (Hatzenbuehler et al. 2013; Link et al. 2001). Stigma was constructed as a variable using indicators of common perceptions of stigmatizing attitudes from others (concern for effect on job, concern about what the neighbors would think) as well as fear of biographical disruption due to entrance into the mental health care system (fear of hospitalization/taking medication). While this is a novel construction of stigma as a variable from cross-sectional data, future research may also include established scales for suicide stigma measurement. The use of this stigma measure supports the theory that stigma, fear of labeling, and fear of decreased social status can alter health outcomes.

Better understanding of these fears and the subsequent altered pathways to or away from common forms of mental health support could improve attempts at suicide prevention and aftercare for those who have experienced suicidality.

Social networks, in the form of online lay communities, do seem to provide some support for those who may be wary of seeking out help from traditional mental health care sources due to stigma. For those who had unmet mental health care needs due to perceived stigma, likelihood of seeking out online help increased. Likewise, for those who experienced suicidality, odds of using online help also increased. More research is needed to assess the pathways that may be affected specifically for those who have experienced suicidality. Pescosolido's Social Organization Strategy, when taken in tandem with stigma as a fundamental cause, opens up a line of inquiry that suggests that rather than activating social networks to respond to a health crisis, perceived stigma could, in the case of suicidality, act to carve a path away from in-person networks and toward online support networks (Pescosolido et al. 1998).

While this study served as an exploratory study on the topic of suicidality and online help use, many other facets of online help and measurement of these populations need to be addressed. First, while online help is an option for help-seeking, its benefits or potentially harmful effects are difficult to determine without wider research. As lay networks may not be documented or easily measured in their effects, this may be a better setting for qualitative research on the content, network patterns, and perceived benefits among internet groups. Internet culture can be broadly varied in in-group lingo, habits, and mores, so to show effectiveness, understanding of the context would be critical. While this study assessed use of online research, outcomes of using online help were not

available, and not all lay networks may provide the best fit or care for all help-seekers online, as they are informal, untested, and untrained. In addition, unlike face to face communication with mental health care providers, online communication can often be asynchronous, which could alter the potential effectiveness of any attempts at suicide intervention or aftercare.

Second, while this study focused on a broad definition of “online help,” which at the time of the data collection would more likely be lay support networks, newer smartphone apps now offer certified and licensed therapists for online support. These apps are recent arrivals in the field of online support, and warrant further investigation into accessibility, perceptions of safety for users, commonality of use, and treatment outcomes. Comparison of these “therapist in your pocket” apps versus traditional therapy would provide important data for future research. It is still unknown whether these have a beneficial effect specifically on those who have experienced suicidality, and what perceptions this population may have toward a traditional therapy model which uses a more up-to-date technology.

Third, fear of loss or autonomy from mental health treatment, related to suicide stigma, is common, but not well studied. While this study used a data set which offered a view of how these factors may lead to patterns of unmet need or online help-seeking, this area of study is new and would likely benefit from more qualitative research to assess common attitudes, perceptions, and experiences of navigating help-seeking for those experiencing suicidality. More quantitative work would also benefit future research. While sample size provided sufficient power for the analyses presented here, future research with more detailed data collection is needed to explore this question in greater

depth. The stigma measure relied on some questions related to mental health treatment and counseling which combined responses across several items, such as the combination of “fear of hospitalization/taking medication,” so some finer detail may have been lost.

Limitations

In addition to these items, other limitations were present. Cross-sectional data was used, limiting any analysis of directionality. A validated measure of stigma around suicide was not available in this dataset, so a composite of stigma-related responses was created to estimate stigma. Intersectionality regarding multiple mechanisms of stigma for those experiencing suicidality was beyond the scope of the dataset used, but could be explored further in future research, particularly in qualitative works. Qualitative methods are likely to bring a better understanding of the complexities of intersecting stigmas. Cost of mental health care and insurance, related to unmet needs, was not addressed here as it was outside of the research focus for this study. As previously mentioned, age may be a factor in help-seeking online, due to the varying rates of vulnerability to suicidality of different age groups, as well as differences in use of online spaces among younger or older groups. This would require more specifically tailored and expanded data collection than currently available.

Future Research Directions

Future research on suicidality, stigma, and online help-seeking would benefit from more detailed and specific data collection with a focus on those who have experienced suicidality. This population is under-studied, and is exponentially larger than the already substantial population who die from suicide each year (Centers for Disease Control 2018). Since many of these individuals never enter the traditional mental health care system, how they may navigate care in the wake of their experiences with suicidal thoughts, plans, and actions are still not entirely clear. Better understanding how suicidality can affect health care decisions about treatment, disclosure to social networks, and fear of stigma are crucial to shaping population health through suicide prevention efforts.

Implications for Practice and Policy

More understanding of how stigma may affect help-seeking or avoidance for those who have experienced suicidality. With better understandings of how stigma may act as a barrier to help-seeking, policies and interventions may be better shaped to encourage treatment and counseling. Lived experience, that of individuals who have experienced suicidality or survived a suicide attempt, could be utilized to shape intervention measures and to promote peer-to-peer advocacy for others with similar experience, aiding their entry into mental health treatment and counseling. Computer-mediated outreach programs and interventions could be tailored to better suit this population with more detailed understanding of the mechanisms of stigma and barriers to traditional mental health treatments.

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APPENDIX A

NSDUH 2014 ABRIDGED CODEBOOK

NSDUH 2014 Abridged Codebook

Response categories and frequencies listed from NSDUH 2014 codebook. All abbreviations are directly from source. (n=55,271)

(Response category) # of responses

No MH Help (nohelp): *establishes subsample with unmet mental health care need*
AUUNMTYR precedes the questions for online help and stigma.

During the past 12 months, was there any time when you needed mental health treatment or counseling for yourself but didn't get it?

AUUNMTYR: needed mh trmt but didn't get it past 12 mos

1 = Yes	2652
2 = No	38840
85 = BAD DATA Logically assigned.....	4
94 = DON'T KNOW	73
97 = REFUSED	89
98 = BLANK (NO ANSWER)	13
99 = LEGITIMATE SKIP	13600

DEPENDENT VARIABLE

Online help variable is taken from a follow-up to the AAUNRIM2 question: AUALINET variable, renamed to "**olhelp**".

Earlier, we asked whether you have received prescription medicines, inpatient treatment or outpatient treatment for your emotions, nerves, or mental health. The list below contains possible sources of treatment, counseling, or support that were not mentioned before.

- *Acupuncturist or acupressurist*
- *Chiropractor*
- *Herbalist*
- *In-person support group or self-help group*
- **Internet support group or chat room**
- *Spiritual or religious advisor, such as a pastor, priest, rabbi*
- *Telephone hotline*
- *Massage therapist*

Did you receive treatment, counseling, or support from any other sources such as these during the past 12 months?

AUALINET: rcvd alt mh tmt from internet group pst 12 mos

1 = Response entered	180
3 = Response entered LOGICALLY ASSIGNED.....	2
6 = Response not entered	3824
94 = DON'T KNOW	15
97 = REFUSED	110
98 = BLANK (NO ANSWER)	105
99 = LEGITIMATE SKIP	51035

MAIN INDEPENDENT VARIABLE

Suicide: Have you experienced suicidal thoughts, planning, or actions within the last 12 months?

MHSUTK_U: serious tght abt kill slf py - 'unkn' imp as 'no'

. = Aged 12-17 (AGE2<7)	13600
0 = No/Unknown (AGE2>=7 and MHSUITHK=.,0).....	39582
1 = Yes (AGE2>=7 and MHSUITHK=1)	2089

MHSUITHK: seriously thought about killing self in past year

. = Aged 12-17/Unknown (Otherwise)	13822
0 = No (SUICTHNK=2)	39360
1 = Yes (SUICTHNK=1).....	2089

MHSUIPLN: made plans to kill self in past year

. = Aged 12-17/Unknown (Otherwise)	13823
0 = No (SUICPLAN=2 or MHSUITHK=0)	40827
1 = Yes (SUICPLAN=1).....	621

MHSUITRY: attempted to kill self in past year

. = Aged 12-17/Unknown (Otherwise)	13825
0 = No (SUICTRY=2 or MHSUITHK=0).....	41144
1 = Yes (SUICTRY=1).....	302

AD_MDEA9: any thoughts or plans of suicide

1 = Has symptom	4132
2 = Does not have symptom	2378
94 = DON'T KNOW	10
97 = REFUSED	15
98 = OTHER MISSING/NOT APPLICABLE.....	35136
99 = LEGITIMATE SKIP	13600

INDEPENDENT AND MEDIATOR VARIABLE

Stigma

Which of these statements explain why you did not get the mental health treatment or counseling you needed?

AUUNNBR: no mh tmt concern about opin of neighbors

1 = Response entered	298
3 = Response entered LOGICALLY ASSIGNED.....	1
6 = Response not entered	2319
94 = DON'T KNOW	20
97 = REFUSED	101
98 = BLANK (NO ANSWER)	92
99 = LEGITIMATE SKIP	52440

AUUNJOB: mh tmt concern about effect on job

1 = Response entered	210
3 = Response entered LOGICALLY ASSIGN.....	4
6 = Response not entered	2404
94 = DON'T KNOW	20
97 = REFUSED	101
98 = BLANK (NO ANSWER)	92
99 = LEGITIMATE SKIP	52440

AUUNCFID: no mh tmt concern about confidentiality

1 = Response entered	218
3 = Response entered LOGICALLY ASSIGN.....	3
6 = Response not entered	2397
94 = DON'T KNOW	20
97 = REFUSED	101
98 = BLANK (NO ANSWER)	92
99 = LEGITIMATE SKIP	52440

AUUNCMIT: no mh tmt might be committed/take meds

1 = Response entered	311
3 = Response entered LOGICALLY ASSIGN.....	8
6 = Response not entered	2299
94 = DON'T KNOW	20
97 = REFUSED	101
98 = BLANK (NO ANSWER)	92
99 = LEGITIMATE SKIP	52440

AUUNFOUT: no mh tmt didn't want others to find out

1 = Response entered	181
3 = Response entered LOGICALLY ASSIGN.....	8
6 = Response not entered	2429
94 = DON'T KNOW	21
97 = REFUSED	102
98 = BLANK (NO ANSWER)	90
99 = LEGITIMATE SKIP	52440

AUUNRIM2: *Stigma-related responses in bold below used to construct stigma variable*

What is the most important other reason you did not get mental health treatment in the past 12 months?

AUUNRIM2: most important other reasons didn't get mental health treatment past 12 months

- 1 = You couldn't afford the cost
- 2 = Concerned neighbors/community have negative opinion**
- 3 = Concerned might have a negative effect on your job**
- 5 = Your health insurance doesn't pay enough for mental health treatment
- 6 = You did not know where to go to get services
- 7 = Concerned information might not be kept confidential**
- 8 = Concerned might be committed/take medication**
- 9 = You didn't think you needed treatment at the time
- 10 = You thought you could handle the problem without treatment
- 11 = You didn't think treatment would help
- 12 = Didn't have time (because of job, childcare, other)
- 13 = Didn't want others to find out you needed treatment**
- 14 = No transportation/too far away/hours inconvenient
- 15 = Some other reason or reasons
- 16 = Afraid too painful/unpleasant/afraid of diagnosis**
- 17 = Others dissuaded/didn't want you to/unsupportive
- 18 = You do not have any health insurance coverage
- 19 = Ashamed, embarrassed, afraid, or sign of weakness**
- 20 = You were too stubborn/prideful to go
- 21 = You did not want to; reason unspecified
- 22 = Unmotivated/depressed/confused/angry/unworthy**
- 23 = Services unavailable in your area/services limited
- 24 = Didn't want to talk about your problems with anyone
- 25 = Didn't like how treated/don't like doctor(s)/hospitals
- 26 = Attempted to get treatment, unsuccessful in finding help
- 27 = Concerned how the court system would treat you**
- 28 = No program/counselor competent/comfortable with
- 29 = Just never went/made appointment/arrangements
- 30 = Work on your problems with family/friends
- 32 = Too much red tape/hassle to get services
- 33 = There were no openings/long waiting list/delays
- 34 = You had other problems/issues to deal with
- 37 = You were using alcohol/drugs
- 41 = Preferred provider won't/may not accept health insurance plan
- 44 = Services desired unavailable/currently ineligible
- 70 = You did/had appointment for mental health treatment/counseling
- 71 = Mental health condition reported; depression unspecified
- 85 = BAD DATA Logically assigned
- 94 = DON'T KNOW
- 97 = REFUSED
- 98 = BLANK (NO ANSWER)
- 99 = LEGITIMATE SKIP

CONTROL VARIABLES

Control variables are taken from the recoded core variables in the NSDUH codebook.

Psychological distress (psychstress): collected using a multi-item survey, then totaled to show overall distress. As with previous variables, only adult data is used for this project.

K6SCMON: K6 total score in past month

RANGE = 0 - 24	41671
. = Aged 12-17 (AGE2<7)	13600

IRSEX, NEWRACE2, EDUCCAT2, CATAG6, IRFAMIN3 are used as controls for demographics on gender, race, education level, age, and family income.

Female

IRSEX: imputation revised gender

1 = Male	26322
2 = Female	28949

Race

NEWRACE2: race/hispanicity recode (7 levels)

1 = NonHisp White	33534
2 = NonHisp Black/Afr Am	6693
3 = NonHisp Native Am/AK Native	907
4 = NonHisp Native HI/Other Pac Isl	299
5 = NonHisp Asian	2355
6 = NonHisp more than one race	1959
7 = Hispanic	9524

Age

CATAG6: age category recode (6 levels)

1 = 12-17 Years Old	3600
2 = 18-25 Years Old	13069
3 = 26-34 Years Old	8390
4 = 35-49 Years Old	11235
5 = 50-64 Years Old	5361
6 = 65 or Older	3616

Education

EDUCCAT2: education recode

1 = Less than high school (IREduc2<=7 and AGE2>=7)	5627
2 = High school graduate (IREduc2=8 and AGE2>=7)	12537
3 = Some college (IREduc2=9-10 and AGE2>=7)	11965
4 = College graduate (IREduc2=11 and AGE2>=7)	11542
5 = 12 to 17 year olds (AGE2<=6)	13600

Family income

IRFAMIN3: recode - imp. revised - tot fam income

1 = Less than \$10,000 (Including Loss)	4864
2 = \$10,000 - \$19,999	6782
3 = \$20,000 - \$29,999	6093
4 = \$30,000 - \$39,999	5697
5 = \$40,000 - \$49,999	5350
6 = \$50,000 - \$74,999	8989
7 = \$75,000 or more.....	17496

APPENDIX B
IRB APPROVAL

UAB THE UNIVERSITY OF
ALABAMA AT BIRMINGHAM
Office of the Institutional Review Board for Human Use

470 Administration Building
701 20th Street South
Birmingham, AL 35294-0104
205.934.3789 | Fax 205.934.1301 | irb@uab.edu

NHSR DETERMINATION

TO: Tarasovich, Mercedes A

FROM: University of Alabama at Birmingham Institutional Review Board
Federalwide Assurance Number FWA00005960
IORG Registration # IRB00000196 (IRB 01)
IORG Registration # IRB00000726 (IRB 02)

DATE: 20-Nov-2019

RE: IRB-300004241
Suicidality, Mental Health Care Stigma, and Online Support Networks

The Office of the IRB has reviewed your Application for Not Human Subjects Research Designation for the above referenced project.

The reviewer has determined this project is not subject to FDA regulations and is not Human Subjects Research. Note that any changes to the project should be resubmitted to the Office of the IRB for determination.

if you have questions or concerns, please contact the Office of the IRB at 205-934-3789.

Additional Comments:

Publicly available de-identified data