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Provocative work experiences predict the acquired capability for suicide in physicians

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ABSTRACT

The interpersonal psychological theory of suicidal behavior (IPTS) offers a potential means to explain suicide in physicians. The IPTS posits three necessary and sufficient precursors to death by suicide: thwarted belongingness, perceived burdensomeness, and acquired capability. The present study sought to examine whether provocative work experiences unique to physicians (e.g., placing sutures, withdrawing life support) would predict levels of acquired capability, while controlling for gender and painful and provocative experiences outside the work environment. Data were obtained from 376 of 7723 recruited physicians. Study measures included the Acquired Capability for Suicide Scale, the Interpersonal Needs Questionnaire, the Painful and Provocative Events Scale, and the Life Events Scale—Medical Doctors Version. Painful and provocative events outside of work predicted acquired capability ($\beta=0.23$, $t=3.82$, $p<0.001$, $f^2=0.09$) as did provocative work experiences ($\beta=0.12$, $t=2.05$, $p<0.05$, $f^2=0.07$). This represents the first study assessing the potential impact of unique work experiences on suicidality in physicians. Limitations include over-representation of Caucasian participants, limited representation from various specialties of medicine, and lack of information regarding individual differences.

1. Introduction

Physicians die by suicide at rates that consistently exceed that of the general population (Schernhammer and Colditz, 2004). Potential explanations for this elevation include job difficulties (Gold et al., 2013), psychological difficulties (Gagne et al., 2011), and ready access to, and scientific knowledge of, lethal means of suicide (Hawton et al., 2000). However, the majority of these hypotheses lack specificity in explaining why some physicians with such risk factors go on to enact a lethal suicide attempt while others do not. Further, this explanatory deficiency leads to a more pressing problem: the inability to predict *when* physicians are at elevated risk for suicide.

Recently, the Interpersonal Psychological Theory of Suicidal Behavior (IPTS; Joiner, 2005) has been suggested as a useful means of explaining and predicting why people die by suicide. The IPTS posits three necessary and sufficient precursors to death by suicide: thwarted belongingness, perceived burdensomeness, and acquired capability. Thwarted belongingness represents a profound sense of isolation from others while perceived burdensomeness is described as a miscalculation made by an individual, in which the person feels that their death would be of more benefit to others than their life. Thwarted belongingness and perceived burdensomeness are hypothesized to be similar, but conceptually different constructs. More specifically, the IPTS delineates an array of distal risk factors for suicide (e.g., domestic violence) that increase suicide risk through their impact on thwarted belongingness or perceived burdensomeness. The desire for suicide is thought to arise via a combination of thwarted belongingness and perceived burdensomeness, paired with a feeling of hopelessness about these two states (Van Orden et al., 2010).

Acquired capability is described as the physical capacity to inflict serious self-injury, and is hypothesized to result from continued exposure to painful (e.g., chronic pain) or provocative (e.g., witnessing violence) events. Prolonged engagement with such experiences is theorized to cause habituation to situations that previously resulted in fear. In this way, individuals may eventually react fearlessly to death—even the idea of their own death. Importantly, acquired capability is distinct from thwarted belongingness and perceived burdensomeness: the theory hypothesizes that only when all three factors are present is one at serious risk for suicide (Joiner, 2005).

Recently, the IPTS has been applied to physician suicides, both theoretically and empirically. Cornette and colleagues (2009) suggested that the theory offers a potentially valuable means of explaining suicide in physicians and medical residents, highlighting numerous work variables that may contribute to

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elevations on all three theory components. More recently, Fink-Miller (2015) collected data from currently licensed physicians regarding all three components of the theory. Results indicated that perceived burdensomeness predicted current suicidal ideation, while thwarted belongingness predicted past suicide attempts. Contrary to hypotheses, acquired capability did not predict past attempts.

As stated above, acquired capability is theorized to result from habituation after continual engagement in painful or provocative situations. Such experiences have been measured in prior research, and do appear to predict increases in acquired capability. For example, Bender and colleagues (2011) examined correlates of the Painful and Provocative Events Scale (PPES) in a series of studies. This scale assesses the degree to which respondents participate in a variety of physically painful or provocative events throughout a given time period, and includes experiences such as discharging a firearm, getting a tattoo or piercing, playing contact sports, or physical altercations. Higher scores on the PPES have predicted higher scores on acquired capability in several studies (Van Orden et al., 2008; Bender et al., 2011).

In addition to the experiences described above, exposure to death has also been found to correlate with acquired capability. For example, in a study examining veterinarian exposure to euthanasia, Witte and colleagues (2013) found that experiences with euthanasia of companion animals were negatively associated with feelings of distress regarding euthanasia. Additionally, distress regarding euthanasia was negatively associated with fearlessness of death—a facet of acquired capability. Given that medical doctors frequently witness pain and suffering in patients, and often encounter serious injury, blood, and even patient death, findings among physicians may parallel those of veterinarians. This possibility has been suggested by Cornette and colleagues (2009)—but such relationships have yet to be directly investigated in physicians.

Prior research—while not directly assessing work experiences or acquired capability—provides preliminary support for the possibility that medical doctors habituate to fearlessness surrounding death. For example, Sundin et al. (1979) compared attitudes toward death, and fear of death, in medical students and dental students. Results suggested that dental students reported greater fear of death as compared to medical students, and these findings included fear of one's own death. More recently, Charlton et al. (1994) assessed medical students on emotional reactivity to death prior to experience with cadaver dissection, as well as at three month follow-up after the dissection. Results suggested that even after one dissection experience, the students' emotional reactivity to death decreased significantly. Interestingly, men reported significantly decreased emotional reactivity as compared to women. Similarly, acquired capability has been shown to vary according to gender, in that men generally evidence higher scores on the construct (Witte, et al., 2012; Ribeiro et al., 2014).

While medical doctors as a group appear to display elevated acquired capability (Fink-Miller, 2015), it is less clear whether acquired capability varies by medical specialty. Prior research demonstrates differing rates of death by suicide by medical specialty. Rich and Pitts (1980) determined that psychiatrists displayed an elevated risk for suicide as compared to physicians in other medical specialties. Similarly, Carpenter et al. (1997) reported more suicides in female anesthetists than reported in other medical fields. Hawton et al., 2001 corroborated both of these findings in reporting that those who practiced within the specialties of anesthesiology, psychiatry, community health, and general practice were more likely to die by suicide than those in other specialties. The authors suggest two pathways by which physicians in these specialties may evidence an increased risk for suicide: work stressors, and individual characteristics (e.g., personality variables) that not only predispose one to suicide, but also influence the individual to choose employment within one of these specialty areas. However, Cornette et al. (2009) caution that differences in acquired capability likely contribute to the differential risk observed among medical specialty.

In sum, research thus far has failed to directly measure the impact of work experiences in physicians on variables related to suicidality. To remedy these shortcomings, the current study seeks to directly measure lifetime experience with certain painful and provocative situations experienced by medical doctors, while also utilizing scores on such a measure to predict one's level of acquired capability. We hypothesize that frequency of engagement in provocative medical experiences will predict scores on acquired capability. In order to examine the specificity of the impact of work experiences on acquired capability, painful and provocative experiences outside of the work environment will be utilized as a covariate. Given past research showing differential suicide rates by medical specialty, we also sought to determine whether provocative work experiences and scores on acquired capability differed by medical specialty.

2. Methods

An electronic survey was built using LimeSurvey software (Carsten Schmitz, Germany) and was sent to 7723 currently licensed physicians in the state of Pennsylvania. The Center for Survey Research (CSR) at the author's institution coordinated all aspects of developing, maintaining, and disseminating the electronic survey. Analyzable data was obtained from 376 physicians, yielding a response rate of 4.8%. In late February 2014, a pre-notification email was sent by the CSR, indicating that respondents would receive the study questionnaires electronically in the near future. Surveys were sent on March 6, 2014 and data was collected from March 6 to March 31, 2014. Two reminder emails were sent during this period. In an attempt to enhance the response rate, participants could choose to enter a raffle to win one of three $100 Visa gift cards. At the conclusion of the study, raw data were transformed into SPSS version 21.0 (Armonk, New York, United States) and transferred from the CSR to the principal investigator.

2.1. Subjects

Four hundred fifty two physicians began the survey, with 76 completing only one or two measures before termination. Those who terminated the study prematurely did not differ demographically from those who proceeded. Sixty four percent of respondents were male, with the majority of participants identifying as Caucasian (88.8%), Asian (5.9%), African American (1.9%), American Indian (0.5%), and Native Hawaiian/Pacific Islander (0.3%). A wide range of medical specialties were reported, including pediatrics (22.6%), orthopedic surgery (11.4%), anesthesiology (9.8%), internal medicine (9.6%), emergency medicine (7.7%), psychiatry/neurology (7.2%), surgery/vascular surgery (4.8%), family medicine (3.5%), obstetrics/gynecology (3.5%), urology (2.7%), cardiology (2.4%), ophthalmology (2.1%) as well as allergy/immunology, dermatology, neurological surgery, otolaryngology, pathology, physical medicine/rehabilitation, plastic surgery, and radiology, (2% or fewer for each). Participants' ages ranged from 30 to 86 ($M=53.76$, $SD=10.67$), with years of practice ranging from 1 to 57 ($M=24.43$, $SD=11.31$).

2.2. Measures

Measures were self-reported utilizing the LimeSurvey software program. Physicians began by completing demographic data,