An Experimental Investigation of Factors that Influence Clinicians' Decisions to Hospitalize Suicidal Patients

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A dissertation

submitted in partial fulfillment of the

requirements for the degree of

Doctor of Philosophy

University of Washington

2020

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Program Authorized to Offer Degree:

Psychology

University of Washington

Abstract

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Psychiatric inpatient hospitalization and suicide risk share a strong empirical relationship such that frequent users of hospitalization display high rates of post-discharge suicidal behavior. Although research seeking to better understand this relationship is growing, there is a dearth of research evaluating how suicidal individuals end up being hospitalized. One route to exploring this question involves investigating how clinicians come to the decision to hospitalize or not hospitalize their suicidal patients. Existing research evaluating clinical decision-making related to hospitalizing suicidal patients is minimal, and major limitations to the existing research impede generalizability and interpretation. To address some of the limitations of the existing research, this two-part vignette-based study involved designing ecologically valid vignettes depicting suicidal patients, evaluating empirically-supported predictors of hospitalization, and exploring climate-, clinician-, and patient-level variables as potential predictors of hospitalization. An

initial pilot study was conducted to finalize study measures and stimuli based on feedback from 30 clinicians. In the main study, clinicians (*n*= 155) were shown 4 vignettes describing hypothetical suicidal patients and asked to rate each patient's likelihood of dying by suicide in the next 24 hours, acute risk for suicide using an ordinal scale derived from Rudd's Acute Suicide Risk Continuum (2006), and whether or not they would hospitalize the patient. Vignettes depicted 4 different patients with combinations of two patient-level variables (diagnosis of borderline personality disorder [yes/no] and history of psychiatric hospitalizations [yes/no]) randomized to vary across vignettes and with vignette-detail combinations counterbalanced across participants. Additional data on clinician-level variables (i.e., professional characteristics, experience and concerns about treating suicidal patients, self-efficacy, burnout) and climate-relevant variables (i.e., organizational norms and perceived behavioral control over the decision to hospitalize) were collected. Results indicated that there was considerable heterogeneity in hospitalization decisions and suicide risk ratings between clinicians, although risk likelihood ratings and hospitalization endorsement were positively correlated. In addition, the experimentally-manipulated patient factors (i.e., BPD diagnosis and hospitalization history) did not significantly predict hospitalization decisions or suicide risk ratings across vignettes. Instead, only clinician- and climate-level factors emerged as significant predictors although the specific factors that were significant varied across outcomes. In particular, deciding to hospitalize suicidal patients was predicted by having an M. D. degree and positive attitudes towards hospitalization, higher ordinal ratings of acute suicide risk were predicted by clinician caseload and work setting, and higher risk likelihood ratings were predicted by greater clinician self-efficacy and intentions to hospitalize. Implications of the findings regarding clinician training and directions for future research are discussed.

ACKNOWLEDGEMENTS

I would first like to express my gratitude to my lab at the Behavioral Research and Therapy Clinics (BRTC) at the University of Washington. In particular, I want to start by acknowledging the guidance of my brilliant research mentor, Dr. Melanie Harned, without whom none of the following research would have been possible. Her dedication to me, my research, my growth, and my well-being merits acknowledgment in the form of a dissertation all its own, and I don't think I can ever properly thank her for her selflessness and kindness in taking me under her wing and going above and beyond in all of her roles. She is truly a uniquely amazing person and will serve as a constant inspiration to me going forward – both in terms of how to conduct high-impact research but also as a model for how to be an amazing clinician and compassionate person in general. I would also like to thank my original advisor and mentor, Dr. Marsha Linehan, for her knowledge, support, bravery, and guidance, and I am grateful to have been able to know her and learn all that I could from her during my time in graduate school. Additionally, I would be remiss not to thank Dr. Lori Zoellner for her encouragement, brilliance, support, and guidance. Getting to sit in the presence of her vast knowledge of research and treatment has been a genuine privilege, and I know that I am a better researcher and clinician for knowing her. In addition, I would like to thank my dissertation committee – Drs. Shannon Dorsey, Nancy Kenney, and Denise Walker – who have also played an invaluable role in the inception, design, and completion of my dissertation project. I will forever be grateful to them for their patience with me, and I know that this dissertation is inarguably improved because of their collective intelligence and support.

I would like to thank my friends and chosen family who have supported my journey into graduate school, tolerated my anguish and stress, and provided much-needed emotional support. Of course, my partner — Derek Peterson — deserves special recognition by offering the perfect

balance of problem solving and validation, while gently pushing me beyond my own boundaries. As difficult as I am to validate and support, I know that being my partner hasn't always been easy, but I'm incredibly grateful for his unwavering support, patience, and belief in my abilities and potential. I consider myself lucky and honored to be his partner, and I hope I've made him proud. Additionally, it would be the most egregious form of historical erasure to not mention my best friends, Crystal and Benjamin Pardue. They have done so much for me – helping me figure out syntax for calculating variables, watching Rupaul's Drag Race with me to help me regulate, letting me be my slow-return-to-baseline self – and I can't adequately convey how much they and their support mean to me. I am so lucky to know such wonderful people.

Additionally, I want to thank the graduate students from the Behavioral Research and Therapy Clinics (past and present – Chelsey Wilks and Kevin Kuehn), the Post-docs (Nadia Samad-Locey, Yevgeny Botanov, Sara Schmidt, and Jennifer Shaver), and the staff (Katie Korslund, Susan Bland, Elaine Franks, and Thao Truong). And of course, my amazing and brilliant UW cohort for laughing at all my cheesy jokes (Rosie Walker, Frances Aunon, Matthew Peverill, and Rosemary Meza). Thank you all for providing me with knowledge, support, and willingness to help, managing small bouts of dysregulation, and generally being there whenever I needed. Furthermore, I want to thank all of my amazing clinical supervisors, both past (Kelly Koerner, Katie Korslund, Marsha Linehan, Randy Wolbert, Andrew Fleming, Corey Fagan, Tony Rousmaniere, Clara Doctolero, and Deborah Hill) and present (Michele Bedard-Gilligan, Lori Zoellner, Travis Osborne, Ty Lostutter, and Neil Kirkpatrick). Thank you for guiding me and supporting my growth in all ways possible.

Finally, I would like to thank the participants in this study, who were willing to participate and genuinely forwarded the state of the science. You all were the lifeblood of this study and I am forever grateful.

Introduction

Suicidal behavior poses a major threat to public health. Suicide is ranked as the 10th leading cause of death in the United States (Centers for Disease Control and Prevention, 2017), accounting for over 40,000 known deaths in 2017, and the rate of suicide has been steadily increasing since the year 2000 (CDC, 2017). Furthermore, an estimated 3% of U.S. adults have made a lifetime suicide attempt, and nearly 0.3% of U.S. adults have made a suicide attempt in the past year (Nock, Borges, Bromet, Alonso, Angermeyer, Beautrais, et al., 2008). Finally, suicidal behaviors – attempts and deaths –lead to over $50 billion each year in medical costs and lost productivity in the U.S. (CDC, 2017). In sum, suicidal behaviors incur significant societal costs, and reducing their frequency comprises a high-priority research goal.

A necessary component of the broader goal of reducing suicide is identifying effective interventions when short-term or acute suicide risk is high, and an intervention often considered when suicide risk is at its peak is psychiatric inpatient hospitalization. As articulated by the National Action Alliance for Suicide Prevention, "current practice for people who acknowledge suicidal thoughts or feelings often revolves around whether to hospitalize them or send them home" (2018). Although direct data on the frequency of psychiatric inpatient hospitalization for the spectrum of suicidal thoughts and behaviors (e.g., suicidal thoughts, suicidal communications, aborted suicide attempts, suicide attempts, etc.) are not available, some extant data are informative. For instance, over 500,000 emergency room visits in 2016 were attributable to self-directed violence, suggesting that, for every death by suicide, an estimated 11.4 people visit a hospital for self-harm related injuries (CDC, 2017). These data are unable to distinguish between self-injurious behaviors that were inflicted with intent to die and those that were not, and it is impossible to tell from these data how many ER visits resulted in inpatient admissions.

Furthermore, these data give no information about how many ER visits or inpatient admissions were attributable to non-injurious suicide-relevant constructs (e.g., thoughts of suicide, suicide communications, etc.). As a result, these data are unable to accurately reflect the true incidence of psychiatric ER visits and psychiatric inpatient hospitalization admissions related to treatment of suicidal individuals.

Despite its unknown prevalence, psychiatric inpatient hospitalization may serve an important role in preventing suicide. Simply put, a primary goal of psychiatric inpatient hospitalization is to prevent an individual at risk for suicide in the near term from killing themselves. The Practice Guidelines for the Assessment and Treatment of Patients with Suicidal Behaviors states that hospitalization should be considered "whenever the patient's safety is in question" (Jacobs, Baldessarini, Conwell, Fawcett, Horton, Meltzer, et al., 2003), and they highlight how psychiatric inpatient hospitalization provides a treatment setting that allows for "observation, seclusion, or physical or pharmacological restraint" to minimize a person's ability to act on suicidal urges. Such a setting may sometimes be necessary to ensure safety and prevent death for individuals at the highest levels of acute risk for suicide. Additionally, some researchers expand the potential scope of hospitalization from ensuring immediate safety to reducing long-term risk for future suicidal behavior (Hjorthoj, Madsen, Agerbo, & Nordentoft, 2014). Thus, although explicit guidelines and recommendations for psychiatric inpatient hospitalization in the literature are rare, safety and protection from suicide are at the heart of this intensive and restrictive intervention.

Psychiatric Inpatient Hospitalization and Subsequent Suicidal Behavior

Despite these intentions, empirical controversy abounds regarding whether hospitalization is effective at ensuring safety from suicide and reducing risk for future suicidal behaviors, and available correlational evidence suggests a concerning picture. For instance, reports estimate between 1500 and 1900 inpatient deaths by suicide every year (Busch, Fawcett, & Jacobs, 2003) and, given that the overall suicide rate has risen so notably since this estimate was calculated, this is likely an underestimate of the current numbers for inpatient suicide. Additionally, a recent meta-analysis reported an estimate of the rate of suicides that occur on inpatient units at 147 per 100,000 – a "disturbingly high" rate compared to the general population (for comparison, the general rate of suicide in the United States is estimated to be 12.6 per 100,000; Walsh, Sara, Ryan, & Large, 2015; CDC, 2017).

Outcomes *following* discharge from psychiatric inpatient hospitalization are similarly concerning. For instance, one study showed that 5% of all suicide deaths that occur following discharge from hospitalization occur in the first week post-discharge (Pirkola, Sohlman, & Wahlbeck, 2005), and most of those suicide deaths occur on the first day post-discharge (Meehan, Kapur, Hunt, Turnbull, Robinson, Bickley, et al., 2006). Additionally, a recent analysis of death records in Denmark between the years of 1981 and 1997 revealed that 37% of males and 57% of females who died by suicide had histories of psychiatric inpatient hospitalization for suicidality (Qin & Nordentoft, 2005). The same study found that, controlling for various demographic variables known to be correlated with suicide risk, the risk of death by suicide in the first week post-discharge from psychiatric inpatient hospitalization was 100 times greater than matched controls for men and 246 times greater for women. Another study showed that patients meeting criteria for borderline personality disorder (BPD) who died by suicide had been hospitalized significantly more frequently than patients meeting criteria for BPD who had not

died by suicide (Kullgren, 1988). Finally, a more recent study showed that those who had any emergency room contact for psychiatric reasons were nearly 30 times more likely to die by suicide than were those who had no contact with emergency psychiatric care and, furthermore, that those who had been admitted to a psychiatric hospital were nearly 45 times more likely to die by suicide than no contact controls (Hjorthoj et al., 2014). Thus, increasing contact with emergency psychiatric care – specifically forms of psychiatric care traditionally employed in response to suicidal crises – is consistently associated with a notable increase in risk for death by suicide.

Until recently, explanations for these findings were difficult to tease apart, with some authors positing that hospitalization and suicide are related because the people at highest risk for suicide are the ones most likely to use hospitalization (e.g., Hjorthoj et al., 2014) and others positing that factors inherent to hospitalization were causally increasing risk for suicide (e.g., Large, Ryan, Walsh, Stein-Parbury, & Patfield, 2014). Recent data, however, suggest that this relationship is *not* better explained by pre-admission risk for suicide. In particular, after controlling for other risk factors like previous suicide attempts and suicidal ideation, more frequent hospitalization has been shown to be uniquely predictive of increased risk for subsequent suicidal behavior (Czyz, Berona, & King, 2016; Coyle, Shaver, & Linehan, 2018). Data like these suggest a worrisome relationship between psychiatric hospitalization and subsequent suicide.

Clinical Decision-Making Regarding Hospitalization

Notably, although data on the potentially iatrogenic (or harmful) effect of psychiatric hospitalization on suicide risk continue to accrue, very little is known about the clinical decision-

making that leads clinicians to recommend hospitalization for their suicidal patients. The implications of this research gap are accentuated by the reality that available guidelines for when and when not to hospitalize are minimal to non-existent. For instance, although the Practice Guidelines for the Assessment and Treatment of Patients with Suicidal Behaviors (Jacobs et al., 2003), the National Strategy for Suicide Prevention (U.S. Department of Health and Human Services, 2012), and the recently published Recommended Standard Care for People with Suicide Risk (National Action Alliance for Suicide Prevention, 2018) describe intended goals and potential concerns of psychiatric inpatient hospitalization, none of these provides explicit guidance or criteria for aiding clinicians in deciding whether or not (and when) to hospitalize their suicidal patients. Despite this lack of guidance, real-world clinicians must make determinations about whether to hospitalize their suicidal patients every day. As a result, the lack of understanding of how clinicians arrive at the decision to hospitalize or not hospitalize their suicidal patients comprises a significant gap in the literature.

Rectifying the dearth of research in this area may be important for several reasons. First, the relationship between suicide risk, risk assessment, and use of psychiatric hospitalization as a risk management intervention is unclear. Suicide risk assessment typically results in a clinician making a determination about a given patient's overall level of risk (both acute and chronic), which then informs a clinician's selection of risk management interventions (e.g., Morton, 2014). Psychiatric hospitalization is one of many possible interventions that can be implemented depending on the level and acuity of risk for suicide, and it is thought to be an intervention of "last resort" when other less intensive interventions are deemed insufficient given the risk (e.g., Large & Kapur, 2018). This is consistent with the National Strategy for Suicide Prevention, which states that suicidal individuals should be treated in the least restrictive setting possible,

providing further support for the idea that hospitalization be considered a last resort given the resulting loss of rights to the patient (U.S. Department of Health and Human Services, 2012).

Notably, however, risk assessment and risk management are not so tightly aligned. Clinicians often disagree with each other in assessing suicide risk such that risk formulations can drastically differ, and clinicians predict suicide at rates barely (and rarely) better than chance (Garb, 1998; Garb, 2005; Grove, Zald, Lebow, Snitz, & Nelson, 2000). Additionally, suicide attempts and deaths by suicide remain notoriously difficult to predict, thereby complicating a determination of what risk management strategy is sufficient or appropriate. It is estimated, for instance, that only one third of those who experience suicidal ideation will go on to attempt suicide (Nock, Borges, Bromet, Alonso, Angermeyer, Beautrais, et al., 2008a; Nock, Borges, Bromet, Cha, Kessler, & Lee, 2008b), and the number of suicide attempts in the United States is approximately 33 times greater than the number of suicide deaths (CDC, 2017). Put another way, the majority of people who think about suicide do not attempt suicide, and the majority of people who attempt suicide do not die by suicide (Carter, Child, Page, Clover, & Taylor, 2007). Thus, predicting these low base-rate events remains a complex and imprecise endeavor.

Additionally, a recent meta-analysis revealed that the combination of all suicide risk factor research of the past 50 years (investigating effect sizes from 365 unique studies) has increased our ability to predict suicide attempts within the next year by 0.16% above chance, and it has increased our ability to predict suicide deaths within the next year by just 0.006% above chance (Franklin, Ribeiro, Fox, Bentley, Kleiman, Huang, et al., 2017). The same meta-analysis also showed that fewer than 1% of studies investigating predictors of suicidal behavior examined a predictive timeline of 1 month or shorter (Franklin et al., 2017). In other words, not only is risk assessment demonstrably and understandably imprecise, but research investigating timelines for

suicide risk within acute periods of weeks, days, or even hours is nearly nonexistent. Thus, our inability to meaningfully predict suicide impairs clinicians' abilities to make empirically-driven determinations of either chronic or acute suicide risk, which makes it challenging to determine which risk management strategies or interventions are necessary or sufficient for reducing risk in any given moment. As a result, research evaluating how clinicians arrive at determinations of risk and make decisions regarding risk management strategies like psychiatric inpatient hospitalization may shed important light on how these processes are and are not related.

Second, regardless of whether future research determines hospitalization to be an effective or ineffective practice for managing suicide risk, understanding the factors that impact the decision to hospitalize in the context of treatment may inform future research efforts tailored to improving training, dissemination of effective practices, and intervention efforts. Thus, more research on clinical decision-making regarding hospitalization and risk for suicide is needed.

Studies Examining Clinical Decision-Making Regarding Hospitalization

To date, three studies conducted by the same research group have investigated factors that influence suicide risk assessment and hospitalization decisions for patients at risk for suicide. All three studies employed experimental vignette methodology in which researchers manipulate details of written stimuli while controlling for others to understand and isolate the impact of variables that, using other research, may be difficult or impossible to experimentally manipulate (Evans, Roberts, Keeley, Blossom, Amaro, Garcia, et al., 2015). The first study used experimental vignette methodology to examine factors that predicted (i) ratings of risk for suicide in the next 24 hours from 0 (*not at all likely*) to 100 (*extremely likely*) and (ii) endorsement of hospitalization for two hypothetical patients with differing clinical characteristics

(Berman, Stark, Cooperman, & Wilhelm, 2015). Specifically, for one of the two vignettes, the authors randomized four patient-level risk factors (previous suicide attempts, history of childhood sexual abuse, proximity to suicide at a young age, or current access to psychotropic medications) to determine their impact on risk perception. The data supported several findings. First, there was notable heterogeneity in the levels of risk assigned by different clinicians, and risk ratings did not necessarily align with the decision to hospitalize or not hospitalize. In other words, some participants rated the patients as high-risk but said they would not hospitalize them, whereas other participants rated the patients as low-risk but said they would seek hospitalization. Additionally, only one experimentally-manipulated patient factor – access to psychotropic medication – significantly predicted risk ratings and decisions to hospitalize, but others (including a history of previous suicide attempts) did not. Finally, a number of clinician-level factors, or variables that describe differences in clinician characteristics, emerged as predictive of risk and increased the likelihood of hospitalization for the female patient, including higher levels of religiosity, being a male clinician, and having a larger caseload per week.

The two other studies again used experimental vignette methods to ascertain whether different factors influence clinician risk ratings and decisions to hospitalize patients at risk for suicide. In the first, the authors randomized whether participants saw a legal prime (i.e., a reminder of the consequences of failing to act appropriately in the face of suicide risk) and found that, contrary to predictions, the legal prime resulted in *lower* ratings of suicide risk (Berman, Sullivan, Wilhelm, & Cohen, 2016). Notably, however, the experimental condition was not related to decisions regarding hospitalization, suggesting again that differences in risk ratings between conditions were not related to decision-making regarding hospitalization. In another study, the authors investigated whether and how patient and clinician age interacted to influence

risk assessment and hospitalization endorsement (Berman, Tung, Matheny, Cohen, & Wilhelm, 2016). Results provided evidence for a "similarity bias," such that older clinicians rated the younger patient as higher risk, and younger clinicians rated the older patient as higher risk. Patient age, however, was not related to hospitalization endorsement. That said, several clinician-level characteristics emerged as significantly predictive of endorsing hospitalization for the hypothetical male client in this study – being a female clinician, having a larger caseload per week, having previously hospitalized an outpatient, and being an older clinician.

Taken together, these data suggest some notable patterns. First, across studies, there is a discrepancy between predictors of clinician ratings of risk and predictors of clinician decisions to hospitalize. In fact, only one variable in any of the studies – being an older clinician – predicted both ratings of risk and hospitalization decisions, and it only did so when older clinicians were presented vignettes depicting younger patients (Berman, Tung, et al., 2016). Second, the variables that tended to emerge as predictive of hospitalization were generally clinician-level variables, like clinician gender, caseload, and having previously hospitalized an outpatient client (e.g., Berman, Tung, et al., 2016). This is noteworthy because ratings of risk were more likely to be influenced by patient-level variables, like having access to psychotropic medication (e.g., Berman et al., 2015). Third, data seem to suggest a "similarity bias" because, across studies, clinicians who were of different genders than the patient portrayed in the vignette were more likely to endorse hospitalizing the patient (Berman et al., 2015; Berman, Tung, et al., 2016). This tendency fits with a broader literature suggesting that clinician cultural factors, like race and gender, can bias clinical decision-making in general (e.g., Sohler & Bromet, 2003; Crosby & Sprock, 2004; James & Haley, 1995).

Limitations of Existing Research

These studies, though informative, have a number of significant limitations. First, although these studies included patient-level variables related to risk for suicide (e.g., access to psychotropic medication and age), none of these studies sought to examine patient-level variables theoretically or empirically related to hospitalization. For instance, patients with BPD are commonly encountered in psychiatric hospitals and psychiatric emergency departments (Koehne & Sands, 2008), with an estimated 9-27% of patients in emergency departments presenting with BPD (Pascual, Corcoles, Castano, Gines, Gurrea, Martin-Santos, et al., 2007; Miller, Abrams, Dulit, & Fyer, 1993). Additional research shows that patients with BPD are admitted to psychiatric inpatient units more frequently than patients carrying other diagnoses (Peritogiannis, Stefanou, Damigos, & Mavreas, 2008). Other patient-level variables warrant consideration as well. For instance, a recent study demonstrated that the sole predictor of psychiatric emergency room visits during a year of psychological treatment was a patient's history of psychiatric inpatient admissions prior to treatment (Coyle et al., 2018). Though patient-level variables like these predict the use of psychiatric inpatient hospitalization, it remains unknown how the most frequent users of psychiatric hospitalization become the most frequent users. It is possible, for instance, that a diagnosis of BPD and a history of psychiatric inpatient hospitalizations impact clinical decision-making such that clinicians more frequently endorse hospitalization for patients with these characteristics. However, no research to date has examined this possibility.

An additional limitation of the existing research is its questionable ecological validity. In the vignettes used as the stimuli for the Berman et al. studies, the client descriptions did not include many direct indices of suicide risk that clinicians would typically assess in making a determination of acute (or short-term) risk; namely, whether the person has a suicide plan,

whether the person has current intent to kill themselves, and whether the person has access to lethal means (e.g., American Psychiatric Association, 2016). As a result, clinicians were asked to make a decision without key information that would normally inform real world decision-making. It is interesting that a sizable proportion of clinicians across studies endorsed hospitalizing the hypothetical client despite not having sufficient information regarding intent, access to means, and suicide plans (13%-37%; Berman et al., 2015; Berman, Tung, et al., 2016; Berman, Sullivan, et al., 2016). Because this important information was lacking, these decisions (and thus what predicts them) may not adequately reflect the conditions under which clinicians would be making the decision to hospitalize in real-world clinical practice.

Additionally, this field of research would benefit from further investigation of clinician-level variables as they relate to this kind of clinical decision-making. Given prior research demonstrating that clinicians with higher caseloads were more likely to endorse hospitalization (Berman et al., 2015; Berman, Tung, et al., 2016), a potentially relevant clinician-level variable may include burnout. Burnout refers to the experience of physical and mental exhaustion that results from prolonged involvement in work-related activities that are emotionally demanding (Schaufeli & Greenglass, 2001). Research shows that burnout impacts health care systems and the quality of care that patients receive in those systems (Shanafelt, 2009; Wallace, Lemaire, & Ghali, 2009; Lemaire, Wallace, Dinsmore, Lewiin, Ghali, & Roberts, 2010). Given that high caseloads in these prior studies may serve as a proxy for clinician burnout (e.g., Shirom, Nirel, & Vinokur, 2010), an investigation into the direct relationship between burnout and the decision to hospitalize is needed. Finally, no studies to date have investigated the potential impact of clinician-level variables like confidence in treating suicidal patients or concerns about treating suicidal patients on decision-making regarding hospitalization. Clinician- level variables like

these may be of particular interest because they, unlike demographic (e.g., age, gender) or historical (e.g., history of hospitalizing patients) factors, may be malleable. Thus, if they predict clinical decision-making in non-desired ways, these factors can potentially be changed (via from some form of intervention, like training or supervision) to enhance the effectiveness of decision-making regarding hospitalization. Accordingly, these types of clinician-level variables and their relationship to clinician endorsement of hospitalization warrant further study.

A final limitation of the currently available research is that it does not consider the potential influence of climate-level factors on clinical decision-making regarding hospitalization. This gap is notable given that climate-level variables like organizational norms and expectations, as well as rules and practices that limit or define how individuals are to behave within their respective organizations, are known to influence clinical decision-making more broadly (Glisson & James, 2002). One model for understanding clinician behavior in terms of self-report proxies for climate-related constructs comes from the Theory of Planned Behavior (TPB; Ajzen, 1991). The theory holds that four factors predict the behaviors that healthcare professionals emit: (i) intention to emit a specific health-related behavior; (ii) attitudes toward and beliefs about a specified health-related behavior; (iii) organizational norms about how healthcare professionals should act in a given situational context; and (iv) the degree to which healthcare professionals feel able to engage in and control a certain health-related behavior (i.e., perceived behavioral control, PBC). Factors like these give important about the climate in which a clinician is situated, and variability in these climate proxy variables may meaningfully influence a clinician's endorsement of hospitalization. For instance, if a clinician reports that their organizational context is highly favorable of hospitalizing suicidal patients, then that perception of organizational norms may influence a clinician's decision-making regarding hospitalization.

Similarly, if an organization has strict guidelines regarding when hospitalization should be recommended (thus reducing a clinician's perceived behavioral control, or PBC), then those policies may drive a clinician's decision more than his or her own attitudes, beliefs, or history with hospitalizing patients. Additionally, research is converging on the idea that variables reflecting organizational or cultural climate substantively impact not only clinician attitudes but also their overt behaviors (e.g., Holahan, Aronson, Jurkat, & Schoorman, 2004; Aarons, 2005; etc.), and TPB constructs in particular have been found to explain an estimated 31% of the variance in healthcare professionals' behavior (Godin, Belanger-Gravel, Eccles, & Grimshaw, 2008). Thus, the fact that nothing is known about how climate-related variables like organizational norms or PBC impact clinicians' decisions to endorse psychiatric hospitalization for suicidal patients in the context of treatment is a noteworthy gap in this research area.

Current Project

This project aims to further previous research by using experimental vignette methodology – a methodology that allows for flexible manipulation of variables to examine their specific impact on responding – to study clinical decision-making regarding hospitalization of suicidal patients. Specifically, we aim to fill the aforementioned research gaps by (i) improving the ecological validity of the vignette stimulus by including information relevant to empirically supported, direct indicators of acute suicide risk, (ii) assessing whether factors associated with high utilization of hospitalization (rather than factors associated with acute suicide risk *per se*) influence clinical decision-making regarding hospitalization, (iii) including malleable theory-driven clinician-level variables to predict decision-making regarding hospitalization such as clinician burnout and attitudes towards treating suicidal patients, and (iv) including variables that

serve as indicators for climate, such as subjective experiences of organizational norms and perceived behavioral control, to predict decision-making regarding hospitalization.

Thus, the specific aims and accompanying hypotheses of this research project are:

Aim 1. Examine how specific patient-level factors (presence or absence of BPD diagnosis, presence or absence of history of hospitalizations) relate to hospitalization decisions, risk likelihood ratings, and ordinal ratings of acute suicide risk for a hypothetical suicidal patient across clinical scenarios.

Hypothesis 1: We hypothesize that vignettes including the presence of a BPD diagnosis will predict increased hospitalization endorsement and higher ratings of risk, as will vignettes that include a client description with a history of multiple hospitalizations (as opposed to a history of no hospitalizations). We further hypothesize an interaction such that the presence of a history of hospitalizations will predict a more pronounced increase in hospitalization endorsement and risk ratings for vignettes that include a patient with a BPD diagnosis than for vignettes that do not.

Aim 2. Examine how clinician-level factors relate to hospitalization decisions, risk likelihood ratings, and ordinal ratings of acute suicide risk for a hypothetical suicidal patient across clinical scenarios.

Hypothesis 2: We hypothesize that larger caseloads, higher burnout, more concerns about treating suicidal patients, lower degrees of self-efficacy in treating suicidal patients, having ever hospitalized an outpatient, and having had a previous patient die by suicide will predict increased endorsement of hospitalization and higher risk ratings across vignettes. We have no *a*

priori hypotheses regarding theoretical orientation, clinician degree, or clinician work setting and their relationship to hospitalization endorsement or risk likelihood ratings.

Aim 3. Examine how variables related to climate predict hospitalization decisions, risk likelihood ratings, and ordinal ratings of acute suicide risk for a hypothetical suicidal patient across clinical scenarios.

Hypothesis 3: We hypothesize that greater intention to hospitalize suicidal patients, more positive attitudes towards hospitalization, higher degrees of social pressure to hospitalize suicidal clients, and lower perceived behavioral control (PBC) regarding the decision to hospitalize will predict increased endorsement of hospitalization and risk likelihood ratings.

Aim 4: Examine whether clinician endorsement of hospitalization relates to ratings of suicide risk.

Hypothesis 4: We hypothesize that clinician endorsement of hospitalization and risk likelihood ratings will not be related.

Additional exploratory analyses will be conducted with no *a priori* hypotheses. Exploratory aims include:

Exploratory Aim 1. Investigate a combined model for how patient-, clinician-, and climate-level factors concurrently predict hospitalization decisions, risk likelihood ratings, and ordinal ratings of acute suicide risk for a hypothetical suicidal patient across vignettes.

Methods

Overview of Research Design and Methods

The present research was conducted in two phrases. The primary goals of the first (pilot) phase was to finalize the vignette stimuli, test the TPB questions designed to assess climate-relevant factors relevant to hospitalization, and incorporate participant feedback about questions and stimuli as needed. Specifically, we recruited a small sample of clinicians to read draft vignettes (See Appendix A) and answer questions regarding whether they would recommend hospitalization for the client depicted in the vignette, aspects or details that most influenced their decision to hospitalize or not hospitalize, and readability/clarity of the vignette and associated questions. Participants similarly answered draft TPB questions designed to assess variables related to climate and provided open-ended answers to questions regarding attitudes towards hospitalization, norms about hospitalization, and PBC. Feedback and content analysis from this stage were then used to revise the vignette stimuli and the TPB questions for the second phase of the study.

The second (main) phase served to address the study aims as outlined. Specifically, we recruited clinicians to participate in an online study of clinical risk perception and decision-making in the context of managing suicidal patients. Study stimuli for each participant included four vignettes that described hypothetical suicidal clients, with combinations of patient-level variables (e.g., BPD diagnosis [yes/no] and history of hospitalizations [yes/no]) differing between vignettes within participants and detail-vignette combinations counterbalanced across participants. Before beginning the study, clinicians were instructed to respond to the vignettes as themselves, describing what they *would* do in the scenario (as opposed to what they think they *should* do) and acknowledging real-life limitations (e.g., availability of specialists for referrals; Evans et al., 2015). After reading each vignette, participants were asked (1) whether they would recommend hospitalization for the patient described and (2) to describe the patient's risk for

suicide. To assess clinician- and climate-level variables, study measures were then administered following the presentation of the vignette. Finally, demographic information was collected, and participants were provided with debriefing information about the study.

Pilot Phase Methods

Participants

Participants were 30 adults currently residing in the United States who volunteered to participate in an online research study investigating clinical decision-making in treating suicidal patients. To be eligible, participants had to be (i) practicing, licensed mental health professionals (i.e., currently carry a clinical caseload) in the United States and (ii) proficient in English. Participants were recruited through email lists maintained by both national (e.g., Association of Behavioral and Cognitive Therapies, etc.) and local (e.g., Seattle Psychoanalytic Society and Institute) groups/organizations in order to recruit a sample comprised of clinicians from a diverse range of theoretical orientations and disciplines. Study advertisements sent via email included a brief description of the study, eligibility requirements, contact information for the principal investigator, and a link to access the online measures.

Pilot study participant (20 females, 10 males) ages ranged from 24 to 47 (M = 34.8, SD = 5.9). 77.4% of the sample (n = 24) identified as White/Caucasian, 9.7% (n = 3) identified as Hispanic or Latino/Latina/Latinx, and 12.9% (n = 4) identified as Asian or Asian-American. The majority of the sample (53.3%; n = 16) reported earning a Ph.D. as their highest degree, while 30% (n = 9) reported a master's degree (i.e., M.S., M.S., or M.S.W.) as their terminal education. Just 10% of the sample (n = 3) reported having a Psy.D., and only 6.7% of the sample (n = 2) reported having an M.D. Participant work environments varied widely in our sample, with the

most commonly endorsed work environment being hospitals or medical centers (27.6%; *n* = 8) followed by group private practices (17.2%; *n* = 5), individual private practices (13.8%; *n* = 4), community and university outpatient settings (both 10.3% each; *n* = 3), and day treatment and residential facilities (both 3.4% each; *n* = 1). Most of the sample endorsed cognitive-behavioral therapy (CBT) as their predominant theoretical orientation (56.7%; *n* = 17), but 26.7% (*n* = 8) endorsed their orientation as dialectical behavior therapy (DBT) and 13.3% (*n* = 4) endorsed their orientation as psychoanalytic or psychodynamic. Finally, 82.8% (*n* = 24) endorsed having hospitalized a client in their roles as clinicians, and 20.7% (*n* = 6) endorsed having had a client die by suicide. Demographic and historical characteristics of the pilot sample are summarized in Table 1.

Data collection procedure

Upon clicking the link in the study advertisement, participants were screened for eligibility, provided informed consent, and completed the study procedures online via the University of Washington Psychology Department's license with Qualtrics Survey Software (www.qualtrics.com), a secure program for data collection and management. Participants were encouraged to contact the principal investigator (via email and/or phone number) with any questions or concerns before proceeding with the study. After a participant consented to participate, participants viewed all 4 vignettes. After answering questions about the vignettes, participants then completed additional measures and answered demographic and historical questions. Upon completion, participants were compensated $10 for their time using money from the University of Washington Bolles Dissertation Award.

De-duplication/Careless Responding Protocol

Given that all study data were collected online, potential duplication due to repeated participation and careless responding needed to be addressed. Qualtrics Survey Software helped prevent participants from taking the survey multiple times by placing a cookie on their browser when they submitted a response. If a participant were to click on the survey link again, Qualtrics would detect this cookie and prevent the person from retaking the survey. Additionally, data were checked for fraudulent or duplicate responding when (i) IP addresses matched (ii) completion times were less than one-third of the average time spent and (iii) when straight-line responding (selecting the same response item for all questions) was observed, consistent with recommendations (Maniaci & Rogge, 2014; Meade & Craig, 2012; Salsman et al., 2014). No such responding was observed in the pilot phase, so all data were retained for analyses.

Measure Development

Vignette. Preliminary versions of the study vignettes were designed according to the recommendations made by Evans et al. (2015) and included four brief scenarios describing continuing therapy cases involving distinct adult patients with recent increases in suicidal ideation: (1) a woman in her 40's who was recently fired from her job and also suffered the death of a pet; (2) a man in his 30's whose wife suddenly passed away; (3) a woman in her mid-20's whose romantic partner had just left her for another woman; and (4) a man in his 40's whose wife unexpectedly filed for divorce (See Appendix A for full drafts of pilot vignettes). The draft vignettes were designed to create scenarios in which the risk level of the patient was high enough that considering hospitalization would not be an unreasonable choice for clinicians, yet not so high that there would be low variability in clinician responses. In other words, the vignettes were designed to prevent either floor or ceiling effects for study outcomes (e.g., whether clinicians would hospitalize the patient and the level of risk assigned to the patient). To guide the

development of the client description in terms of suicide risk, we utilized Rudd's acute suicide risk continuum (2006) to generate vignettes that portrayed the second highest level of risk ("severe") but not the highest level of risk ("extreme"). Specifically, Rudd (2006) operationalizes "severe" suicide risk as being characterized by frequent, intense, or enduring suicidal ideation; specific plans; and no subjective intent but some objective markers of intent (e.g., acquiring means, writing a note, etc.). Additionally, in order to minimize the salience of demographic characteristics of the hypothetical client, ethnicity was not specified in any of the vignettes, and names were chosen because of their racial ambiguity. Additionally, we worked to select ages for the clients depicted in the vignettes that were not strongly related to suicide risk (Centers for Disease Control and Prevention, 2017).

As recommended, the preliminary vignettes were submitted to multiple experts for review to ensure validity and relevance, and expert revisions were incorporated (Evans et al., 2015; Gould, 1996; Lauder, 2002; Veloski, Tai, Evans, & Nash, 2005). Per recommendations in order to finalize the vignettes for use in the main phase of the study, the draft vignettes were piloted with a sample of 30 clinicians (Evans et al., 2015; Flaskerud, 1979; Ganong & Coleman, 2006; Gould, 1996). In addition to answering questions about risk and whether they would recommend hospitalization for the clients depicted in the vignettes, the participating clinicians were also asked to answer a series of questions about the clarity of the study instructions, the salience of risk factors presented in the vignette (i.e., "please identify the top three details in the vignette description that most influenced your recommendation about hospitalization"), and attitudes towards/beliefs about hospitalizing highly suicidal patients.

Theory of Planned Behavior (TPB) Measure. Given that no existing measures assess constructs relevant to climate (e.g., organizational norms or the degree to which clinicians can

control their actions within an organization) with regards to hospitalizing suicidal clients, we set out to construct items to assess these constructs in this domain. To accomplish this, we followed recommendations from experts on the Theory of Planned Behavior (TPB; Ajzen, 1991) to design an effective questionnaire to assess (i) clinician intentions to hospitalize suicidal clients, (ii) clinician attitudes towards hospitalizing suicidal clients, (iii) subjective norms and normative beliefs regarding hospitalizing suicidal clients, and (iv) the degree to which clinicians feel they are in control of the decision to hospitalize suicidal clients, or their perceived behavioral control (PBC; Francis, Eccles, Johnston, Walker, Grimshaw, Foy, et al., 2004). Specifically, we utilized template questions, statements, and Likert-type response options from the research manual on TPB (e.g., "I feel under social pressure to [insert behavior]") that are designed to allow researchers to replace the action statement in the question with any health-related behavior under study, and participants provide responses with anchors ranging from 1 (e.g., *strongly disagree*) to 7 (e.g., *strongly agree*). Furthermore, we tailored these questions to the topic of hospitalization for suicidal patients (e.g., "I feel under social pressure to hospitalize a suicidal client"). Thus, by inserting the specific health-related action under study into the templates from the TPB research manual, we created an initial 15-item scale to assess clinician attitudes, climate norms, and PBC relevant to hospitalization (Francis et al., 2004).

Additionally, as recommended in the TPB manual, we obtained more detailed information about the factors relevant to clinicians' views about hospitalizing suicidal clients via open-ended questions about intentions, attitudes, norms, and PBC (Francis et al., 2004). These qualitative data are meant to influence the wording and design of additional quantitative, forced-choice TPB questions to make sure that the entirety of the constructs are adequately captured. Per recommendations, the draft of our 15-item scale and the accompanying open-ended

questions was piloted with a small number of participants (the same group that piloted the vignettes), where they also provided feedback about the clarity of the instructions and answer the open-ended questions.

Additional Measures

Demographic information items. Participants completed several items describing demographics and professional experience, including the following: age, gender, ethnicity, highest degree obtained (e.g., MSW, PsyD, Ph.D., etc.), years of clinical experience, hours per week conducting psychotherapy, caseload in average number of patients seen per week, whether they have ever hospitalized a patient, whether they have ever lost a patient to suicide, work setting, and predominant theoretical orientation.

Risk Ratings and decision to hospitalize. After reading the vignette, participants were asked to describe the patient's risk for suicide. Specifically, consistent with previous work (e.g., Berman et al., 2015; Berman et al., 2016), participants were asked to rate the likelihood that the patient portrayed in the vignette would kill themselves in the next 24-hour period from 0 (*not at all likely*) to 100 (*extremely likely*). Additionally, to garner a more descriptive understanding of the clinicians' perception of the patient's risk for suicide, we utilized the ordinal risk levels described in Rudd's (2006) acute suicide risk continuum and asked participants to describe the patient's risk for acute suicide from "minimal" to "extreme." Finally, participants were also asked whether they would recommend hospitalization at the end of the outpatient session (e.g., Berman et al., 2016).

Pilot Results and Revisions for Main Study

Vignette questions, feedback, and revisions. Mean risk ratings for each of the pilot vignettes, the percentage of participants who endorsed hospitalization for the client depicted in the vignettes, and breakdowns of how participants described risk in terms of Rudd's acute risk ratings are reported in Table 2.

For the vignette describing Maria, risk ratings ranged from 1-80 (M = 33.9, SD = 25.0), and 50% of the sample (n = 15) endorsed recommending hospitalization for her. For the vignette describing Dan, risk ratings ranged from 1-65 (M = 37.3, SD = 20.3), and 36.6% of the sample (n = 11) endorsed recommending hospitalization for him. Additionally, for the vignette describing David, risk ratings ranged from 2-80 (M = 43.9, SD = 23.9), and 53.3% of the sample (n = 16) endorsed recommending hospitalization for him. Client characteristics for these vignettes were not altered for the main study.

For the vignette describing Rachel, risk ratings ranged from 1-80 (M = 29.5, SD = 19.5), but only 16.7% of the sample (n = 5) endorsed recommending hospitalization for her. Notably, since comparatively few participants endorsed hospitalization for this client, thus minimizing variance explainable with statistical testing, we referred to the reasons participants provided as influencing their decision to not hospitalize this client to guide vignette revision. The two most commonly endorsed reasons for not hospitalizing this client were (1) that the patient as described reports no suicide intent and (2) that the patient displays sadness at the thought of dying. To increase the likelihood that more participants in the main study would hospitalize the client depicted in this vignette, we incorporated this feedback into the revised vignette such that (1) the patient would be described as having ambivalent suicide intent and (2) the patient is described as displaying both sadness and relief at the thought of dying.

Responses to open-ended questions soliciting feedback about vignettes varied widely. Of those who provided open-ended feedback (n = 20), most (n = 15) described the vignettes as realistic and appropriate for questions regarding hospitalization. Constructive feedback displayed no patterns, and no suggestion for improving the vignettes was endorsed more than once. For instance, one participant described wanting to know what coping skills the hypothetical clients had learned, but given that this feedback was not systematically endorsed, such idiosyncratic changes were not implemented. We noticed, however, that several participants across studies described one of the reasons for hospitalizing the hypothetical clients as being their history of suicide attempts – despite the fact that the vignettes explicitly stated that the patients had never attempted suicide. We hypothesized that the inclusion of the broad term "suicidality" in the vignettes may have inadvertently confused some participants into thinking that the patients had attempted suicide, so we also eliminated the term "suicidality" from all vignettes and replaced it with the more topographically specific term "suicidal thoughts."

TPB items, feedback and revision. The 3-item intention subscale containing questions assessing clinicians' intentions to hospitalize (e.g., "I expect to hospitalize highly suicidal patients.") displayed a high degree of internal consistency (α = .87), so this subscale was retained without amendment. The 4-item attitude subscale containing questions assessing clinicians' attitudes towards hospitalization (e.g., "Hospitalizing a suicidal patient is good/bad"), however, displayed a very low internal consistency (α = .10). Removing the "Hospitalizing a highly suicidal patient is pleasant/unpleasant for me" item improved the internal consistency to an acceptable level comparable with recently published research employing TPB constructs (α = .61; El Tantawi, Aljameel, Fita, AlSahan, Alsuwaiyan, & El Meligy, 2019; Abamecha, Tena, & Kiros, 2019; Passafaro, Livi, & Kosic, 2019), and given that the TPB manual encourages

deletion of ill-performing items (Ajzen, 1991), we removed this item for the main phase of the study. The 4-item subjective norms subscale containing questions assessing clinicians' perceptions of their climate's social norms (e.g., "It is expected of me that I refer highly suicidal clients for hospitalization.") displayed an acceptable of internal consistency (α = .75); however, removing the "I feel under social pressure to hospitalize highly suicidal clients" item improved the internal consistency (α = .86), so we removed that item for the main phase of the study. Finally, the 4-item PBC subscale containing questions assessing clinicians' perceptions of their capacity to hospitalize or not hospitalize suicidal clients (e.g., "Whether I hospitalize a suicidal patient is entirely up to me.") displayed low internal consistency (α = .58); however, removing the "For me, hospitalizing a highly suicidal patient is easy/hard" item markedly improved the internal consistency (α = .82), so we removed that item for the main phase of the study.

We then reviewed responses to open-ended items intended to capture other aspects of intentions, attitudes, subjective norms, and PBC not already captured by the existing questions. Without exception, responses indicated that no additional questions were needed to fully capture the intended constructs (e.g., "nothing comes to mind!"), so no new questions were designed.

Main Phase Study Methods

Participants. Participants included 206 adults currently residing in the United States who volunteered to participate in an online research study investigating clinical decision-making in treating suicidal patients. To be eligible, participants had to be (i) practicing, licensed mental health professionals (i.e., currently carry a clinical caseload) in the United States and (ii) proficient in English. Participants were recruited through email lists maintained by both national (e.g., Association of Behavioral and Cognitive Therapies, Dialectical Behavior Therapy Listserv,

International Society for Traumatic Stress Studies Listserv, etc.) and local (e.g., Seattle Psychoanalytic Society and Institute, Chicago Psychoanalytic Institute, etc.) groups/organizations in order to recruit a sample comprised of clinicians from a diverse range of theoretical orientations and disciplines. Study advertisements sent via email included a brief description of the study, eligibility requirements, contact information for the principal investigator, and a link to access the online measures.

Data collection procedure. Upon clicking the link in the study advertisement, participants were screened for eligibility, provided informed consent, and completed the study procedures online via the University of Washington Psychology Department's license with Qualtrics Survey Software (www.qualtrics.com), a secure program for data collection and management. Participants were encouraged to contact the principal investigator (via email and/or phone number) with any questions or concerns before proceeding with the study. After a participant consented to participate, Qualtrics randomized them such that all of the following conditions were met: (i) participants each saw all 4 client vignettes (ii) each participant saw all 4 possible combinations of patient-level characteristics (i.e., BPD diagnosis [yes/no] and history of hospitalizations [yes/no]) and (iii) the combination of which patient-level characteristics were paired with which specific client vignettes was counterbalanced across participants. After answering questions about all vignettes, participants then completed additional measures and answered demographic and historical questions. Upon completion, participants were compensated $10 for their time using money from the University of Washington Bolles Dissertation Award.

De-duplication/careless responding protocol. Procedures were identical to those used in the pilot phase. Qualtrics Survey Software helped prevent participants from taking the survey

multiple times by placing a cookie on their browser when they submitted a response. If a participant were to click on the survey link again, Qualtrics would detect this cookie and prevent the person from retaking the survey. Additionally, data were checked for fraudulent or duplicate responding when (i) IP addresses matched (ii) completion times were less than one-third of the average time spent and (iii) when straight-line responding (selecting the same response item for all questions) was observed, consistent with recommendations (Maniaci & Rogge, 2014; Meade & Craig, 2012; Salsman et al., 2014). As such, 8 responses were excluded because of matching IP addresses and straight-line responding, and 43 responses were excluded because of completion times less than one minute, resulting in a final sample of 155 participants for analyses.

Participant characteristics. Participants (109 females, 46 males) ranged in age from 26 to 70 (M = 40.2, SD = 9.5). A majority of the sample (88.4%; n = 137) identified as White/Caucasian, 5.8% (n = 9) identified as Hispanic or Latino/Latina/Latinx, 2.5% (n = 4) identified as Native American, 2.5% (n = 4) identified as African American, and 4.5% (n = 7) identified as Asian or Asian-American. Participant highest degrees included Ph.D. (41.9%; n = 65), a master's degree (i.e., M.S., M.S., or M.S.W.; 31.6%, n= 49), Psy.D. (14.8%; n = 23), M.D. (9.7%; n = 15), a bachelor's degree (i.e., B.S. or B.A.; 1.3%, n = 2), and LNP (0.6%, n = 1). Participant work environments varied widely, with the most commonly endorsed work environment being hospitals or medical centers (27.1%; n = 42), followed by group private practices (23.2%; n = 36), individual private practices (22.6%; n = 35), community outpatient practice (9.0%, n = 14), university outpatient practice (5.8%; n = 9), day treatment (1.9%, n = 3), and residential facilities (0.6%; n = 1). The theoretical framework that clinicians in our sample most commonly described as their predominant theoretical orientation was dialectical behavior

therapy (DBT; 42.6%; *n* = 66), but 24.5% (*n* = 38) endorsed their orientation as psychodynamic or psychoanalytic, and 23.3% (*n* = 36) endorsed their orientation as cognitive-behavioral (CBT). Less commonly endorsed theoretical orientations were family systems (2.6%, *n* = 4) and humanistic/client-centered (1.9%, *n* = 3. Finally, 87.1% (*n* = 135) endorsed having hospitalized a client in their roles as clinicians, and 27.1% (*n* = 42) endorsed having had a client die by suicide. Demographic and historical characteristics of the pilot sample are summarized in Table 3.

Study Stimuli

Vignettes. See Pilot Phase methods for details regarding vignette development and revision procedures. Full versions of the finalized study vignettes are presented in Appendix B.

Measures

Demographic information items. Demographic information collected were identical to the information collected in the pilot phase. Specifically, participants completed several items describing demographics and professional experience, including the following: age, gender, ethnicity, highest degree obtained (e.g., M.S.W., Psy.D., Ph.D., etc.), years of clinical experience, hours per week conducting psychotherapy, caseload in average number of patients seen per week, whether they have ever hospitalized a patient, whether they have ever lost a patient to suicide, work setting, and predominant theoretical orientation.

Risk ratings and decision to hospitalize. Questions regarding risk and hospitalization were identical to those used in the pilot phase of the study. After reading each vignette, participants were asked to describe the patient's risk for suicide. Specifically, for each of the 4 vignettes presented, participants were asked to rate the likelihood that the patient portrayed in the vignette would kill themselves in the next 24-hour period from 0 (*not at all likely*) to 100

(*extremely likely*). Additionally, to garner a more descriptive understanding of the clinicians' perception of the patient's risk for suicide across vignettes, we utilized the ordinal risk levels described in Rudd's (2006) acute suicide risk continuum and asked participants to describe the patient's risk for acute suicide using one of 5 descriptive labels ranging from "minimal" to "extreme." Finally, participants were also asked whether they would recommend hospitalization for the patients depicted in the vignettes at the end of the outpatient session (yes/no).

Self-Efficacy in Assessing and Managing Suicide Risk (SEAMSR). Participants also completed the SEAMSR, which is an 8-item self-report measure (Harned, Lungu, Wilks, & Linehan, 2016). This instrument is designed to assess clinicians' confidence in their ability to assess suicide risk (e.g., "I am confident that I can accurately assess long-term risk factors for suicide") and administer appropriate risk management interventions as a result (e.g., "I am confident that I can implement evidence-based strategies for managing suicide risk"). Items were rated on a Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*) and were averaged to create a full-scale score. This measure demonstrated acceptable internal reliability in our sample ($\alpha = 0.79$).

Concerns about Treating Suicidal Patients (CATSP). Next, participants were administered the 22-item CATSP, which is a self-report measure that includes four subscales relevant to concerns about treating suicidal patients (Harned et al., 2016). The four subscales include: (1) Concerns about Making Clinical Errors such as responding to suicidal patients in ineffective ways (six items, e.g., "I will fail to hospitalize a suicidal patient when it is needed or would be effective"), (2) Concerns about Competence such as lacking sufficient training to respond effectively to suicidal patients (five items, e.g., "Do not have needed training to be competent"), (3) Concerns about Liability (six items, e.g., "About being sued as a result of my

work with suicidal patients"), and (4) Concerns about Emotional Impact of treating suicidal patients (five items, e.g., "I would be emotionally devastated if one of my patients committed suicide"). Items were rated on a Likert-type scale from 1 (*strongly disagree*) to 7 (*strongly agree*) and were averaged to create a full-scale score in addition to subscale scores. Each subscale demonstrated good internal reliability in our sample (α = 0.86-0.89), and the full scale demonstrated excellent internal reliability (α = 0.96).

Copenhagen Burnout Inventory (CBI). Participants also completed the CBI, which is a 19-item self-report measure that assesses physical and psychological fatigue related to clinician burnout (Kristensen, Borritz, Villadsen, & Christensen, 2005). The CBI includes 3 subscales: (1) personal burnout (six items, e.g., "How often are you emotionally exhausted?"), (2) work-related burnout (seven items, e.g., "Do you feel worn out at the end of the working day?"), and (3) client-related burnout (six items, e.g., "Are you tired of working with clients?"), and items are scored from 0 (*Never* or *To a very low degree*) to 4 (*Always* or *To a very high degree*). To obtain scores, each item is assigned a numerical value based on the response, such that responses of 0 are allotted 0 points, scores of 1 are allotted 25 points, scores of 2 get 50 points, scores of 3 get 75 points, and scores of 4 get 100 points. Scores for each subscale are calculated by averaging the number of points across items, and a full-scale score can be calculated by averaging points across all items. The scales of this measure prospectively predicted future sickness absences, sleep problems, and intent to quit in previous research (e.g., Kristensen et al., 2005) and thus is a valid measure of burnout. Each subscale demonstrated good internal reliability in our sample (α = 0.80-0.87), and the full scale demonstrated excellent internal reliability (α = 0.93).

Theory of Planned Behavior (TPB) Items. After incorporating feedback from the pilot stage and revising the draft version of the scale, we also administered the abbreviated 12-item TPB questionnaire assessing attitudes/beliefs about psychiatric hospitalization, subjective experiences of organizational social pressure to hospitalize suicidal clients (subjective norms), and perceived behavioral control (PBC) regarding hospitalization. Three of the subscales – intentions, attitudes, and subjective norms – demonstrated excellent internal reliability in our sample (α = 0.89-0.92), whereas the PBC subscale demonstrated poor internal reliability (α = 0.30).

Data Analysis Procedure

Because we collected data on a large number of variables, we adopted and adapted a two-step analytic approach detailed by Harned et al. (2013) to identify variables related to study outcomes (suicide risk likelihood ratings, ordinal ratings of suicide risk, and hospitalization endorsement) and trim variables unrelated to outcomes. In step 1, we ran separate univariate analyses for each predictor to identify patient-level, clinician-level, and climate-relevant predictors that were related to the outcome of interest, thus addressing study aims 1-3. Univariate analyses varied by outcome. Regarding hospitalization decisions, binary logistic regression analyses were conducted for predictors that were continuous, and chi-square tests of independence were used for categorical predictors, and we conducted post-hoc testing using standardized residuals to probe pairwise differences. Regarding risk likelihood ratings, regression analyses were conducted for predictors that were continuous, and analyses of variance (ANOVAs) were conducted for predictors that were categorical, with post-hoc testing using Bonferroni corrections to probe pairwise differences. Regarding ordinal ratings of acute risk for suicide, ordinal regression analyses were used to compute odds ratios to investigate pairwise

comparisons. In step 2, those variables that were not themselves related to study outcomes were trimmed, and all remaining variables identified in step 1 were included in separate multivariate exploratory models for each outcome that combined significant patient-level, clinician-level, and climate-relevant variables, thus addressing exploratory aim 1. Finally, to see whether risk variables were associated with hospitalization decisions, a point-biserial correlation was conducted to explore the relation between risk likelihood ratings and hospitalization decisions, and a Spearman's rank-order correlation was conducted to explore the relation between ordinal ratings of acute suicide risk and hospitalization decisions.

Because data on study outcomes across vignettes were nested within individual participants, we hypothesized that a multilevel modeling (MLM) analytic framework might be appropriate for approaching the exploratory combined model in step 2. To test this assumption, we calculated an intraclass correlation (ICC) for each of the study outcomes, which is a measure of the proportion of the total variation in a given outcome (e.g., suicide risk likelihood ratings) that is accounted for by variation in the grouping structure (e.g., the clinician providing risk likelihood ratings for 4 different vignettes). In other words, the value of the ICC can be used to reflect the degree of clustering. Higher ICCs reflect greater variance attributable to grouping structure, suggesting that a multilevel hierarchical modeling approach may be needed to better account for that grouping-level variance. To calculate the ICC for each outcome, we ran "empty" models (mixed effects models with no predictors) and computed the ratio of group-level error variance over the total variance. Given that the majority of published research employing an MLM framework reports an ICC between 0.15 and 0.30 (Mathieu, Aguinis, Culpepper, & Chen, 2012), we decided *a priori* to proceed with MLM analyses in step 2 for study outcomes demonstrating an ICC > 0.15. For study outcomes with ICC < 0.15, we ran standard or

specialized (e.g., logistic) multiple regression analyses to explore combined models for exploratory aim 1.

Main Study Results

Descriptive Statistics

Mean risk ratings for each of the study vignettes, the percentage of participants who endorsed hospitalization for the client depicted in the vignettes, and breakdowns of how participants described risk in terms of Rudd's acute suicide risk ratings are reported in Table 4. Additionally, mean scores for all study measures (TBP, CATSP, SEAMSR, and CBI) and associated subscales are reported in Table 5.

Overall, risk likelihood ratings varied widely across vignettes (M = 49.8, SD = 25.5; range = 0-100), and clinicians endorsed hospitalization for 50.9% of the vignettes in this study. Additionally, most vignettes were described as reflecting "moderate" or "severe" levels of acute risk for suicide (40.5% and 37.6% respectively), with fewer vignettes being described as "mild" risk (15.0%), and fewer still being described as "extreme" (5.3%) or "minimal" (1.5%). For the vignette describing Maria, risk ratings ranged from 0-99 (M = 40.2, SD = 22.3), and 42.3% of the sample (n = 66) endorsed recommending hospitalization for her. For the vignette describing Dan, risk ratings ranged from 5-99 (M = 53.1, SD = 25.3), and 51.3% of the sample (n = 79) endorsed recommending hospitalization for him. For the vignette describing Rachel, risk ratings ranged from 2-100 (M = 53.0, SD = 26.7), and 56.1% of the sample (n = 87) endorsed recommending hospitalization for her. Finally, for the vignette describing David, risk ratings ranged from 5-99 (M = 53.1 SD = 25.3), and 53.9% of the sample (n = 83) endorsed recommending hospitalization for him.

Decisions about Hospitalization

To evaluate whether hospitalization decisions differed significantly between vignettes across participants, we conducted a chi-square test and found no evidence that the proportion of individuals endorsing hospitalization differed between vignettes ($\chi_2(3) = 6.87$, $p = .08$). Univariate results regarding hospitalization decisions are presented in Table 10.

Patient-level predictors. Univariate logistic regression analyses revealed no statistically significant effects for BPD diagnosis (OR = .86, 95% CI = .55-1.34, β = -.15, $p = .50$), hospitalization history (OR = 1.33, 95% CI = .85-2.09, β = .29, $p = .21$), or their interaction (OR = .98, 95% CI = .52-1.85, β = -.02, $p = .96$) in predicting hospitalization across vignettes.

Clinician-level predictors. A logistic regression revealed that self-efficacy in treating suicidal patients did not significantly predict hospitalization decisions across vignettes (OR = 1.00, 95% CI = .76-1.33, β = .001, $p = .99$). Logistic regression analyses of the CATSP subscales revealed that greater concerns about lacking training and competency in treating suicidal patients (OR = 2.10, 95% CI = 1.68-2.63, β = .74, $p < .001$) and fewer concerns about liability (OR = .70, 95% CI = .55-.89, β = -.36, $p = .002$) predicted an increased likelihood of endorsing hospitalization across vignettes. Neither concerns about making clinical errors (OR = .86, 95% CI = .70-1.08, β = -.15, $p = .21$) nor concerns about the emotional impact of losing a patient to suicide (OR = .88, 95% CI = .75-1.03, β = -.13, $p = .11$) predicted hospitalization endorsement in our sample. Additionally, greater client-related burnout (OR = 1.07, 95% CI = 1.03-1.10, β = .06, $p < .001$) and less personal burnout (OR = .96, 95% CI = .93-99, β = -.04, $p = .003$) were associated with a greater likelihood of endorsing hospitalization across vignettes, whereas work-

related burnout was not associated with hospitalization decisions (OR = .97, 95% CI = .93-1.01, β = -.03, p = .13).

Regarding clinician demographic predictors, logistic regression analyses revealed that clinician age was not significantly predictive of hospitalization endorsement (OR = 1.01, 95% CI = .99-1.03, β = .01, p = .34). A chi-square test of independence was performed to examine the relation between caseload and hospital decisions across vignettes. The relation was significant ($\chi^2(4) = 29.96$, $p < .001$), and post hoc testing using standardized residuals revealed that those with 0-5 clients were significantly less likely to endorse hospitalization than other clinicians (z = -2.6), and those with 11-15 clients were significantly more likely to endorse hospitalization than other clinicians (z = 2.7). Another chi-square test of independence revealed that the relationship between gender and hospitalization decisions across vignettes was significant ($\chi^2(1) = 4.67$, p = .03), with men (57.69%) endorsing hospitalization across vignettes more than women (48.15%). Because previous research showed a similarity bias, such that women are less likely to hospitalize vignettes portraying women (Berman et al., 2015) and men are less likely to hospitalize vignettes portraying men (Berman et al., 2016a), we created a dummy-coded variable reflecting vignette gender to test whether there was an interaction between clinician gender and vignette gender in predicting hospitalization decisions. Analyses from logistic regression revealed that neither vignette gender (OR = .38, 95% CI = .11-1.31, β = -.98, p = .12) nor the interaction term (OR = .62, 95% CI = .31-1.25, β = -.48, p = .18) was related to hospital decisions in our sample.

A chi-square test of independence was performed to examine the relation between clinician degree and hospital decisions across vignettes. The relation was significant ($\chi^2(5) = 46.71$, $p < .001$), and post hoc testing using standardized residuals revealed that M.D.'s were

significantly more likely to endorse hospitalization than clinicians of other degrees ($z = 6.4$), and clinicians with master's degrees were significantly less likely to hospitalize than clinicians of other degrees ($z = -2.9$). A chi-square test of independence examining the relation between clinician theoretical orientation and hospitalization decisions was significant ($\chi_2(6) = 46.05$, $p < .001$), and post hoc testing using standardized residuals revealed that psychodynamic/psychoanalytic clinicians ($z = 4.5$) and humanistic/client-centered clinicians ($z = 2.8$) were significantly more likely to hospitalize than clinicians of other orientations, and clinicians endorsing dialectical behavior therapy (DBT) as their predominate theoretical orientation were significantly less likely to hospitalize than clinicians of other orientations ($z = -5.6$). A chi-square test of independence examining the relation between clinician work environment and hospitalization decisions across vignettes was significant ($\chi_2(7) = 19.11$, $p = .008$), and post hoc testing using standardized residuals revealed that clinicians in individual private practice were significantly more likely to endorse hospitalization than clinicians from other settings ($z = 2.9$), and clinicians working in group private practice were significantly less likely to endorse hospitalization than clinicians from other settings ($z = -2.7$).

Regarding historical characteristics of clinicians, a chi-square test of independence revealed that whether a clinician had ever hospitalized a patient for suicide-related reasons was significantly related to hospitalization decisions across vignettes ($\chi_2(1) = 15.70$, $p < .001$), such that clinicians who had a history of hospitalizing suicidal patients (54.00%) endorsed hospitalization across vignettes more than clinicians who had never hospitalized a suicidal client (29.87%). Finally, A chi-square test of independence revealed that whether a clinician had ever had a patient die by suicide was significantly related to hospitalization decisions across vignettes ($\chi_2(1) = 5.68$, $p = .02$), such that clinicians who had a history of a patient dying by suicide

(43.11%) endorsed hospitalization across vignettes less than clinicians who had never had a patient die by suicide (53.91%).

Climate-relevant predictors. We used logistic regression to predict hospitalization endorsement from each of the TPB subscales and found that more positive attitudes towards hospitalization predicted an increased likelihood of hospitalization endorsement across vignettes (OR = 1.45, 95% CI = 1.05-2.00, β = .37, p = .02). Intentions to hospitalize (OR = 1.10, 95% CI = .86-1.41, β = .10, p = .44), subjective experiences of social pressure to hospitalize (OR = 1.11, 95% CI = .82-1.52, β = .11, p = .50), and perceived behavioral control over the decision to hospitalize (OR = .92, 95% CI = .63-1.34, β = -.08, p = .67) were not predictive of hospitalization endorsement in our sample.

Exploratory model building. After identifying all significant univariate predictors of hospitalization decisions, we then calculated the ICC for hospitalization decisions to assess whether a multilevel approach to exploring a combined model was appropriate. In our sample, ICC = .33 for this outcome, suggesting that 33% of the variance in hospitalization decisions across vignettes was attributable to which clinician was responding. Given that this was higher than our *a priori* cutoff (ICC = .15) for adopting a multilevel modeling approach, we chose to proceed with multilevel modeling for exploring a combined model using generalized estimating equations (GEE) to account for the binary outcome.

To include the categorical variable of clinician work environment as a meaningful predictor in multilevel regression, we created a dummy-coded variable such that a value of 1 reflected the work environments that was associated with increased odds of hospitalization endorsement across vignettes (individual private practice), and 0 represented all other work

environments. We adopted a similar procedure for modeling clinician theoretical orientation. Specifically, we created a dummy-coded variable such that a value of 1 reflected the theoretical orientations that were associated with increased odds of hospitalization endorsement across vignettes (psychodynamic/psychoanalytic and humanistic), and 0 represented all other theoretical orientations. Finally, we created a dummy-coded variable such that a value of 1 reflected the clinician degree type that was associated with increased odds of hospitalization endorsement across vignettes (M.D.'s), and 0 represented all other clinician degrees.

When adopting a multilevel logistic approach, we assessed model fit via log-likelihood chi-square deviance testing. Again, if adding predictors from step 1 in a step-wise manner produced neither a significant fixed effect nor significantly improved model fit, then those predictors were trimmed from the exploratory combined model to avoid overparameterization (Bates et al., 2015).

Results from the final "trimmed" multilevel logistic model are presented in Table 11. Controlling for other variables in the model, more positive attitudes towards hospitalization were associated with an increase in the odds of endorsing hospitalization across vignettes (OR = 1.14, 95% CI = 1.09-1.19, $\beta = .13$, $p < .001$). Additionally, having an M.D. was associated with an increase in the odds of endorsing hospitalization across vignettes compared to other degree categories (OR = 1.30, 95% CI = 1.03-1.63, $\beta = .26$, $p = .03$). Although the other variables in the model were retained because they improved model fit, none of the other variables significantly predicted hospitalization decisions in the combined model ($p > .05$ for all). Because we did not hypothesize any random effects or cross-level interactions, no random effects or cross-level interactions were tested.

Risk Likelihood Ratings

To evaluate whether risk likelihood ratings differed by vignette across participants, we ran a one-way ANOVA and found a significant main effect of vignette on risk likelihood ratings ($F(3, 601) = 10.08$, $p < .001$). Post hoc tests using the Bonferroni correction revealed that the Maria vignette elicited significantly lower risk likelihood ratings than the other three vignettes ($p < .001$). To address this, we created a dummy-coded variable representing the Maria vignette and co-varied it in all subsequent analyses for this outcome to improve parameter estimation. Univariate results regarding risk likelihood ratings are presented in Table 6.

Patient-level predictors. We conducted a two-way ANOVA to test whether main effects or the interaction of the patient-level variables of BPD diagnosis (yes/no) and history of hospitalization (yes/no) predicted clinician ratings of risk likelihood across vignettes. Analyses revealed no statistically significant effects for BPD diagnosis ($F(1, 598) = .08$, $p = .78$), hospitalization history ($F(1, 598) = 2.68$, $p = .10$), or their interaction ($F(1, 598) = .01$, $p = .92$) in predicting risk likelihood ratings across vignettes.

Clinician-level predictors. Univariate regression analyses revealed that higher risk likelihood ratings across vignettes were significantly predicted by greater self-efficacy in treating suicidal patients ($\beta = 8.02$, $p < .001$). In addition, higher risk likelihood ratings were predicted by several CATSP subscales, including fewer concerns about making clinical errors ($\beta = -3.61$, $p = .005$), greater concerns about lacking training and competency in treating suicidal patients ($\beta = 10.54$, $p < .001$), and fewer concerns about liability ($\beta = -7.93$, $p < .001$). Concerns about the emotional impact of suicide did not predict risk likelihood ratings ($\beta = -1.31$, $p = .16$). Analyses of the CBI subscales found that higher degrees of personal burnout ($\beta = -.32$, $p = .03$) and work-

related burnout (β = -.65, p = .004) predicted lower risk likelihood ratings, whereas higher degrees of client-related burnout predicted higher risk likelihood ratings (β = .55, p < .001).

Regarding clinician demographic predictors, regression analyses also revealed that higher clinician age significantly predicted higher risk likelihood ratings (β = .49, p < .001), but an ANOVA revealed that there was no significant main effect of clinician gender in predicting risk likelihood ratings (F(1, 598) = .32, p = .57). A two-way ANOVA revealed a significant main effect of clinician caseload on risk likelihood ratings (F(1, 598) = 17.94, p < .001). Post hoc tests using the Bonferroni correction revealed that clinicians carrying caseloads of 6-10 patients (M = 55.68, SD = 24.43) and 11-15 patients (M = 61.68, SD = 22.88) provided higher ratings of risk likelihood across vignettes compared to clinicians carrying fewer (1-5; $M_{1\text{-}5}$ = 43.39, $SD_{1\text{-}5}$ = 24.38) or more (16-20 and 21+; $M_{16\text{-}20}$ = 45.39, $SD_{16\text{-}20}$ = 23.89; M_{21+} = 40.49, SD_{21+} = 26.32) patients, p < .001. An additional two-way ANOVA revealed a significant main effect of clinician degree in predicting risk likelihood ratings (F(5, 594) = 13.58, p < .001), and post hoc tests using the Bonferroni correction revealed that clinicians with M.D.'s gave risk likelihood ratings (M = 74.11, SD = 14.81) that were significantly higher than those provided by Ph.D.'s (M = 48.40, SD = 25.66), Psy.D.'s (M = 49.49, SD = 24.90), and clinicians with master's degrees (M = 44.63, SD = 25.02) across vignettes, p < 001. An additional two-way ANOVA revealed a significant main effect of clinician theoretical orientation in predicting risk likelihood ratings (F(6, 593) = 9.24, p < .001), and post hoc tests using the Bonferroni correction revealed that psychodynamic/psychoanalytic clinicians provided higher risk likelihood ratings (M = 60.81, SD = 25.00) across vignettes than did clinicians whose theoretical orientation was cognitive-behavioral therapy (CBT; M = 45.69, SD = 25.12), dialectical behavior therapy (DBT; M = 44.88, SD = 23.69), or "other" theoretical orientations (M = 42.97, SD = 31.75), p < 001. A final

two-way ANOVA revealed a significant main effect of clinician work environment in predicting risk likelihood ratings ($F(7, 592) = 7.27$, $p < .001$), and post hoc tests using the Bonferroni correction revealed that clinicians in individual private practice rated risk likelihood as higher ($M = 58.14$, $SD = 27.60$) across vignettes than those in group private practice ($M = 45.35$, $SD = 22.65$), university outpatient settings ($M = 37.47$, $SD = 23.17$), and "other" work settings ($M = 41.02$, $SD = 24.40$), $p < .001$. Additionally, those in hospital settings rate risk likelihood as higher ($M = 55.19$, $SD = 23.14$) than those in group private practice ($M = 45.35$, $SD = 22.65$), university outpatient settings ($M = 37.47$, $SD = 23.17$), and "other" work settings ($M = 41.02$, $SD = 24.40$), $p < .001$.

Regarding historical characteristics of clinicians, whether a clinician had ever hospitalized a suicidal patient did not significantly predict risk likelihood ratings across vignettes ($F(1, 598) = .90$, $p = .34$). Similarly, whether a clinician had ever had a patient die by suicide did not significantly predict risk likelihood ratings across vignettes ($F(1, 598) = .84$, $p = .36$).

Climate-relevant predictors. We regressed risk likelihood ratings on each of the TPB subscales and found that greater self-reported intentions to hospitalize suicidal patients ($\beta = 9.40$, $p < .001$) and more positive attitudes towards hospitalization ($\beta = 5.11$, $p = .004$) predicted higher risk likelihood ratings, as did greater subjective experiences of social pressure to hospitalize ($\beta = 10.54$, $p < .001$). Perceived behavioral control over the decision to hospitalize did not predict risk likelihood ratings ($\beta = -.61$, $p = .77$).

Exploratory model building. After identifying all significant univariate predictors of risk likelihood ratings, we then calculated the ICC for risk likelihood ratings to assess whether a multilevel approach to exploring a combined model was appropriate. In our sample, ICC = .63

for this outcome, suggesting that 63% of the variance in risk likelihood ratings across vignettes was attributable to which clinician was responding. Given that this was higher than our *a priori* cutoff (ICC = .15) for adopting a multilevel modeling approach, we chose to proceed with multilevel modeling for exploring a combined model.

To include the categorical variable of clinician work environment as a meaningful predictor in multilevel regression, we created a dummy-coded variable such that a value of 1 reflected work environments that were associated with higher ratings of risk likelihood (individual private practice and hospital/medical center settings), and 0 represented all other work environments. We adopted a similar procedure for modeling clinician theoretical orientation. Specifically, we created a dummy-coded variable such that a value of 1 reflected theoretical orientations that were associated with higher ratings of risk likelihood (psychodynamic/psychoanalytic and family systems), and 0 represented all other theoretical orientations. Additionally, we created a dummy-coded variable such that a value of 1 reflected the clinician degree type that was associated with higher ratings of risk likelihood (M.D.'s), and 0 represented all other clinician degrees. Additionally, because two levels of the clinician caseload variable (having 6-10 or 11-15 clients) was significantly predictive of risk likelihood ratings, we created an additional dummy-coded variable such that a value of 1 reflected clinicians having 6-10 or 11-15 clients, and 0 represented all other caseload levels.

When adopting a multilevel approach, we assessed model fit via log-likelihood chi-square deviance testing. If adding predictors from step 1 in a step-wise manner produced neither a significant fixed effect nor significantly improved model fit, then those predictors were trimmed from the exploratory combined model to avoid overparameterization (Bates, Maechler, Bolker, & Walker, 2015).

Results from the final "trimmed" multilevel linear model are presented in Table 7. Controlling for other variables in the model, a one-unit increase in self-reported self-efficacy in treating suicidal patients was associated with a 17.4 point increase in risk likelihood ratings between clinicians ($\beta = 17.41$, $t(28.76) = 3.15$, $p = .004$). Additionally, a one-unit increase in mean intentions to hospitalize suicidal patients was associated with an 8.39 point increase in risk likelihood ratings between clinicians ($\beta = 8.39$, $t(29.84) = 3.90$, $p = .001$). Although the other variables in the model were retained because they improved model fit, none of the other variables significantly predicted risk likelihood ratings in the combined model ($p > .05$ for all). Because we did not hypothesize any random effects or cross-level interactions, no random effects or cross-level interactions were tested.

Ordinal Ratings of Acute Suicide Risk

To evaluate whether ordinal ratings of acute suicide risk differed by vignette, we conducted a Kruskal-Wallis H test and found evidence of statistically significant differences in ordinal risk ratings between vignettes ($\chi_2(3) = 33.03$, $p < .001$), with a mean rank risk score of 245.46 for the Maria vignette, 316.08 for the Dan vignette, 340.32 for the Rachel vignette, and 338.79 for the David vignette. Since the Maria vignette elicited significantly lower risk likelihood ratings than the other three vignettes, we created a dummy-coded variable representing the Maria vignette and co-varied it in all subsequent analyses for this outcome to improve parameter estimation. Univariate results regarding ordinal ratings of acute risk for suicide are presented in Table 8.

Patient-level predictors. Univariate ordinal regression analyses revealed no statistically significant effects for BPD diagnosis (Wald $\chi_2(1) = 1.36$, $p = .24$), hospitalization history

(Wald $\chi_2(1) = .80$, $p = .37$), or their interaction (Wald $\chi_2(1) = .30$, $p = .59$) in predicting ordinal risk ratings across vignettes.

Clinician-level predictors. Univariate ordinal regression analyses revealed that self-efficacy in treating suicidal patients did not significantly predict ordinal ratings of risk across vignettes (Wald $\chi_2(1) = .87$, $p = .35$), and neither did any of the CATSP subscales relating to concerns about treating suicidal patients (Wald $\chi_2(1) < 1.20$, $p > .27$ for all). Notably, although neither personal burnout (Wald $\chi_2(1) = 1.67$, $p = .20$) nor work-related burnout (Wald $\chi_2(1) = 2.28$, $p = .13$) predicted ordinal ratings of risk, a one-unit increase in mean client-related burnout was associated with an increase in the odds of rating acute risk for suicide as higher, with an odds ratio of 1.03 (95% CI = 1.003-1.05, Wald $\chi_2(1) = 4.71$, $p = .03$).

Regarding clinician demographic predictors, ordinal regression analyses revealed that clinicians carrying a caseload of 11-15 patients had increased odds of assigning higher risk ratings across vignettes than clinicians of other caseloads (Wald $\chi_2(1) = 5.60$, $p = .02$, OR = 1.72, 95% CI = 1.10-2.69). Additionally, working in university outpatient settings (Wald $\chi_2(1) = 6.85$, $p = .01$, OR = .36, 95% CI = .16-.77), hospital/medical center settings (Wald $\chi_2(1) = 4.40$, $p = .04$, OR = .55, 95% CI = .32-.96), or residential facilities (Wald $\chi_2(1) = 4.45$, $p = .04$, OR = .13, 95% CI = .02-.86) was associated with a decrease in the odds of rating acute risk for suicide as higher. Clinician age did not significantly predict ordinal ratings of acute suicide risk (Wald $\chi_2(1) = 1.34$, $p = .25$), and neither did clinician gender (Wald $\chi_2(1) = 1.42$, $p = .23$), clinician degree (Wald $\chi_2(1) > .30$, $p > .59$ for all levels), or clinician theoretical orientation (Wald $\chi_2(1) > .30$, $p > .59$ for all levels).

Regarding historical characteristics of clinicians, whether a clinician had ever hospitalized a suicidal patient (Wald $\chi_2(1) = .27$, $p = .60$) or had a patient die by suicide (Wald $\chi_2(1) = 3.46$, $p = .06$) were not significant predictive of ordinal ratings of acute suicide risk.

Climate-relevant predictors. Ordinal regression analyses revealed that none of the TPB subscales predicted ordinal ratings of acute suicide risk (Wald $\chi_2(1) < 1.83$, $p > .17$ for all).

Exploratory model building. After identifying all significant univariate predictors of ordinal ratings of acute suicide risk, we then calculated the ICC for ordinal risk ratings to assess whether a multilevel approach to exploring a combined model was appropriate. In our sample, ICC = .14 for this outcome, suggesting that 14% of the variance in ordinal ratings of risk across vignettes was attributable to which clinician was responding. Given that this was lower than our *a priori* cutoff (ICC = .15) for adopting a multilevel modeling approach, we chose to proceed with exploring a combined model using multiple ordinal regression.

To include the categorical variable of clinician work environment as a meaningful predictor in ordinal regression, we created a dummy-coded variable such that 0 reflected work environments that were associated with a *decreased* likelihood of rating acute risk for suicide as higher (university outpatient settings, hospital/medical centers, and residential facilities), and 1 represented all other work environments. Additionally, because only one level of the clinician caseload variable (having 11-15 clients) was significantly predictive of ordinal risk ratings, we created an additional dummy-coded variable such that 1 reflected clinicians having 11-15 clients, and 0 represented all other caseload levels.

The model including all significant covariates fit the data well and was superior to the intercept-only model ($\chi_2(4) = 53.58$, $p < .001$). Additionally, the combined model explained 8.4%-9.2% of the variance in ordinal risk ratings across vignettes (Cox and Snell $R_2 = .084$; Nagelkerke $R_2 = .092$). Results from multiple ordinal regression suggest that, controlling for other variables in the model, having a caseload of between 11 and 15 clients is associated with an increase in the odds of rating acute risk for suicide as higher (Wald $\chi_2(1) = 4.36$, $p = .04$, OR = 1.46, 95% CI = 1.02-2.08). Additionally, working in individual private practice, community private practice, group private practice, day treatment facilities, or "other" work environments (compared to working in university outpatient settings, hospital/medical center settings, or residential settings) was associated with an increase in the odds of rating acute risk for suicide as higher (Wald $\chi_2(1) = 18.72$, $p < .001$, OR = 2.02, 95% CI = 1.47-2.78). In the combined model controlling for other caseload and work environment, client-related burnout was not significantly predictive of ordinal risk ratings (Wald $\chi_2(1) = 1.32$, $p = .25$, OR = 1.01, 95% CI = .99-1.01). Results for the combined model are presented in Table 9.

Relation between Hospitalization and Risk Likelihood

A point-biserial correlation was run to determine the relationship between risk likelihood ratings and hospitalization decisions in our sample. These variables were significantly related such that there was a positive correlation between risk likelihood ratings and endorsing hospitalization across vignettes ($r_{pb} = .46$, $p < .001$). Finally, a Spearman's rank-order correlation was run to determine the relationship between ordinal ratings of acute suicide risk and hospitalization decisions in our sample. These variables were significantly related such that there was a positive correlation between ordinal ratings of risk and endorsing hospitalization across vignettes ($r_s = .50$, $p < .001$).

Discussion

The present study examined empirically and theoretically relevant factors in predicting clinical decision-making regarding suicidal patients. More specifically, this research used an experimental vignette methodology to examine patient-level, clinician-level, and climate-relevant variables and their relationship to clinicians' endorsement of hospitalization decisions as well as clinicians' ratings of imminent likelihood for suicide and acute risk for suicide.

Hospitalization Decisions

Regarding hospitalization decisions, it is notable that participants in this study displayed a hospitalization endorsement rate of 50%. Not only does this reflect maximal variability in responding, but it also qualitatively differs from previous research, which reports rates of endorsement much lower than we found in the present study (13-36%; Berman et al., 2015; Berman et al., 2016a; Berman et al., 2016b). These between-study differences in hospitalization endorsement may reflect differences in sample characteristics, as is possible with any study, but it is also possible that these differences may be attributable to alterations in vignette design from previous research. Specifically, whereas previous research included vignettes that did not describe whether the patients had means or intent to act on suicide urges, our vignettes were specifically designed to include those pieces of information to maximize ecological validity. It is possible that simply including these pieces of clinically relevant information may itself have made hospitalization endorsement more likely in our study overall. Future research would benefit from further examination of vignette characteristics as relevant to clinical decision-making and suicide.

Hypotheses were not supported regarding the relationship between patient-level variables and study outcomes. In particular, results indicate that a diagnosis of BPD, a history of hospitalizations, and their interaction did not impact hospitalization decisions. As such, although these factors are robust and well-replicated predictors of psychiatric inpatient hospitalization (e.g., Peritogiannis et al., 2008; Coyle et al., 2018), they may not influence clinical decision-making regarding hospitalization. This finding may have been impacted by the fact that nearly half the clinicians in the sample reported DBT as their primary theoretical orientation, and this treatment strives to minimize the use of hospitalization even among patients with characteristics associated with increased suicide risk (Linehan, 1993). As such, sampling bias and recruitment methods may be implicated in explaining these null findings.

Hypotheses were partially supported regarding the relationship between clinician-level variables and hospitalization decisions. Consistent with hypotheses, the following clinician-level variables were associated with an *increased* likelihood of endorsing hospitalization in our study: greater concerns about lacking training and competency in treating suicidal individuals; higher degrees of client-related burnout; and having a history of hospitalizing clients. Given that training in suicide risk assessment and management varies so widely in quality and content (Dexter-Mazza & Freeman, 2003), it is not surprising that clinicians who were less confident that they had adequate training to effectively intervene on suicide risk would be more likely to recommend hospitalization – an intervention that relies on the expertise of others to ensure patient safety. Additionally, clinicians who reported being more burned out by working with patients were more likely to endorse hospitalization in our study, as did clinicians who had already rehearsed the behaviors of seeking or recommending hospitalization for their real-life patients. That said, none of these variables remained significant predictors in the combined

model predicting hospitalization decisions in our study, so it is possible that the influence of these factors may be small in comparison to other factors influencing hospitalization decisions.

Contrary to hypotheses, the following variables were associated with a *decreased* likelihood of endorsing hospitalization in our study: greater concerns about liability regarding treating suicidal patients; higher degrees of personal burnout; and having a history of a patient dying by suicide. Although previous research suggests that a legal prime does not impact clinician hospitalization endorsement (Berman et al., 2015), other data suggest that clinicians commonly report hospitalizing their patients because it resolves anxiety over legal risks (Krawitz & Batcheler, 2006). Thus, it is counterintuitive that our data suggested that greater concerns about liability would be associated with a *decreased* likelihood to endorse hospitalization. It is possible that this finding reflects avoidant coping related to worries about liability, such that clinicians who have greater fears related to being sued following a patient's suicide are less likely to behaviorally respond in ways that would reduce the likelihood of the feared outcome. That said, further explication of this unexpected finding is needed to better understand it represents. It is similarly surprising that higher personal burnout in our study was associated with a decreased likelihood of hospitalization endorsement. Given that personal burnout was also related to decreased risk likelihood ratings in our sample, it is possible that clinicians who experience greater personal burnout may be attending less to (or assigning less salience to) risk factors or other variables that other clinicians are using to inform their decisions, but further research is needed to better understand this finding. Lastly, it is noteworthy that clinicians who have lost patients to suicide were less likely to endorse hospitalization – particularly because therapists who have had patients die by suicide report regret about *not* hospitalizing acutely suicidal patients (Hendlin, Haas, Maltsberger, Szanto, & Rabinowicz, 2004). That said, this

finding may potentially reflect increased precision for risk assessment and management for this group, such that clinicians who have lost patients to suicide are comparing the patients depicted in the vignettes to the patients they know that have died by suicide and arriving at the conclusion that they are not in need of such an intensive intervention by contrast. It may also reflect a habituation or de-sensitization to suicide risk such that they are less likely to endorse an intervention that is objectively needed. The present study, however, is unable to tease these hypotheses apart, so more research on clinical decision-making specifically among clinicians who have had patients die by suicide is needed.

Also contrary to hypotheses, it was not having a higher caseload per se that predicted increased likelihood of hospitalization in our study, but having a moderate caseload (i.e., 11-15 patients). This finding conflicts with prior research in this area showing that the highest caseloads were most strongly associated with a higher likelihood of hospitalization (e.g., Berman et al., 2015), but in our study, having a caseload of 11-15 patients also predicted higher risk likelihood ratings and a greater likelihood of endorsing higher ratings of acute suicide. Thus, clinicians of this caseload in our sample were uniformly describing the patients as high risk and needing immediate intervention, although it is unclear why clinicians of higher caseloads in our sample were not. That said, we performed some post-hoc analyses to better understand this finding, and we discovered that clinicians with caseloads of 11-15 were significantly more likely to be in individual private practice, and they were significantly more likely to be psychodynamic or psychoanalytic. As such, these predictors – clinician caseload, clinician work environment, and clinician theoretical orientation – may share important variance that future research should be careful to concurrently measure and tease apart. Finally, unlike prior research (e.g., Berman et al., 2016a), we found no evidence of a similarity bias in terms of gender. Thus, males in our

sample endorsed hospitalization more frequently than females regardless of the gender depicted by the vignette.

Regarding clinician-level predictors for which we had no *a priori* hypotheses, clinicians with M.D.'s in our sample were the most likely group to endorse hospitalization across vignettes as were psychodynamic/psychoanalytic clinicians and humanistic clinicians. Interestingly, in the combined exploratory model, whether a clinician carried an M.D. degree was one of only two predictors that remained significantly predictive of hospitalization decisions, suggesting that this variable carries important variance in predicting hospitalization endorsement. It is possible that this finding reflects a bias towards a medical model of treatment wherein hospitalization is perceived as more helpful by individuals with medical degrees. Regardless, this finding deserves future research attention. Additionally, DBT therapists were the *least* likely to endorse hospitalization across vignettes. This finding is consistent with prior research showing that patients receiving DBT are significantly less likely to be hospitalized than those receiving comparison treatments (Linehan & Heard, 1999; Prendergast & McCausland, 2007), and is consistent with DBT's general bias against hospitalization (Linehan, 1993).

Clinicians who endorsed more positive attitudes towards hospitalization were significantly more likely to endorse hospitalization across vignettes in our study. Additionally, a clinicians' personal attitudes towards hospitalization reflected one of only two variables that remained significant predictors when controlling for other variables in a combined multivariate exploratory model. As a result, these findings reflect the comparative importance of attitudes towards hospitalization in influencing clinical decision-making regarding hospitalization. This finding carries a number of potentially important implications. First, these results are consistent with a broader literature suggesting that clinicians will persist with treatment decisions that they

believe to be helpful regardless of what the evidence-base shows on average (e.g., Munro, 2010; Lilienfeld, 2011). Additionally, clinician attitudes towards hospitalization meaningfully varied between participants, so research aimed at understanding what predicts variance in clinician attitudes towards hospitalization may prove useful in further understanding how those attitudes relate to hospitalization decisions. An additional corollary of this finding is the potential that directly intervening on clinician attitudes may be an important component in changing clinician behavior regarding hospitalization decisions if such changes are desired.

Risk Likelihood and Ordinal Ratings of Acute Suicide Risk

Ratings of suicide risk were dramatically heterogenous in our study, encompassing the entire possible range of scores (0-100) across vignettes. Consistent with the findings related to hospitalization decisions, patient-level factors of having a BPD diagnosis and/or history of hospitalizations had no impact on risk likelihood or ordinal risk ratings. As such, although these patient characteristics are robust and well-replicated predictors of suicidal behavior (e.g., Czyz et al., 2016; Zanarini, Frankenburg, Hennen, Reich, & Silk, 2005), they may not uniquely influence clinician assessments of suicide risk. Given that didactic training in suicide risk assessment is often "minimal" if offered at all (Kleepsies, Penk, & Forsyth, 1993; Neimeyer, 2000), this discrepancy may also reflect a genuine deficiency in training or knowledge regarding risk factors for suicide.

Hypotheses were partially supported regarding the relationship between clinician-level and climate-relevant variables and risk likelihood ratings. A large number of variables predicted higher risk likelihood ratings as hypothesized, including greater concerns about lacking adequate training in treating suicidal patients, higher degrees of client-related burnout, higher clinician

age, greater intentions to hospitalize, more positive attitudes towards hospitalization, and greater social pressure to hospitalize suicidal clients. Conversely, several variables predicted lower risk likelihood ratings in contrast to our *a priori* hypotheses, including higher concerns about clinical errors, higher concerns about liability, higher levels of personal burnout, and higher levels of work-related burnout. Also contrary to hypotheses, higher self-efficacy in treating suicidal clients was associated with increased risk likelihood ratings across vignettes. In an exploratory multivariate combined model, only two variables – higher self-efficacy in treating suicidal clients and greater intentions to hospitalize suicidal patients – remained significant predictors of risk likelihood ratings.

Additionally, hypotheses were partially supported regarding the relationship between clinician-level and climate-relevant variables and ordinal ratings of acute suicide risk. Consistent with hypotheses, higher client-related burnout was associated with an increase in the likelihood of assigning a higher acute risk rating, and no variables were significantly related to ordinal ratings of acute suicide risk in non-hypothesized directions. That said, although we had no *a priori* hypotheses about these variables in relation to ordinal ratings of acute suicide risk, having a caseload of 11-15 patients was associated with an increased likelihood of assigning a higher acute risk rating, and working in certain settings (university outpatient settings, hospital/medical centers, and residential facilities) was associated with a decreased likelihood of assigning a higher acute risk rating. Additionally, in an exploratory multivariate ordinal regression model, having a caseload of 11-15 clients and working in individual private practice, community private practice, group private practice, or day treatment settings were all associated with an increased likelihood of assigning a higher ordinal rating of acute suicide risk.

Several takeaways from these findings are noteworthy. First, although age was not a significant predictor of suicide risk likelihood ratings in previous research (Berman et al., 2015; Berman et al., 2016a; Berman et al., 2016b), age was a predictor of risk likelihood ratings in our study. The age range of our study did not meaningfully differ from the age ranges of previous research (26-70 for the present study and 22-67 for all three previous studies), though the mean age of participants in our sample was slightly higher (M = 40.2, SD = 9.5 for the present study, M = 33.5-34.1, SD = 8.4-9.0 for the three previous studies). Given the evolution of training in suicide risk assessment and management, it is possible that clinician age may serve as a proxy for training era in a way that may explain differences in risk likelihood ratings. In other words, it is possible that differences in the way that clinicians have been trained to assess and describe risk for suicide may account for differences between older and younger clinicians in assigning risk likelihood ratings in our sample. Because we did not collect data on the characteristics of the suicide risk assessment training received by our participants, we are unable to test this hypothesis with the current data. Additionally, it is surprising that higher degrees of self-efficacy in treating suicidal patients was predictive of higher risk likelihood ratings across vignettes. This finding may suggest that clinicians with higher self-efficacy in treating suicidal patients are more confidently and accurately describing clients as higher risk. That said, because the vignettes described hypothetical clients about whom we have no objective follow-up information, it is unknown whether higher or lower risk likelihood ratings are more "accurate" for either of these predictors. As such, interpolating evaluative judgments about higher or lower risk likelihood ratings (e.g., whether higher or lower risk ratings are "right" versus "wrong") is beyond the scope of the present research, and future studies would benefit from a design that would allow for accuracy analyses regarding clinical decision-making around hospitalization and suicide.

Second, the inclusion of the ordinal rating for acute suicide risk in this study allowed for interesting comparisons across outcomes. Notably, the majority of variables that predicted risk likelihood ratings did not significantly predict ordinal ratings of acute suicide risk in our sample, and whereas the spread of risk likelihood ratings was relatively evenly distributed, the vast majority of ordinal risk ratings given across vignettes fell in just 2 of the 5 categories ("moderate" and "severe"). In other words, there was enough discrepancy between how people assigned risk likelihood ratings and how they assigned ordinal ratings of acute suicide risk across vignettes that predictors of one were not necessarily predictors of the other. This becomes meaningful when reflecting on differences in how the questions were worded for these outcome variables: for risk likelihood, participants were asked to rate the likelihood that the patient described would kill themselves "in the next 24 hours," whereas for ordinal ratings of risk, participants were asked to describe the patient's risk for "acute suicide" using the labels shown (i.e., 5 levels from "minimal" to "extreme.") It is possible, then, that the discrepancy in responding between these questions may be attributable to how people interpreted the vagueness of the term "acute" suicide risk in relation to "the next 24 hours." It is possible that participants interpreted the term "acute" to encompass a period of time longer than 24 hours, thus meaningfully altering the construct of the question being answered between outcomes. This discrepancy might imply that there may be a meaningful distinction between "acute" suicide risk and a shorter, more immediate time-frame. However, without explicit data on how participants interpreted the term "acute" suicide risk, this hypothesis cannot be tested, but future research may benefit from such clarification.

Relationship Between Hospitalization Decisions and Risk Ratings.

Finally, in contrast with previous research (e.g., Berman et al., 2015), we found a significant correlation between risk likelihood ratings and hospitalization decisions in our sample, such that higher risk likelihood ratings were associated with decisions to hospitalize the client depicted in the vignette. In concert with previous research, however, we replicated the meta-finding that predictors of hospitalization tended to be different than predictors of risk likelihood ratings – in fact, of all the variables investigated, only concerns about lack of adequate training, concerns about liability, client-related burnout, and attitudes towards hospitalization predicted both outcomes in univariate models, and no variables were shared as significant predictors in combined multivariate models. However, because we had no significant patient-level predictors for any outcome in our study, we were not able to replicate the finding that predictors of risk ratings tended to be patient-level variables and predictors of hospitalization tended to be clinician-level variables. Thus, in our study, risk likelihood ratings and hospitalization decisions were correlated, but the predictors of these outcomes differed.

Limitations

The present research carries a number of notable limitations that warrant consideration in interpreting findings. First, the present study includes the use of vignette-based methodology. It is worth noting that brief patient descriptions in the form of vignettes do not provide the same amount of information about patients that clinicians would have in routine practice, and it is therefore possible that increased information would influence whether or not clinicians would endorse hospitalization. Thus, results should be interpreted with caution. That said, a number of studies suggest that participants respond to real-life events and hypothetical events in a strikingly similar manner (e.g., Kirwan, De Santoge, Joyce, & Curry, 1983; Murphy, Herr, Lockhart, & Maguire, 1986; etc.), so results should also not be discounted.

Second, as already stated, vignettes represent hypothetical clients, and as such we have no follow-up data on whether these clients did or did not attempt suicide or die by suicide. Accordingly, we have no way of objectively assessing the accuracy of risk ratings provided by clinicians, and we have no way of objectively assessing the correctness or appropriateness of hospitalization decisions. It could be, for instance, that clinicians who report greater self-efficacy and higher risk ratings are more accurately detecting higher degrees of suicide risk. Conversely, it is also possible that higher confidence results in underestimations of true suicide risk. Future research could employ designs using clinical data where outcomes are known to assess accuracy of clinical decision-making and risk assessment with these and other variables.

Third, although we attempted to assess climate-relevant variables through clinicians' self-report of constructs like social norms surrounding hospitalization, we did not collect data on objective indicators of climate. As a result, it is possible that clinicians' perceptions of their climate (e.g., their perceived behavioral control regarding hospitalization) may differ from an objective assessment or coding of organizational policies. Given that differences in organizational climate predict variation in clinician behaviors (e.g., Holahan, Aronson, Jurkat, & Schoorman, 2004; Aarons, 2005), this lack of objective climate-level data may constitute a weakness of the present study. Future research might benefit from including measures both of clinician perceptions of climate as well as objective indicators of climate (e.g., agency policies regarding hospitalization) to better characterize their relationship to hospitalization decisions and suicide risk ratings. Additionally, to keep data de-identified, we did not collect data on whether individual participants were situated (or nested) within the same organizations, clinics, or agencies. As a result, it is possible that a significant proportion of variance in the outcomes may have been explainable by the organization clinicians belonged to, but because we could not

model our data at the organizational level, we were unable to investigate this possibility in this study. Future research in this area may consider collecting data on clinician agency/organization to investigate a potential 3-level hierarchical statistical model.

Fourth, the vignettes all depicted adult clients, so generalizability of the findings to decision-making regarding suicidal children and adolescents may be limited. Recent research suggests that the number of children and adolescents presenting to emergency departments and inpatient units with suicidal ideation and suicide attempts has at least doubled in the last 10 years (Burstein, Agostino, & Greenfield, 2019), so understanding how hospitalization decisions are made for people under the age of 18 is growing particularly relevant. Additionally, in an open-ended question in the pilot phase of the study, one of the participants volunteered that they "almost always" hospitalize suicidal adolescents despite their reticence to hospitalize adults. Such a statement is a clue that there may be genuine differences in the factors that predict hospitalization decisions for adults and the factors that predict hospitalization for children and adolescents, but the present study is unable to investigate those potential differences because none of the vignettes depicted anyone under the age of 18.

Fifth, concerns about Type I error are inherent to the analytic approach we adopted. As such, it is possible that some of the effects reported are in fact "false positives" and thus may not reflect genuine relationships between regarding clinical decision-making and hospitalization. That said, this concern is somewhat mitigated by exploring multivariate models that combine univariate predictors, but replication is needed in order to strengthen confidence in the observed effects.

Sixth, limitations due to sampling and recruitment should be taken into consideration. Specifically, study recruitment materials advertised the study as pertaining to clinical decision-making regarding suicidal patients, so it is possible that we inadvertently oversampled clinicians who, for whatever reason, were particularly interested in or passionate about the treatment of suicidal patients. Such a group may respond to questions about suicide or hospitalization in ways that are systematically different from clinicians who are less interested in or passionate about the treatment of suicide. Additionally, given that nearly half of the sample reported DBT as their primary theoretical orientation, it is possible that such a non-representative sampling of DBT clinicians may have skewed results to reflect DBT's general reticence to employ hospitalization. Thus, generalizability of results to different kinds of clinicians whose interests may differ is unknown.

Finally, this study relied solely on the use of self-report measures, which are prone to social desirability effects. The collection of the data via the internet in a de-identified fashion may have lessened the potential for bias, and research suggests that collecting information over the internet may increase the accuracy of information provided via self-report (Kreuter, Presser, & Tourangeau, 2008), but it is impossible to eliminate this potential for bias entirely.

Conclusions

This study, though imperfect, demonstrates several significant strengths. It is the first in this area to examine climate-relevant predictors of clinical decision-making regarding suicide risk and hospitalization decisions, and although more research in this area is needed, this study takes a preliminary step towards rectifying a significant gap in the research base. Furthermore, the clinical variables examined were theoretically and empirically derived to support their

inclusion. For instance, this is the first study to examine constructs like burnout and concerns about treating suicidal individuals and their relationship to clinical decision-making. Additionally, vignettes were designed to improve the ecological validity of the scenarios in which we were investigating clinical decision-making, thus improving the relevance and applicability of the stimuli. Finally, the vignette-based methodology allows for substantial experimental control over variables that are impossible to manipulate in other research contexts (e.g., BPD diagnosis).

Gaining a preliminary understanding of the ways in which patient-level, clinician-level, and climate-relevant factors influence and predict clinicians' decisions to hospitalize suicidal patients can inform further productive research examining how, why, and when clinicians hospitalize suicidal patients. This study suggests that attitudes towards hospitalization may be an important target for future research seeking to better understand how clinicians make decisions regarding hospitalization, and it also suggests that self-efficacy in treating suicidal patients may be an important target for future research seeking to better understand how clinicians arrive at risk determinations within the next 24 hours. Continuing these lines of inquiry may lead to research investigating how to alter clinical decision-making regarding hospitalization and risk determination to be consistent with the ever-evolving evidence-base, and such research may, in the long run, allow investigators to design interventions that allow clinicians to deliver more effective care in the face of acute suicide risk.

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Table 1. Pilot Participant Demographics

	n (%)	M	SD
Age		34.8	5.9
Sex			
Male	10 (33.3)		
Female	20 (66.7)		
Racial background[1]			
Caucasian	24 (77.4)		
Hispanic or Latino/Latina/Latinx	3 (9.7)		
American Indian	0		
African American	0		
Native Hawaiian or Pacific Islander	0		
Asian American	4 (12.9)		
Highest degree obtained			
B.S./B.A.	0		
M.S./M.S./M.S.W	9 (30.0)		
Ed.D.	0		
LNP	0		
M.D.	2 (6.7)		
Ph.D.	16 (53.3)		
Psy.D.	3 (10.0)		
Average number of patients seen per week[2]			
0-5	12 (41.4)		
6-10	4 (13.8)		
11-15	3 (10.3)		
16-20	6 (20.7)		
21+	4 (13.8)		
Years of clinical experience		8.1	4.6
Hours per week conducting psychotherapy		12.5	10.4
Work Environment[2]			
Individual Private Practice	4 (13.8)		
Community Outpatient Practice	3 (10.3)		
Group Private Practice	5 (17.2)		
University Outpatient Setting	3 (10.3)		
Hospital/Medical Center	8 (27.6)		
Day Treatment Facility	1 (3.4)		
Residential Facility/Group Home	1 (3.4)		
Other (Please Specify) [a]	4 (13.8)		
Predominant Theoretical Orientation			
Cognitive-Behavioral (CBT)	17 (56.7)		
Psychodynamic/Psychoanalytic	4 (13.3)		
Dialectical Behavior Therapy (DBT)	8 (26.7)		
Mindfulness-Based	0		
Family Systems	0		
Humanistic/Client Centered	0		
Eclectic	0		
Other [b]	1 (3.3)		
Ever hospitalized a patient? [2]			
Yes	24 (82.8)		
No	5 (17.2)		

Ever had a patient die by suicide? [2]	
Yes	6 (20.7)
No	23 (79.3)

Note. [1] Participants could select multiple categories for racial/ethnic background. [2]One participant declined to respond to this question. [a] Participants who selected "other" for "work environment" responded with "research," "managed care organization," "college/university teaching," and "homeless shelter." [b] The participant who selected "other" for "theoretical orientation" said "Acceptance and Commitment Therapy (ACT)."

Table 2. Pilot Vignette Risk Ratings and Decisions to Hospitalize (*N* = 30)

Vignette	**Maria** [a] [b]	**Dan**	**Rachel** [a]	**David** [b]
Risk Rating *M (SD)*	33.9 (25.0)	37.3 (20.3)	29.5 (19.5)	43.9 (23.9)
Decision to Hospitalize % yes (*n*)	50 (15)	36.6 (11)	16.7 (5)	53.3 (16)
Acute Risk Rating % *(n*)				
Minimal	3.3 (1)	0	3.3 (1)	0
Mild	10 (3)	13.3 (4)	10 (3)	3.3 (1)
Moderate	33.3 (10)	20 (6)	60 (18)	30 (9)
Severe	53.3 (16)	63.3 (19)	20 (6)	50 (15)
Extreme	0	3.3 (1)	6.7 (2)	16.7 (5)

Note. [a] This pilot vignette depicted a person who met criteria for borderline personality disorder (BPD). [b] This pilot vignette depicted a person who had been hospitalized twice before.

Table 3. Main Study Participant Demographics

	n (%)	M	SD
Age		40.2	9.5
Sex			
Male	46 (29.7)		
Female	109 (70.3)		
Racial background[1]			
Caucasian	137 (88.4)		
Hispanic or Latino/Latina/Latinx	9 (5.8)		
Native American	4 (2.5)		
African American	4 (2.5)		
Native Hawaiian or Pacific Islander	0		
Asian American	7 (4.5)		
Highest degree obtained			
B.S./B.A.	2 (1.3)		
M.S./M.S./M.S.W	49 (31.6)		
Ed.D.	0		
LNP	1 (0.6)		
M.D.	15 (9.7)		
Ph.D.	65 (41.9)		
Psy.D.	23 (14.8)		
Average number of patients seen per week			
0-5	17 (11.0)		
6-10	30 (19.4)		
11-15	36 (23.2)		
16-20	40 (25.8)		
21+	32 (20.6)		
Years of clinical experience		12.2	8.0
Hours per week conducting psychotherapy		22.3	12.1
Work Environment			
Individual Private Practice	35 (22.6)		
Community Outpatient Practice	14 (9.0)		
Group Private Practice	36 (23.2)		
University Outpatient Setting	9 (5.8)		
Hospital/Medical Center	42 (27.1)		
Day Treatment Facility	3 (1.9)		
Residential Facility/Group Home	1 (0.6)		
Other (Please Specify) [a]	15 (9.7)		
Predominant Theoretical Orientation			
Cognitive-Behavioral (CBT)	36 (23.2)		
Psychodynamic/Psychoanalytic	38 (24.5)		
Dialectical Behavior Therapy (DBT)	66 (42.6)		
Mindfulness-Based	0		
Family Systems	4 (2.6)		
Humanistic/Client Centered	3 (1.9)		
Eclectic	0		
Other [b]	8 (5.2)		
Ever hospitalized a patient?			
Yes	135 (87.1)		
No	20 (12.9)		

Ever had a patient die by suicide?	
Yes	42 (27.1)
No	113 (72.9)

Note. [1] Participants could select multiple categories for racial/ethnic background. [a] Participants who selected "other" for "work environment" responded with "group psychotherapy in a correctional setting," community outpatient chaos," "forensic clinic," "outpatient faculty practice," "juvenile probation facility," "outpatient specialty clinic," "PHP/IOP/SAIOP," "psychology training clinic," "school-based mental health services," "state psychiatric facility," "university research study," and "VA." [b] The participant who selected "other" for "theoretical orientation" said "AEDP," "EFT," "ACT," "EMDR," "Existential/Interpersonal," "ISTDP," and "Trauma-Informed."

Table 4. Main Study Vignette Risk Ratings and Decisions to Hospitalize

Vignette	**Maria**	**Dan**	**Rachel**	**David**
Risk Rating *M (SD)*	40.2 (22.3)	53.1 (25.3)	53.0 (26.7)	53.1 (25.3)
Decision to Hospitalize % yes (*n*)	42.3 (66)	51.3 (79)	56.1 (87)	53.9 (83)
Acute Risk Rating % *(n*)				
Minimal	3.2 (5)	1.3 (2)	1.3 (2)	0
Mild	26.3 (41)	12.3 (19)	9.7 (15)	11.7 (18)
Moderate	41.7 (65)	42.9 (66)	41.3 (64)	36.4 (56)
Severe	28.8 (45)	38.3 (59)	35.5 (55)	48.1 (74)
Extreme	0	5.2 (8)	12.3 (19)	3.9 (6)

Table 5. Main Study Participant Clinical Characteristics

Measure	*M* (*SD*)	Cronbach's Alpha (α)
Theory of Planned Behavior (TPB) [1]		
Intention Subscale	4.4 (1.9)	.92
Attitudes Subscale	5.3 (1.2)	.92
Subjective Norms Subscale	5.5 (1.3)	.86
Perceived Behavioral Control (PBC) Subscale	4.3 (.71)	.30
CATSP [1]		
Concerns about Making Clinical Errors Subscale	3.5 (1.4)	.87
Concerns about Competence Subscale	3.1(1.5)	.86
Concerns about Liability Subscale	3.7 (1.5)	.89
Concerns about Emotional Impact Subscale	4.6 (1.5)	.89
Total Score	3.7 (1.3)	.96
SEAMSR [1]		
Total Score	6.0 (.58)	.79
CBI [2]		
Personal Burnout Subscale	35.8 (15.9)	.84
Work-Related Burnout Subscale	39.7 (14.3)	.80
Client-Related Burnout Subscale	26.4 (16.9)	.87
Total Score	37.6 (14.5)	.93

Note. [1] Possible range: 1-7. [2] Possible range 0-100.

Table 6. Univariate Predictors of Risk Likelihood Ratings

Variable	*F* Value	β	$SE_β$	*p*-value
Patient-Level				
BPD	.08			.78
Hospitalization History	2.68			.10
Interaction	.01			.92
Clinician-Level				
SEAMSR		8.02	1.82	<.001***
CATSP Clinical Errors		-3.61	1.29	.005**
CATSP Competence		10.54	1.22	<.001***
CATSP Liability		-7.93	1.30	<.001***
CATSP Emotional Impact		-1.31	.93	.16
CBI Personal Burnout		-.32	.15	.03*
CBI Work-Related Burnout		-.65	.22	.004**
CBI Client-Related Burnout		.55	.16	<.001***
Clinician Age		.49	.11	<.001***
Clinician Gender	.32			.57
Clinician Caseload [a]	17.94			<.001***
Clinician Degree [b]	13.58			<.001***
Clinician Theoretical Orientation [c]	9.24			<.001***
Clinician Work Environment [d]	7.27			<.001***
Ever Hospitalized?	.90			.34
Had a patient die by suicide?	.84			.36
Climate-Relevant				
TPB Intentions		9.40	1.36	<.001***
TPB Attitudes		5.11	1.73	.004**
TPB Subjective Norms		10.54	1.67	<.001***
TPB Perceived Behavioral Control		-.61	2.04	.77

Notes: *$p < .05$, **$p < .01$, ***$p < .001$. BPD = borderline personality disorder. SEAMSR = Self-Efficacy in Assessing and Managing Suicide Risk scale. CATSP = Concerns about Treating Suicidal Patients scale. CBI = Copenhagen Burnout Inventory. TPB = Theory of Planned Behavior scale.

[a] Clinicians with 6-10 and 11-15 provided higher risk likelihood ratings across vignettes than clinicians with higher or lower caseloads. [b] M.D.'s gave risk likelihood ratings that were significantly higher than those provided by Ph.D.'s, Psy.D.'s, and clinicians with master's degrees across vignettes. [c] Psychodynamic/psychoanalytic clinicians provided higher risk likelihood ratings across vignettes than did clinicians whose theoretical orientation was cognitive-behavioral therapy (CBT), dialectical behavior therapy (DBT), or "other" theoretical orientations across vignettes. [d] Clinicians in individual private practice rated risk likelihood as higher across vignettes than those in group private practice, university outpatient settings, and "other" work settings. Additionally, those in hospital settings rate risk likelihood as higher than those in group private practice, university outpatient settings, and "other" work settings.

Table 7. Exploratory Combined Model Predicting Risk Likelihood Ratings

Variable	**β**	**95% CIβ**	***t* score**	***p*-value**
SEAMSR	17.41	6.12-28.71	3.15	.004**
CBI Work-Related Burnout	.15	-.29-.59	.71	.49
CBI Client-Related Burnout	-.06	-.45-.32	-.33	.74
TPB Intentions	8.39	4.00-12.79	3.90	.001**
TPB Attitudes	.71	-4.73-6.15	.27	.79
TPB Norms	-.82	-6.44-4.81	-.30	.77
Clinician Work Environment [a]	-.30	-8.42-7.82	-.08	.94
Vignette Covariate [b]	-27.76	-33.05- -22.47	-2.89	.007**

Notes: *$p < .05$, **$p < .01$, ***$p < .001$. SEAMSR = Self-Efficacy in Assessing and Managing Suicide Risk scale. CBI = Copenhagen Burnout Inventory. TPB = Theory of Planned Behavior scale. [a] This variable was dummy coded such that a value of 1 reflected work environments that were associated with higher ratings of risk likelihood (individual private practice and hospital/medical center settings), and 0 represented all other work environments. [b] Because the Maria variable was associated with significantly lower ratings of risk likelihood, this variable was created and dummy-coded such that 1 reflected responses associated with the Maria vignette, and 0 reflected responses associated with all other vignettes.

Table 8. Univariate Predictors of Ordinal Ratings of Acute Suicide Risk

Variable	Wald χ^2	β	SE_β	*p*-value
Patient-Level				
BPD	1.36	.25	1.36	.24
Hospitalization History	.80	-.19	.21	.37
Interaction	.30	-.16	.30	.59
Clinician-Level				
SEAMSR	.87	.12	.13	.35
CATSP Clinical Errors	.08	.03	.10	.78
CATSP Competence	1.19	.11	.10	.28
CATSP Liability	.58	.08	.10	.45
CATSP Emotional Impact	1.08	-.08	.07	.30
CBI Personal Burnout	1.67	.02	.01	.20
CBI Work-Related Burnout	2.28	-.03	.02	.13
CBI Client-Related Burnout	4.71	.03	.01	.03*
Clinician Age	1.34	.01	.01	.25
Clinician Gender	1.42	-.20	.16	.23
Clinician Caseload [a]				
11-15	5.60	.54	.23	.02*
Clinician Degree [b]	-	-	-	-
Clinician Theoretical Orientation [b]	-	-	-	-
Clinician Work Environment [a]				
University outpatient setting	6.85	-1.03	.40	.009**
Hospital/Medical center	4.40	-.59	.28	.04*
Residential facility	4.45	-2.05	.97	.04*
Ever Hospitalized a client?	.27	.12	.23	.60
Had a patient die by suicide?	3.46	-.31	.17	.06
Climate-Relevant				
TPB Intentions	.10	-.04	.12	.75
TPB Attitudes	.01	-.01	.15	.94
TPB Subjective Norms	.56	.11	.14	.45
TPB Perceived Behavioral Control	1.83	-.23	.17	.18

Notes: *$p < .05$, **$p < .01$, ***$p < .001$. BPD = borderline personality disorder. SEAMSR = Self-Efficacy in Assessing and Managing Suicide Risk scale. CATSP = Concerns about Treating Suicidal Patients scale. CBI = Copenhagen Burnout Inventory. TPB = Theory of Planned Behavior scale.

[a] Only statistically significant levels of this categorical variable are presented in the table. [b] No levels of this categorical variable were statistically significant.

Table 9. Exploratory Combined Model Predicting Ordinal Risk Ratings

	Full Model with All Significant Univariate Predictors				
		χ^2	**Cox and Snell R^2**	**Nagelkerke R^2**	
		53.58			
		p<.001	.084	.092	
Variable	**OR**	**95% CI**	**Wald χ^2**	**df**	***p*-value**
Clinician Caseload [a]	1.46	1.02-2.08	4.36	1	.04*
Client-Related Burnout	1.01	.99-1.01	1.32	1	.25
Clinician Work Environment [b]	2.02	1.47-2.78	18.72	1	<.001***
Vignette Covariate [c]	.36	.25-.51	33.30	1	<.001***

Notes: *$p < .05$, **$p < .01$, ***$p < .001$. [a] This variable was dummy-coded such that 1 reflected clinicians having 11-15 clients, and 0 represented all other caseload levels. [b] This variable was dummy-coded such that 0 reflected work environments that were associated with a *decreased* likelihood of rating acute risk for suicide as higher (university outpatient settings, hospital/medical centers, and residential facilities), and 1 represented all other work environments (individual private practice, community private practice, group private practice, day treatment, and "other"). [c] Because the Maria variable was associated with significantly lower ordinal risk ratings, this variable was created and dummy-coded such that 1 reflected responses associated with the Maria vignette, and 0 reflected responses associated with all other vignettes.

Table 10. Univariate Predictors of Hospitalization Decisions

Variable	χ^2	OR	95% CI$_{OR}$	β	*p*-value
Patient-Level					
BPD		.86	.55-1.34	-.15	.50
Hospitalization History		1.33	.85-2.09	.29	.21
Interaction		.98	.52-1.85	-.02	.96
Clinician-Level					
SEAMSR		1.00	.76-1.33	.001	.99
CATSP Clinical Errors		.86	.70-1.08	-.15	.21
CATSP Competence		2.10	1.68-2.63	.74	<.001***
CATSP Liability		.70	.55-.89	-.36	.002**
CATSP Emotional Impact		.88	.75-1.03	-.13	.11
CBI Personal Burnout		.96	.93-.99	-.04	.003**
CBI Work-Related Burnout		.97	.93-1.01	-.03	.13
CBI Client-Related Burnout		1.07	1.03-1.10	.06	<.001***
Clinician Age		1.01	.99-1.03	.01	.34
Clinician Gender [a]	4.67				.03*
Clinician Caseload [b]	29.96				<.001***
Clinician Degree [c]	46.71				<.001***
Clinician Theoretical Orientation [d]	46.05				<.001***
Clinician Work Environment [e]	19.11				.008**
Ever Hospitalized?	15.70				<.001***
Had a patient die by suicide?	5.68				.02*
Climate-Relevant					
TPB Intentions		1.10	.86-1.41	.10	.44
TPB Attitudes		1.45	1.03-2.00	.37	.02*
TPB Subjective Norms		1.11	.82-1.52	.11	.50
TPB Perceived Behavioral Control		.92	.63-1.34	-.08	.67

Notes: *p < .05, **p < .01, ***p < .001. BPD = borderline personality disorder. SEAMSR = Self-Efficacy in Assessing and Managing Suicide Risk scale. CATSP = Concerns about Treating Suicidal Patients scale. CBI = Copenhagen Burnout Inventory. TPB = Theory of Planned Behavior scale.

[a] Men endorsed hospitalization more frequently than women across vignettes. [b] Those with 0-5 clients were significantly less likely to endorse hospitalization than other clinicians, and those with 11-15 clients were more significantly likely to endorse hospitalization than other clinicians. [c] M.D.'s were significantly more likely to endorse hospitalization than clinicians of other degrees, and clinicians with master's degrees were significantly less likely to hospitalize than clinicians of other degrees. [d] Psychodynamic/psychoanalytic clinicians and humanistic/client-centered clinicians were significantly more likely to hospitalize than clinicians of other orientations, and clinicians endorsing dialectical behavior therapy (DBT) as their predominate theoretical orientation were significantly less likely to hospitalize than clinicians of other orientations. [e] Clinicians in individual private practice were significantly more likely to endorse hospitalization than clinicians from other settings, and clinicians working in group private practice were significantly less likely to endorse hospitalization than clinicians from other settings.

Table 11. Exploratory Combined Model Predicting Hospitalization Decisions

Variable	**OR**	**95% CI$_{OR}$**	**β**	***p*-value**
Clinician Gender [a]	.98	.88-1.09	-.03	.66
CATSP Competence	1.04	.99-1.08	.03	.10
CBI Personal Burnout	1.00	.995-1.004	.00	.89
CBI Client-Related Burnout	1.001	.996-1.005	.001	.78
Clinician Degree [b]	1.30	1.03-1.63	.259	.03*
TPB Attitudes	1.14	1.09-1.19	.13	<.001***

Notes: *p < .05, **p < .01, ***p < .001. CATSP = Concerns about Treating Suicidal Patients scale. CBI = Copenhagen Burnout Inventory. TPB = Theory of Planned Behavior scale.
[a] 0 = male, 1 = female. [b] This variable was dummy-coded such that a value of 1 reflected the clinician degree type that was associated with higher ratings of risk likelihood (M.D.'s), and 0 represented all other clinician degrees.

Appendix A. Pilot Study Vignettes

1. Maria is a single 40-year-old female. She initially sought therapy to deal with chronic thoughts of suicide, chronic physical pain (which she manages with medical cannabis), and occasional episodes of binge eating. Maria met criteria for Major Depressive Disorder and Borderline Personality Disorder as well as Generalized Anxiety Disorder. You've been seeing her regularly in therapy for about a year. She has a long history of suicidal ideation, and by her report, it "waxes and wanes" over time. Around a month ago, Maria was unexpectedly fired from her job of 15 years, and her only pet passed away. Since then, she has noticed an increase in the frequency of her thoughts of suicide (from a few times a week to at least once a day), and as hopelessness and despair have settled in, she's noticed that her thoughts of suicide have gradually gotten more intense. Historically, her thoughts of suicide have included vague thoughts of overdosing on her anti-depressant medication (Prozac) at some undetermined point in the future. However, once in the past week she went so far as to pour all of her pills out on the counter in front of her and reports that she was seriously considering taking them to "escape her meaningless existence." She now says she does not intend to kill herself, but because she says she is "totally incapable" of controlling her thoughts, she is afraid that she still might try to end her life. Notably, Maria has twice been hospitalized for suicidality – once in her 20's, and once in her 30's, and both times were in response to frequent thoughts of suicide.

2. Dan is a recently widowed 30-year-old male, and he came to therapy primarily to process his grief and deal with the resulting loneliness and isolation. He meets criteria for Major Depressive Disorder, and he has a history of problematic gambling. Since his wife's death, he has stopped spending time with friends, and he says that he's lost all motivation to go to work. He also says that, since his wife died, he's begun having thoughts of killing himself. You've been seeing him for about three months, and he reports that his thoughts of suicide have been getting more and more frequent as time goes by. Additionally, he reports notable difficulty falling asleep, and although he has a long but infrequent history of taking sleep medications, he has recently started taking more pills than prescribed, and he reports that he has done so every night for the past two weeks. He says that he believes it is inevitable that someday he will kill himself, and he says that he wants to "be with his wife." However, he says he is afraid of "screwing up" a suicide attempt and will only consider suicide with a gun (because it's a "sure thing" to him). In asking about whether he has access to guns currently, he says that he does not, but he knows how easy it would be to purchase one if he wanted. Additionally, in session, he tearfully discloses that he had written a suicide note to give to you this week to say goodbye, but he tore it up before session. That said, he explicitly says that he does not want to kill himself and states an intense fear of death. Furthermore, Dan is highly religious and believes that suicide is punishable by eternal damnation. Dan has never been hospitalized for suicidality.

3. Rachel is a 25-year-old female who lives with her long-term partner, and you have been seeing her for a period of about two years. She initially came to treatment for anxiety related to Obsessive-Compulsive Disorder (OCD) and some restricting of eating behavior. She meets criteria for OCD and Major Depressive Disorder as well as Borderline Personality Disorder, and she describes intermittent thoughts of suicide. Three sessions ago, she came into your office noticeably shaken, and she disclosed that her partner had just left her for another woman. Since then, she says that she's been thinking of suicide "constantly," and she's even gone so far as

researching the most effective ways to kill herself. Convinced that she'll never be happy again, she says that she finds the idea of the blackness of death "peaceful." She says that she really couldn't imagine acting on her thoughts of suicide, and she's not sure that she wants to, but in the last two weeks, she's repeatedly gone in the bath with razorblades and held them to her wrists. Rachel insists that she didn't want to kill herself any of those times, and she reports that she would have been sad if she'd accidentally hurt herself and died in the process. She has never been hospitalized for suicidality.

4. David is a 44-year-old married male who initially sought therapy with you to work on generalized anxiety and loneliness. He meets criteria for Major Depressive Disorder, and although he doesn't meet current criteria for social anxiety disorder, he has historically wrestled with intense social anxiety. In your months of working with him, he has reported the occasional suicidal thought, but he has always insisted that he could "never do that" to his wife and young kids. This session, however, you learn that David's wife suddenly ("out of the blue") filed for the divorce and took their kids with her to stay with some family nearby. He says he feels like he's lost everything, and he says he is completely hopeless that he will ever find meaning in life again. He reports that, since his wife left a few days ago, thoughts of suicide have been "nonstop." He reports that he doesn't have a specific plan, and instead his thoughts of suicide include a variety of ways he could kill himself (e.g., jumping off his 20-story apartment building, hanging himself with a belt, etc.). He says that he does not want to kill himself and has no intent to do so currently, but he reports that thoughts of suicide get "especially bad" at night. Additionally, tomorrow morning is his youngest son's 3rd birthday party, and David's wife explicitly told him he was not to attend. Notably, David has twice been hospitalized for suicidality – once in his 20's, and once in his 30's, and both times were in response to frequent thoughts of suicide.

Appendix B. Main Study Vignettes

1. Maria is a single 40-year-old female. She initially sought therapy to deal with chronic thoughts of suicide, chronic physical pain (which she manages with medical cannabis), and occasional episodes of binge eating. Maria met criteria for Major Depressive Disorder [/and Borderline Personality Disorder] as well as Generalized Anxiety Disorder. You've been seeing her regularly in therapy for about a year. She has a long history of suicidal ideation, but she has never attempted suicide. By her report, her suicidal ideation "waxes and wanes" over time. Around a month ago, Maria was unexpectedly fired from her job of 15 years, and her only pet passed away. Since then, she has noticed an increase in the frequency of her thoughts of suicide (from a few times a week to at least once a day), and as hopelessness and despair have settled in, she's noticed that her thoughts of suicide have gradually gotten more intense. Historically, her thoughts of suicide have included vague thoughts of overdosing on her anti-depressant medication (Prozac) at some undetermined point in the future. However, once in the past week she went so far as to pour all of her pills out on the counter in front of her and reports that she was seriously considering taking them to "escape her meaningless existence." She now says she does not intend to kill herself, but because she says she is "totally incapable" of controlling her thoughts, she is afraid that she still might try to end her life. Notably, Maria has [never been hospitalized for suicide-related reasons/has twice been hospitalized for frequent thoughts of suicide – once in her 20's, and once in her 30's.]

2. Dan is a recently widowed 30-year-old male, and he came to therapy primarily to process his grief and deal with the resulting loneliness and isolation. He meets criteria for Major Depressive Disorder [/and Borderline Personality Disorder], and he has a history of problematic gambling. Since his wife's death, he has stopped spending time with friends, and he says that he's lost all motivation to go to work. He also says that, since his wife died, he's begun having thoughts of killing himself, although he has never made a suicide attempt. You've been seeing him for about three months, and he reports that his thoughts of suicide have been getting more and more frequent as time goes by. Additionally, he reports notable difficulty falling asleep, and although he has a long but infrequent history of taking sleep medications, he has recently started taking more pills than prescribed, and he reports that he has done so every night for the past two weeks. He says that he believes it is inevitable that someday he will kill himself, and he says that he wants to "be with his wife." However, he says he is afraid of "screwing up" a suicide attempt and will only consider suicide with a gun (because it's a "sure thing" to him). In asking about whether he has access to guns currently, he says that he does not, but he knows how easy it would be to purchase one if he wanted. Additionally, in session, he tearfully discloses that he had written a suicide note to give to you this week to say goodbye, but he tore it up before session. That said, he explicitly says that he does not want to kill himself and states an intense fear of death. Furthermore, Dan is highly religious and believes that suicide is punishable by eternal damnation. Dan has [never been hospitalized for suicide-related reasons/has twice been hospitalized for frequent thoughts of suicide – once in his teens, and once in his 20's].

3. Rachel is a 25-year-old female who lives with her long-term partner, and you have been seeing her for a period of about two years. She initially came to treatment for anxiety related to Obsessive-Compulsive Disorder (OCD) and some restricting of eating behavior. She meets criteria for OCD and Major Depressive Disorder [/as well as Borderline Personality Disorder],

and she describes intermittent thoughts of suicide. Three sessions ago, she came into your office noticeably shaken, and she disclosed that her partner had just left her for another woman. Since then, she says that she's been thinking of suicide "constantly," and even though she has never attempted suicide, she's gone so far as researching the most effective ways to kill herself. Convinced that she'll never be happy again, she says that she finds the idea of the blackness of death "peaceful." She says that she feels ambivalently about whether or not she could actually go through with attempting suicide, and she reports that she's repeatedly gone in the bath with razorblades and held them to her wrists. Rachel insists that she didn't want to kill herself any of those times, but she reports that she would have been both sad and also relieved if she'd accidentally hurt herself and died in the process. She has [never been hospitalized for suicide-related reasons/has twice been hospitalized for frequent thoughts of suicide – twice in her teens].

4. David is a 44-year-old married male who initially sought therapy with you to work on generalized anxiety and loneliness. He meets criteria for Major Depressive Disorder [/and Borderline Personality Disorder], and although he doesn't meet current criteria for social anxiety disorder, he has historically wrestled with intense social anxiety. In your months of working with him, he has reported the occasional suicidal thought, but he has always insisted that he could "never do that" to his wife and young kids and has never attempted suicide. This session, however, you learn that David's wife suddenly ("out of the blue") filed for the divorce and took their kids with her to stay with some family nearby. He says he feels like he's lost everything, and he says he is completely hopeless that he will ever find meaning in life again. He reports that, since his wife left a few days ago, thoughts of suicide have been "nonstop." He reports that he doesn't have a specific plan, and instead his thoughts of suicide include a variety of ways he could kill himself (e.g., jumping off his 20-story apartment building, hanging himself with a belt, etc.). He says that he does not want to kill himself and has no intent to do so currently, but he reports that thoughts of suicide get "especially bad" at night. Additionally, tomorrow morning is his youngest son's 3rd birthday party, and David's wife explicitly told him he was not to attend. Notably, David has [never been hospitalized for suicide-related reasons/has twice been hospitalized for frequent thoughts of suicide – once in his 20's, and once in his 30's].

Appendix C. Revised Theory of Planned Behavior (TPB) Scale for Main Study

1. I expect to hospitalize highly suicidal patients

1 2 3 4 5 6 7

1 = Strongly Disagree 7 = Strongly Agree

2. I want to hospitalize highly suicidal patients

1 2 3 4 5 6 7

1 = Strongly Disagree 7 = Strongly Agree

3. I intend to hospitalize highly suicidal patients

1 2 3 4 5 6 7

1 = Strongly Disagree 7 = Strongly Agree

4-6. Hospitalizing a highly suicidal patient is

1 2 3 4 5 6 7

1 = Harmful 7 = Beneficial

1 2 3 4 5 6 7

1 = Good 7 = Bad

1 2 3 4 5 6 7

1 = Worthless 7 = Useful

7. Most people who are important to me think that

1 2 3 4 5 6 7

1 = I should 7 = I should not

refer highly suicidal patients for hospitalization.

8. It is expected of me that I refer suicidal patients for hospitalization.

1 2 3 4 5 6 7

1 = Strongly Disagree 7 = Strongly Agree

9. People who are important to me want me to refer suicidal patients for hospitalization.

1 2 3 4 5 6 7

1 = Strongly Disagree 7 = Strongly Agree

10. I am confident that I could hospitalize a highly suicidal patient if I wanted to

1 2 3 4 5 6 7

1 = Strongly Disagree 7 = Strongly Agree

11. The decision to hospitalize a suicidal patient is beyond my control.

1 2 3 4 5 6 7

1 = Strongly Disagree 7 = Strongly Agree

12. Whether I hospitalize a suicidal patient is entirely up to me.

1 2 3 4 5 6 7

1 = Strongly Disagree 7 = Strongly Agree