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The Relationship Between Perceived Unmet Mental Health Care Needs and Suicidal Ideation and Attempt

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Abstract
This study utilizes data from the National Survey of Drug Use and Health (NSDUH) to analyze the relationship between perceived unmet mental health care needs and suicidal ideation and attempt. Estimates from multivariable logistic regression models suggest that individuals who report perceived unmet mental health care needs have higher probability of experiencing suicidal ideation and attempt. Perceived unmet mental health care need has an important association with suicidal ideation and attempt, and efforts aimed at improving access to care are needed to address this issue.

Keywords Suicide · Unmet need · Mental health treatment

Introduction

Rates of suicide are rising. Between 1999 and 2014 suicide rates increased by 24% with increasing rates impacting every age group under 75 (Center for Disease Control [CDC], 2016). While not all suicides are associated with a diagnosable mental health condition, research indicates that mental health treatment is highly effective at alleviating suicidal behaviors (Linehan et al. 2006; Tarrier et al. 2008; Robinson et al. 2006; Jobes et al. 2005; Alexopoulos et al. 2009; Unützer et al. 2006). However, unmet mental health care need is a persistent issue in the United States. Approximately 25% of the American population lives with a mental health condition, yet the majority of those who suffer do not receive any mental health treatment (Kessler et al. 2005). Specifically, the most common reason individuals with suicidal behavior and unmet need do not seek treatment is their inability to afford the cost of care (Han et al. 2014). Other reasons include not knowing where to go to initiate treatment, fear of involuntary commitment, and perceptions that treatment was not necessary (Han et al. 2014).

Limited research has been conducted to examine the association of perceived unmet mental health need with suicidal behaviors. One study analyzing perceived unmet mental health care need among veterans found that those with perceived unmet mental health care needs were more likely to experience suicidal ideation (Becerra et al. 2016). Another study found that individuals who report suicidal ideation are more likely to report perceived unmet mental health needs (Han et al. 2014). However, no research has been done to assess the association of perceived unmet need with both suicidal ideation and attempt in the overall population. Understanding the association of perceived unmet need with suicidal ideation and attempt is critical to determining ways to reverse increasing rates of suicide. If individuals with high rates of suicidal ideation and attempt consistently report perceived unmet mental health care need, health care policies and initiatives could facilitate increased access to mental health treatment for suicidal individuals who are currently unable to receive the treatment they need.

Using data from a large nationally representative population, this study examines the relationship between perceived unmet mental health care needs and suicidal ideation and

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attempt. Research suggests that there is a significant difference in perceived unmet mental health care need among those who receive treatment and those who do not (Walker et al. 2015; Han et al. 2014). For example, perceived unmet need was higher among those who did not receive any mental health treatment (Han et al. 2014), and individuals with a mental health condition were more likely to perceive an unmet need compared to those without any mental health condition (Walker et al. 2015). Therefore, we will examine the association of perceived unmet need with suicidal ideation and attempt among those who have received mental health treatment and those who have not. Research also indicates that individuals who experience major depressive episode (MDE) and serious psychological distress (SPD) face a higher risk of exhibiting suicidal behaviors (Peng et al. 2016; Eskin et al. 2016; Bell et al. 2015; Charara et al. 2016; Walker et al. 2015). However, little research has been done to assess the association of perceived unmet mental health care need with suicidal ideation and attempt among this population. We address this limitation by stratifying our analysis by individuals' mental health condition (i.e. if they have MDE or SPD).

Data

This study utilizes data from the 2008–2014 National Survey on Drug Use and Health (NSDUH), a nationally representative survey of the civilian, non-institutionalized population in the United States conducted annually by the Substance Abuse and Mental Health Services Administration (SAMHSA). The NSDUH collects detailed information on use of alcohol and illicit drugs, mental and substance use disorders and utilization of a variety of behavioral health treatments (SAMHSA 2015). Given that the focus of the current study is on adults, the sample is restricted to individuals aged 18 and older (unadjusted pooled N = 290,000). All estimates are weighted to account for NSDUH's complex survey design and to make the estimates nationally representative (weighted pooled N ≈ 190 million). Comprehensive information on the NSDUH data collection methods and survey design can be found elsewhere (SAMHSA 2015). Descriptive statistics on the study sample and the variables used in the analysis are provided in Table 1.

Measures

NSDUH asked respondents whether anytime during the past 12 months they had thought of killing themselves. The NSDUH also asked respondents whether anytime during the past 12 months they had made plans to kill themselves. Respondents who reported thinking of killing themselves or

Table 1 Descriptive statistics for 2008–2014 NSDUH respondents 18 and older

Variable	Weighted proportions (standard error)
Suicidal ideation	0.04 (0.00)
Suicide attempt	0.01 (0.00)
Perceived unmet mental health need	
Full population	0.05 (0.00)
Received mental health treatment	0.19 (0.01)
Did not receive any mental health treatment	0.03 (0.00)
Mental health condition	
Major depressive episode (MDE)	0.07 (0.00)
Serious psychological distress (SPD)	0.10 (0.00)
Insurance	
Private only	0.63 (0.00)
Public only	0.10 (0.00)
Others only	0.08 (0.00)
Uninsured	0.18 (0.00)
Age	46.33 (0.07)
Gender	
Male	0.48 (0.00)
Female	0.52 (0.00)
Race	
Non-Hispanic White	0.67 (0.00)
Non-Hispanic Black	0.11 (0.00)
Hispanic	0.14 (0.00)
Asian	0.05 (0.00)
Other	0.02 (0.00)
Education	
High school	0.30 (0.00)
Some college	0.26 (0.00)
College graduate	0.28 (0.00)
Less than high school	0.15 (0.00)
Employment	
Full time	0.49 (0.00)
Part-time	0.13 (0.00)
Looking/layoff/unemployed	0.06 (0.00)
Disabled	0.05 (0.00)
Retired	0.15 (0.00)
Other	0.12 (0.00)
Current marital status	
Married	0.53 (0.00)
Not married	0.47 (0.00)
Self-rated health status	
Excellent	0.23 (0.00)
Very good	0.36 (0.00)
Good	0.27 (0.00)
Fair/poor	0.13 (0.00)
Federal poverty level	
< 138%	0.21 (0.00)
138–400%	0.42 (0.00)

Table 1 (continued)

Variable	Weighted proportions (standard error)
>400%	0.37 (0.00)
Substance use disorder (SUD)	0.09 (0.00)
Metropolitan statistical area	
Yes	0.94 (0.00)
No	0.06 (0.00)
Geographic region	
Midwest	0.22 (0.00)
South	0.37 (0.00)
West	0.23 (0.00)
Northeast	0.18 (0.00)
Weighted N = 190,000,000	
Unweighted N = 290,000	

making plans to kill themselves were categorized as having suicidal ideation. Suicide attempt was based on the NSDUH question of whether anytime during the past 12 months respondents had tried to kill themselves.

The primary independent variable of interest in the empirical model is whether the individual perceived an unmet need for mental healthcare treatment during the past 12 months. Specifically, NSDUH asked respondents whether during the past 12 months there was a time when they needed mental health treatment or counseling but did not get it. Perceived unmet mental healthcare need was measured based on this question, with a positive response being coded as 1 and 0 otherwise. The empirical model includes an indicator for health insurance status, which is constructed as a categorical variable with four mutually exclusive categories: private insurance, public insurance (Medicare and Medicaid, including those with dual eligibility also enrolled in Medicare), uninsured, and other insurance (veteran's insurance, TRICARE, etc.). The NSDUH asks respondents questions to assess symptoms of substance use disorders (SUDs) (i.e., substance dependence or abuse) during the past year using the criteria specified within the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) during the year prior to the survey interview (APA 1994). It includes such symptoms as withdrawal, tolerance, use in dangerous situations, trouble with the law, and interference in major obligations at work, school, or home during the past year. The variable for SUD in this study reflects whether the respondent had an alcohol use disorder or any illicit drug use disorder. Variables in the analysis also include respondent's demographic characteristics, such as age, gender, race, level of education, employment status, federal poverty level (FPL), marital status, residence in a metropolitan statistical area, geographic region (Midwest, South, West, Northeast), and self-rated physical health status. These factors have been shown to be associated with variations in suicidal ideation and attempt (Scott et al. 2010; Crosby et al. 2011; Becerra et al. 2016).

Methods

To estimate the association of perceived unmet mental healthcare need with suicidal ideation and attempt, multivariable logistic regression models were estimated on NSDUH respondents 18 and up for the period 2008–2014 to calculate average marginal effects of (i) suicidal ideation regardless of whether or not the individual had received any mental health treatment in the past 12 months; (ii) suicidal ideation given that the individual had received any mental health treatment in the past 12 months; (iii) suicidal ideation given that the individual had not received any mental health treatment in the past 12 months; (iv) suicide attempt regardless of whether or not the individual had received any mental health treatment in the past 12 months; (v) suicidal attempt given that the individual had received any mental health treatment in the past 12 months; (vi) suicide attempt given that the individual had not received any mental health treatment in the past 12 months. Mental health treatment here is defined as whether in the past 12 months the respondent had received any inpatient mental health treatment (i.e., staying overnight in a hospital) or any outpatient mental health treatment (i.e., treatment at an outpatient mental health clinic/center, or in the office of a private therapist, psychologist, psychiatrist, social worker, counselor, or in a doctor's office, or in an outpatient medical clinic, or in a partial day hospital, or day treatment program) or was prescribed any psychotropic medication. As indicated previously, to check the robustness of the estimates, empirical models were also stratified by mental health condition. Mental health condition in the analysis is defined as whether the individual has MDE or SPD. The NSDUH asks respondents questions intended to assess symptoms of MDE during the past year using the criteria specified within the DSM-IV (APA 1994). MDE is defined as a period of at least 2 weeks when the individual experienced a depressed mood or loss of interest or pleasure in daily activities, and other additional symptoms. In addition, the NSDUH asked respondents questions related to the Kessler 6 (K6) screening instrument (Kessler et al. 2002). The six items on K6 ask how often the participant has felt nervous, restless, hopeless, and worthless, extremely sad or that everything was an effort during the previous 30 days. Individuals were considered to have SPD if they had a K6 composite score of 13 or greater (Kessler et al. 2002).

Results

There were significant differences in perceived unmet mental healthcare need by suicidal ideation and attempt and whether the individual had received any mental health treatment or not (Table 2). Overall 35% of those with suicidal ideation perceived an unmet need for mental health treatment. The rate of perceived unmet mental healthcare need was higher among those with suicidal ideation who reported receiving any mental health treatment in the past 12 months (46%). A little over a quarter (26%) of those with suicidal ideation who did not receive any mental health treatment in the past 12 months perceived an unmet need for mental health treatment; 38% of those who attempted suicide perceived an unmet mental healthcare need, and 50% of those attempting suicide who reported receiving any mental health treatment perceived an unmet mental healthcare need. The rate of perceived unmet need for treatment was lower among those attempting suicide who reported not receiving any mental health treatment (22%). A similar pattern of higher rates of perceived unmet mental healthcare need among those who received mental treatment compared to those who did not receive treatment was also observed when suicidal ideation and attempt were stratified by mental health condition. Among those with a mental condition (MDE or SPD) and suicidal ideation or attempt, a little over 50% reported perceiving an unmet mental healthcare need if they had received any mental health treatment in the past 12 months. Perceived unmet mental healthcare need was approximately 50% when individuals with suicidal behavior and MDE reported not receiving any mental health treatment, and perceived unmet mental healthcare need was approximately 40% among those with suicidal behavior and SPD not receiving any mental health treatment.

Table 3 presents estimates logistic regression models that account for an extensive set of control variables. Estimates from the full population indicate that individuals with a perceived unmet mental healthcare need had a 14 percentage point higher probability ($p < 0.001$) of suicidal ideation and a 1 percentage point higher probability of suicide attempt ($p < 0.001$). Perceived unmet need was associated with 11 percentage point higher probability ($p < 0.001$) of suicidal ideation when the individuals reported receiving any mental health treatment in the past 12 months and 18 percentage point higher probability ($p < 0.001$) of suicidal ideation when the individuals reported not receiving any mental health treatment. Perceived unmet need was associated with a higher probability of suicide attempt for both when the individuals received any mental health treatment and when individuals did not receive any mental health treatment. For the purpose of brevity, only the average marginal effects for the perceived unmet need variable are presented, but the results from the fully specified models are available from the authors upon request. Other correlates that were significantly associated with suicidal ideation and attempt under most model specifications included the respondent's age, employment status, marital status, SUD and self-rated health. Older individuals and those with full time employment had lower probability of engaging in suicidal ideation and attempt. Compared to unmarried individuals, those who are currently married had lower probability of suicidal ideation and attempt. Having a SUD increased the probability of suicidal ideation and attempt, but having excellent, very good or good self-rated health status lowered the probability of suicidal ideation and attempt compared to being in fair/poor health. Being a college graduate was also associated with lower probability of suicide attempt.

For those with MDE, perceived unmet mental healthcare need was associated with a 19 percentage point higher probability ($p < 0.001$) of suicidal ideation. Perceived unmet

Table 2 Perceived unmet mental health need among adults with suicidal ideation and attempt (proportions, SE)

	Suicidal ideation			Suicide attempt		
	Overall	Received treatment	Did not receive treatment	Overall	Received treatment	Did not receive treatment
Full population						
Perceived unmet mental health need	0.35 (0.01)	0.46 (0.01)	0.26 (0.01)	0.38 (0.02)	0.50 (0.03)	0.22 (0.02)
Major depressive episode (MDE)						
Perceived unmet mental health need	0.50 (0.01)	0.51 (0.01)	0.51 (0.03)	0.53 (0.03)	0.53 (0.04)	0.47 (0.04)
Serious psychological distress (SPD)						
Perceived unmet mental health need	0.47 (0.01)	0.51 (0.01)	0.40 (0.01)	0.48 (0.02)	0.54 (0.03)	0.35 (0.03)
Weighted N =	8,000,000			580,000		
Unweighted N =	17,000			1400		

Table 3 Association between perceived unmet mental health need and suicidal ideation and attempt (average marginal effect, CI)

	Suicidal ideation			Suicide attempt		
	Full population	Received treatment	Did not receive treatment	Full population	Received treatment	Did not receive treatment
	AME [95% CI]	AME [95% CI]	AME [95% CI]	AME [95% CI]	AME [95% CI]	AME [95% CI]
Full sample						
Perceived unmet mental health need	0.14*** [0.13, 0.15]	0.11*** [0.10, 0.12]	0.18*** [0.16, 0.20]	0.01*** [0.00, 0.01]	0.02*** [0.01, 0.02]	0.01*** [0.00, 0.01]
Weighted N	190,000,000	27,000,000	163,000	190,000,000	27,000,000	163,000,000
Unweighted N	290,000	40,000	250,000	290,000	40,000	250,000
Major depressive episode (MDE)						
Perceived unmet mental health need	0.19*** [0.16, 0.21]	0.17*** [0.14, 0.20]	0.18*** [0.15, 0.21]	0.01*** [0.01, 0.02]	0.01*** [0.00, 0.02]	0.01*** [0.00, 0.01]
Weighted N	13,000,000	7,000,000	6,000,000	13,000,000	7,000,000	6,000,000
Unweighted N	23,000	11,000	12,000	23,000	11,000	11,000
Serious psychological distress (SPD)						
Perceived unmet mental health need	0.20*** [0.18, 0.21]	0.17*** [0.15, 0.20]	0.19*** [0.17, 0.21]	0.02*** [0.02, 0.03]	0.02*** [0.01, 0.03]	0.01*** [0.01, 0.02]
Weighted N	21,000,000	10,000,000	11,000,000	21,000,000	10,000,000	11,000,000
Unweighted N	42,000	17,000	25,000	42,000	17,000	25,000

***$p < 0.001$. Models adjusted for all the variables listed in Table 1

mental healthcare need was associated with 17 percentage point ($p < 0.001$) and 18 percentage point ($p < 0.001$) higher probability of suicidal ideation when the individual with MDE reported receiving any mental health treatment and when the individual reported not receiving any mental health treatment, respectively. Similarly, perceived unmet mental healthcare need was associated with higher probability of suicide attempt among those with MDE. Among those with SPD, perceived unmet mental healthcare need was associated with a 17 to 19 percentage point higher probability of suicidal behavior when the individuals reported receiving any mental health treatment and also when the individual reported not receiving any mental health treatment, with the average marginal effects for perceived unmet need being higher when the individuals did not receive any mental health treatment.

In our analysis suicide planning and thinking of suicide were both considered suicidal ideation based on literature suggesting the two are similar behaviors (Kessler et al. 2005; Luxton et al. 2011). However, to check the robustness of the results, logistic regression models were estimated for suicide planning and suicide ideation separately. These results reported in Appendix (See Table 4) indicate that separate suicide planning and suicidal ideation models yield results that are similar to each other. Also, given the concern that logistic regression models might not be reliable for outcomes that are rare (suicidal behavior in our case), we also estimated the models using a linear probability model and the outcomes were very similar to what we report here and are available from the authors upon request.

Discussion

As suicide rates continue to increase it is important to understand factors associated with suicidal ideation and attempt to develop means to reduce the prevalence of suicidal thoughts and behaviors. The results of this study indicate that perceived unmet mental health care needs increase individuals' probability of experiencing suicidal ideation and attempt, and these estimates are robust across specifications. While all who perceived unmet mental health needs experienced increased higher probability of suicidal ideation and attempt, individuals who did not receive treatment had higher probability of contemplating and attempting suicide. These results suggest that even individuals who have received treatment report unmet mental health needs; however, those who have not received treatment and perceived an unmet need have higher probability of suicidal ideation and attempt.

The finding that 74 percent of those with suicidal ideation who did not receive any mental health treatment in the past 12 months did not perceive an unmet need for mental health treatment is concerning and worthy of further examination. Research have shown that over 80% of individuals who had an emergency department visit for self-harm did not receive treatment from a specialty behavioral health provider in the 90 days before their emergency department visit (Mutter et al. 2016). This implies a greater need for more treatment engagement and screening among individuals at risk for suicidal behavior. In addition, providers, payers, and policymakers would benefit from knowing whether those individuals' perception was because they felt that they recovered quickly and/or that the mental health system did not have services to offer that they found helpful. In addition, the positive association between suicidal ideation and attempt and perceived unmet need even when individuals are receiving treatment is an important finding and may reflect dissatisfaction with the adequacy/responsiveness/quality of the services some patients are receiving. It is also possible that it may represent a greater sensitization/understanding among patients concerning what their needs are and a desire to receive more services. Given the heightened mortality following a suicide attempt (Crosby et al. 2011), it is important to understand why those who attempted suicide felt their treatment was not adequate to meet their mental health need. For example, the very low rate of specialty behavioral health care following an episode of self-harm (Mutter et al. 2016), might reflect why individuals felt their treatment was not adequate.

Affordability and lack of health insurance coverage are major factors that limit people from receiving adequate mental health services (Walker et al. 2015). However, even when individuals do have insurance that covers mental health services, many psychiatrists and psychologists do not accept payment via insurance due to the reduced insurance reimbursement rates mental health providers receive compared to physical health providers (Mark et al. 2017; Olfson 2016; Cunningham et al. 2006). To complicate issues further, shortages among mental health care providers can limit the availability of treatment (Cunningham 2009). Thus, individuals who actively seek mental health treatment may be turned down either because the provider does not accept their insurance or the provider has no availability to accept new patients. Research has projected an increase in mental health treatment due to recent changes in the availability in health insurance and parity for coverage (Ali et al. 2016; Han et al. 2015). These issues are potentially most limiting for low income populations, such as those on Medicaid (Ali et al. 2017; Cunningham et al. 2006), and are an important area for future studies to consider. Many individuals who reported suicidal ideation and attempt in the past year without receiving treatment did not report any perceived unmet mental health needs (Table 2). Thus, simply increasing access to insurance will not alleviate all suicidal thoughts and behaviors. For a suicidal individual to gain access to necessary mental health care they must perceive a need for care. Prevention strategies should focus on altering the perception of therapy to encourage those with suicidal thoughts and behaviors who do not perceive a need for treatment to seek treatment. Given that a significant portion of individuals who die by suicide have a psychiatric disorder and many have been seen recently in primary care, the US Prevention Service Task Force recommends that primary care providers screen individuals for depression to ensure adequate diagnosis, treatment, and follow-up (USPSTF 2014). In addition, more treatment engagement through public education programs, hotlines and other services may be useful as a means of providing additional resources and support.

Overall this study reveals that individuals with unmet mental health needs are more likely to experience suicidal thoughts and behaviors. As mental health policies continue to develop it is critical that the treatment for suicidal thoughts and behaviors for individuals with and without mental health conditions remain a public health priority.

Compliance with Ethical Standards

Conflict of interest The authors report no financial relationships with commercial interests and have no conflicts of interest relevant to this article to disclose.

Ethical Approval This article does not contain any studies with human participants or animals performed by any of the authors.

Appendix

See Table 4.

Table 4 Association between perceived unmet mental health need and suicide planning and thinking of committing suicide (average marginal effect, CI)

	Full population AME [95% CI]	Received treatment AME [95% CI]	Did not receive treatment AME [95% CI]
Suicide planning			
Perceived unmet mental health need	0.03*** [0.03, 0.04]	0.05*** [0.04, 0.06]	0.02*** [0.02, 0.03]
Thinking of committing suicide			
Perceived unmet mental health need	0.14*** [0.13, 0.15]	0.18*** [0.16, 0.20]	0.11*** [0.10, 0.12]

***$p < 0.001$. Models adjusted for all the variables listed in Table 1

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