RUNNING HEAD: Dual-Processes in Suicidality

Automatic and Controlled Antecedents of Suicidal Ideation and Action: A Dual-Process Conceptualization of Suicidality

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Abstract

Dual-process models of cognition distinguish relatively automatic from relatively controlled processes in terms of their interactive impact on perception, judgment, and behavior. Such models have advanced explanation and prediction in a variety of domains across psychology but have yet to be comprehensively applied to the pressing societal and public health problem of suicide. We propose a model of suicide that integrates dual-process models of social cognition with ideation-to-action conceptualizations of suicide. The model specifies: 1) suicide-relevant *automatic associations* involving the self, others, the future, death, and bodily harm, 2) suicide-relevant *motives* involving the self, interpersonal relations, the future, and the desire to die, and 3) hypotheses regarding the conditions under which automatic associations and motives individually and interactively impact suicidal ideation and lethal action at various stages of an ideation-to-action framework. The model recasts a number of suicide-relevant variables in terms of the *opportunity* factor of dual-process theories of attitudes, which encompasses capacity-relevant variables (e.g., time, cognitive resources) that determine whether suicide-relevant judgments and behavior are the result of relatively automatic associations or more controlled, deliberative cognition. Accordingly, the model articulates a number of novel predictions regarding the sources of suicide-relevant automatic associations, motives, and opportunity factors, as well as their interactive influences on suicidal ideation and action.

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Automatic and Controlled Antecedents of Suicidal Ideation and Action: A Dual-Process Conceptualization of Suicidality

Over 120 people die by suicide each day in the United States, contributing to around one million suicide deaths annually worldwide (Centers for Disease Control and Prevention [CDC], 2017; WHO, 2014). Despite increased pubic engagement with the issue (e.g., Mann et al., 2005; Zalsman et al., 2016), suicide rates are rising in nearly all studied U.S. populations (Hedegaard et al., 2018). For example, the suicide rate among children between 10 and 17 years old increased 70 percent between 2006 and 2016 (CDC, 2018), and in 2017, 6,241 individuals between the ages of 15 and 24 died by suicide (Miron, Yu, Wilf-Miron, & Kohane, 2019). Over 20 US military veterans die by suicide each day, a rate that has also increased by double-digits in the last two decades (Kang et al., 2015; Nock et al., 2013). Thus, suicide is a growing tragedy with effects rippling from decedents to surviving family members, friends, and communities.

Suicidality is also a complex phenomenon that is difficult to explain and predict. As with many complex phenomena, early research considered some factors to the exclusion of others. Durkheim's (1897) seminal work, for example, focused on failures of social integration; others spotlight mental illness (e.g., Harris & Barraclough, 1997), hopelessness (e.g., Beck, 1967), and escape from aversive self-awareness (Baumeister, 1990). More recently, integrative models have incorporated these and other variables to provide a fuller picture of the myriad distal and proximal factors that interact to ultimately lead one to consider and sometimes take lethal actions toward the self. These fall under the rubric of an "ideation-to-action" framework (Klonsky & May, 2014), and include the Interpersonal Theory (Joiner, 2005; Van Orden et al., 2010), the 3-Step Theory (Klonsky & May, 2015), Fluid Vulnerability Theory (Bryan & Rudd, 2016), and the Integrated Motivational-Volitional Model (O'Connor, 2011). In recognizing suicidality's

personal, social, and environmental antecedents, these models provide a more comprehensive understanding of it.

However, the vast majority of work on suicidality has focused on relatively controlled, deliberative judgements. Our position is that even these integrative models omit a fundamental and well-established dynamic of the human mind: that complex human behavior is the result of an interplay between relatively automatic and relatively controlled modes of thought (e.g., Sherman et al., 2014). From basic processes of impression formation (e.g., Fiske et al., 1999) to romantic relationships (e.g., McNulty & Olson, 2015) and intergroup relations (e.g., Devine, 1989), dual-process frameworks that incorporate automatic and controlled cognition have provided a more complete understanding of a broad array of social phenomena. On this basis, and on the basis of a number of recent empirical findings, we propose a dual-process framework for the study of suicidality: The Automatic and Controlled Antecedents of Suicidal Ideation and Action (ACASIA) Model.

Automatic cognitions can be characterized as unintentional (i.e., inescapably activated), uncontrollable (i.e., difficult to stop), efficient in operation (i.e., requiring few cognitive resources), and/or unconscious (Bargh, 1994) and are typically captured with implicit measures.[1] Cognitions with automatic properties are often theorized to be stored in memory as simple associations between objects and/or concepts (Fazio & Olson, 2014; Gawronski & Bodenhausen, 2014), and a number of such associations have become candidates for study in suicide research. For example, automatic associations between the self and death predict suicidal ideation and

[1] We will use the term ‘automatic’ to refer to processes or outputs of processes that have automatic properties, particularly unintentional activation, uncontrollability, and efficiency. It is important to note that the presence of one element of automaticity does not imply the presence of others (Melnikoff & Bargh, 2018). The term “implicit” is often equated with automatic but is also sometimes used to refer to learning mechanisms, representation, conscious awareness, and measurement, and thus lacks specificity (Corneille & Hütter, 2020). We use “implicit” and “explicit” solely in reference to measurement.

action beyond traditional explicit (i.e., verbal) responses (Glenn et al., 2017), as have automatic associations between close others and negative evaluations (McNulty et al., 2019). Nevertheless, like early studies, recent forays into the role of automatic cognition in suicidality tend to consider relevant variables in isolation, by, for example, focusing only on self-relevant (e.g., Glenn et al., 2017) or relationship-relevant constructs (e.g., McNulty et al., 2019). In the same way that contemporary models of suicidality aspire to integrate a fuller array of personal, interpersonal, and environmental factors, the present work is an attempt to integrate automatic factors and their controlled counterparts into such a model.

Before describing the model, we first provide brief overviews of three social-cognitive dual-process theories that describe how automatic and controlled processes interact. We believe them to be most relevant in terms of cognitive processes and specific with regards to testable predictions, particularly regarding interactions between automatic and controlled components (for a more exhaustive review of dual-process theories, see Sherman, Gawronski, & Trope, 2014). We then provide a rationale for applying a dual-process approach to the study of suicidality. Here we highlight what might be underappreciated by the historical focus on controlled processes and draw parallels between suicidality and other domains in social and clinical psychology in which dual-process approaches have proven fruitful. Finally, we present the model, articulate its predictions, offer support for those predictions where it exists, and identify avenues for future research.

Dual Process Models in Social Cognition

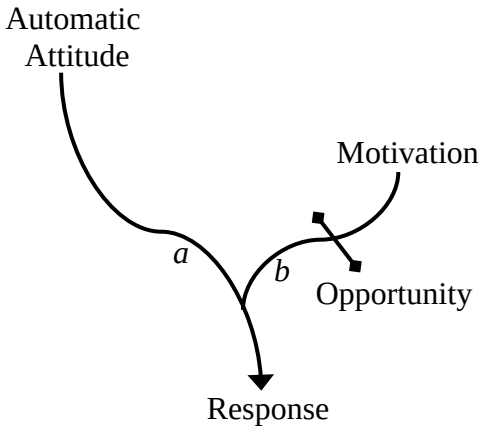
Dual process models of evaluation delineate the conditions under which automatic attitudes and controlled processes interact to predict judgments and behavior (Fazio, 1990; Fazio & Olson, 2014; Gawronski & Bodenhausen, 2006, 2014). Recent theorizing has built upon these

foundations by incorporating the unique processing of threat to bodily harm into a Dual Implicit Process model (DIP model: March et al., 2018a,b).

The Motivation and Opportunity as DEterminants (MODE) Model

The MODE model (Fazio, 1990; Fazio & Olson, 2014, see Figure 1) was originally developed to predict the relationship between attitudes and behaviors by incorporating *M*otivation and *O*pportunity to engage in thoughtful, goal-direct processing as moderating variables that *DE*termine whether automatically activated attitudes (hereafter "automatic attitudes") guide judgments and behavior. The MODE model defines automatic attitudes as simple associations between an object (e.g., a product, person, idea, etc.) and a positive or negative evaluation (e.g., candy-positive; Fazio, 2007). Attitudes can vary in terms of the strength of the object-evaluation association, with stronger attitudes being more stable, more resistant to counter-persuasion, more likely to be automatically activated upon encountering the attitude-object, and more likely to predict behavior. From the MODE model's perspective, automatic attitudes are summary evaluations, stored as associations, that provide a global, accessible, and functional assessment of an object.

Figure 1. The MODE Model



Once an attitude-object with sufficient attitude strength is encountered, the attitude is activated spontaneously, and functions as the starting point for further processing of the object. For example, upon perception of the object, automatic attitudes orient attention toward it and ready approach or avoidance behaviors (Fazio, 2007). Absent any motivation or opportunity to do otherwise, automatic attitudes can guide behavior relatively effortlessly (path *a* of Figure 1). Motivation reflects an individual's consciously held desires; broadly construed, it includes any tendency to thoughtfully consider alternatives regarding interactions with the object. These motives can be general (e.g., hedonics, accuracy) or specific (e.g., the desire to reach a specific conclusion), and can be either consistent or inconsistent with the automatic attitude. If the motivation is consistent with the attitude (e.g., an individual with a positive automatic attitude toward candy and a motive to consume it), deliberative processing will not interfere with the flow from automatic attitude activation to behavior (e.g., the individual will eat the candy; Hofmann et al., 2007). If the motivation is inconsistent with the attitude (e.g., an individual might harbor a positive automatic attitude toward candy but be motivated to eat healthily), the individual may consider motive-relevant aspects of the object in its context (e.g., its caloric content), and choose an alternative course of action consistent with motives as indicated in path *b* of Figure 1.

However, motivation is only effective in overriding automatic responses when one has the opportunity. Opportunity is conceptualized as the ability to consider and enact behavioral alternatives to those implied by the attitude. It can be operationalized as either a trait or a state. For example, as a trait, impulsivity can reduce one's capacity for reasoned thought; as a state, time pressure can do the same. In both cases, one's capacity for deliberative reasoning is diminished, thus, opportunity is low. Critically, in the absence of *either* motivation *or*

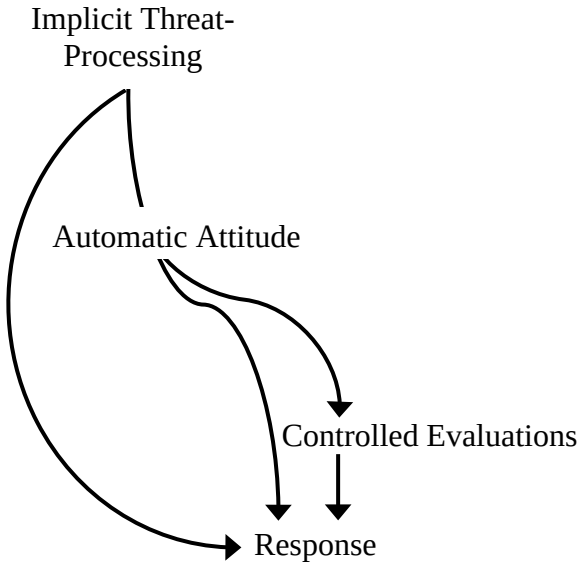
opportunity, the automatic attitude will be more likely to guide judgments and behaviors. Thus, when able to consider alternatives (that is, under conditions of high opportunity), the healthy-eater can overcome the automatic tendency to consume the candy. If unmotivated or unable to consider alternatives, they will likely fail to override the automatic attitude and consume the candy (Hofmann et al., 2007). Thus, opportunity is a gating mechanism that allows for or impedes the input of motivated cognition. Again, opportunity is both a contextual (e.g., does one have the time?) and a psychological consideration (e.g., does one have the cognitive capacity?). Cognitive capacity is inherently limited, and many factors such as distraction, stress, and fatigue that affect capacity can essentially reduce one's opportunity to override an automatic impulse (Baumeister & Vohs, 2007; Hofmann & Friese, 2008; Hofmann et al., 2012).

What is critical with respect to suicidality is that the behavioral responses that the MODE model aims to explain are not merely those of overt action (e.g., cutting, suicide attempts). Rather, the MODE model takes a broad view of behavior that includes expressed judgments, even those only voiced to oneself through reflective thought. Accordingly, MODE principles can offer insight into the interactive role of automatic attitudes toward a host of objects (e.g., the self, others, death) and relevant motivation and opportunity variables in predicting the *expressed judgments* that have been the focus of the vast majority of suicidality research to date (e.g., "I am lonely," "My life is worthless," "I want to die."). It is also important to note that, although motivation is directional (e.g., one might be motivated to reach a specific conclusion or perform a specific action), opportunity is not. That is, the presence of opportunity does not direct one to a specific response; it only allows for the input of motivated cognition.

The Dual Implicit Process (DIP) Model

The Dual Implicit Process (DIP) model (March et al., 2018a,b) builds on dual process theories, including the MODE, by specifying a unique automatic threat process apart from otherwise automatic processing of valence (i.e., positive-negative; see Figure 2). Research on threat has consistently shown that people preferentially process dangers to physical harm by prioritizing attention, response, and recall regarding threats (e.g., Öhman & Mineka, 2001). Thus, as indicated in Figure 2, implicit threat processing precedes automatic evaluative processing. People are likely born with (e.g., Nesse, 2005) and also more readily acquire (e.g., Schaller & Neuberg, 2012) threat associations than they do other nonthreatening-negative (or positive) associations (a "threat superiority effect"; Blanchette, 2006). In light of threat superiority, the DIP model proposes a qualitatively separate process for identifying and initiating responses to threatening stimuli. The model makes a clear distinction between threat and negativity in that, whereas threatening things are negative (in that they provoke automatic avoidance responses), not all negative things are threatening.

Figure 2. The DIP Model



The mechanism underlying the unique threat response is rooted in the physiology of the brain maintained and honed though evolutionary development. Neuroscientists have outlined a dual route for information processing (e.g., LeDoux, 2014). One route takes in information, uses subcortical connections to the amygdala to process certain characteristics connoting threat, and then initiates defensive physical and autonomic responses, as indicated in the direct path from implicit threat processing to responses in Figure 2. Alternatively, a parallel and more time-consuming route takes the same information through cortical structures that imbue it with more nuanced information (such as valence, as indicated in Figure 2's path from implicit threat processing to automatic attitudes and controlled evaluations). Although the inputted information reaches all the same structures where it is integrated into an ever-unfolding output, it does so via separate routes with different speeds and strength of input and output connections. A natural consequence of this physiology is that threat-relevant information evinces its influence prior to other types of information (i.e., valence; see also Garrido et al., 2012; Whalen et al., 2004).

In such a dual implicit process framework, not only can automatic versus controlled responses diverge (as in the MODE model), but threat and evaluative responses can diverge. For example, a spider enthusiast can evidence both threat responses and automatic positive attitudes toward spiders. Similarly, a domestic violence victim may exhibit both automatic threat and automatic positive responses to an abusive partner. The DIP model offers insight into suicidality as it suggests that threats to bodily harm are processed separately from suicide-relevant evaluations, allowing for the possibility of heterogeneous threat versus valence evaluations of the same object.

The Associative-Propositional Evaluation (APE) Model

The final dual process model to consider, the Associative-Propositional Evaluation (APE) model (Gawronski & Bodenhausen, 2006, 2014), offers a way to conceptualize how evaluative associations predict judgment and behavior in the context of other relevant beliefs. Within this conceptualization, existing beliefs can act as motivations as implied by the MODE model. The APE model considers automatic and controlled processing the result of separate associative and propositional mechanisms, respectively. Consistent with the MODE model, associative processes (such as automatic attitudes) are those that function through the mere linking of objects and evaluations due to environmental co-occurrence, as in evaluative conditioning (Olson & Fazio, 2001). Propositions, in contrast, are cognitions that rely on one's deliberate consideration of the validity of activated associations. For example, a cigarette may activate positive affect in an ex-smoker (e.g., cigarettes-positive), but may also activate a number of other negatively valenced associations (e.g., cigarettes-cancer, cigarettes-expensive, etc.) that propositional reasoning can entertain and either accept as valid or reject as invalid. Together, these processes crosstalk to determine judgments and behaviors in line with the MODE model's motivation and opportunity moderators, which are necessary to consciously attend to activated associations and determine their perceived validity. For example, the propositional thought "smoking-harmful = true" may motivate a person to override any automatic positive evaluation of cigarettes. The APE model also posits that controlled (propositional) knowledge can affect associations over time. Specifically, conscious, deliberative thinking can alter associations through repeated, conscious rehearsal of specific propositions (e.g., a smoker motivated to quit may consistently remind themselves of the negative health consequences of smoking, thus producing more negative associations to cigarettes). Later, we will discuss the implications this aspect of the APE model has for changes in suicide-relevant associations and motives over time.

In order for an activated association to impact judgments of an object, that association must be attributed to it (Gilbert, 1989). These attributions can be made automatically (as when someone spontaneously attributes automatic negative affect to one's disaffected partner who just entered the room) or in a deliberative fashion (as when someone wonders, "Why am I feeling this way?"). In other words, people must perceive, either automatically or deliberatively, their activated affect as somehow being "about" an object for that affect to influence judgments of it.

People are often accurate about the source of activated affect. For example, they often experience their evaluative responses consciously upon perception of an object (Olson et al., 2007; Phillips & Olson, 2014). In other words, people often make accurate attributions about the sources of their automatically activated affect. Nevertheless, because we rarely encounter stimuli in isolation, errors can occur in identifying the source of an automatic affective response. First, misattribution of the affect activated by an attitude object can occur. Once misattributed, deliberative judgments will follow despite their inaccuracy (e.g., as when someone misattributes arousal from a frightening experience to a nearby person and thus finds that person more attractive; Dutton & Aron, 1974). Secondly, one may experience activated affect and be unsure of its source, and hence wary of attributing it to any one thing. Here, the affect may be described as "free floating" and may be attributed to "mood." For example, negativity activated upon the perception of one's romantic partner may be attributed to mood earlier in a relationship, and only (correctly) attributed to the partner later on (Turner & McNulty, 2020).

For the present purposes, it is important to note that whether attributions of affect are made spontaneously or deliberatively, and correctly or incorrectly, whatever is identified as the source of the activated affect will be judged according to MODE, DIP, and APE model tenets. In our present focus on associations involving the self, close others, the future, and self-harm, we

note that judgments of these objects may be based on affect activated by these or other objects. And, absent any clear source, attributional reasoning may be abandoned, and any activated affect may be experienced as global affect.

Implicit Measures

Implicit measures are better-suited (relative to explicit, survey-style measures) to assess automatic cognitions; they are designed to measure the associative strength of concepts (e.g., my spouse-negative), and have been central in delineating the impact of automatic associations vs. more deliberative cognitions in tests of dual-process models. Because implicit measures provide indices of the automaticity of an evaluative response, and hence are critical for tests of the model proposed here, we briefly describe the two most used: The Implicit Association Test (IAT) and evaluative priming (for a more extensive review, see Fazio & Olson, 2003).

The IAT (Greenwald et al., 1998) is a speeded categorization task that requires respondents to categorize two types of objects (e.g., one's spouse vs. other people) and two evaluative responses (e.g., positive vs. negative), using only two response keys. Objects and evaluative responses share key assignments in pairs that vary throughout the task. For example, on some trials, respondents might be instructed to press the "A" key whenever their spouse or a positive item appears on the screen, and to press the "L" key whenever other people or a negative item appears. On other trials, the key assignments partly switch such that respondents press the "A" key whenever *other people* or a positive item appears on the screen, and to press "L" key whenever *their spouse* or a negative item appear. If respondents are quicker to respond when their spouse and negative items share a key than when their spouse and positive items share a key, it is inferred that their spouse is more strongly associated with negative than positive (i.e., my spouse-negative).

Similarly, evaluative priming tasks (Fazio et al., 1995) gauge the automaticity of associations via assessing the extent to which objects, presented briefly as primes, facilitate identification of positive and negative targets. On a given trial, a prime (e.g., a picture of one's spouse) appears briefly, followed immediately by a target (e.g., a positive word). Respondents are instructed to attend to the prime but categorize the target as positive or negative by pressing one of two keys. If respondents more quickly categorize negative vs. positive targets preceded by spouse primes (relative to neutral primes or no prime), we would infer a more automatic negative association to their spouse (see McNulty et al., 2013).

Much has been written about implicit measures (for reviews, see De Houwer, Teige-Mocigemba et al., 2009; Fazio & Olson, 2003; Nosek et al., 2011; March et al., 2020; Olson & Fazio, 2009), but for the present purposes, it is important to note the consensus that implicit measures index the automatic properties of attitudes.

Why Consider Dual-Processes?

A substantial proportion of the variance in suicidal ideation and action is left unaccounted for after considering several factors identified in current integrative models. For example, a recent meta-analysis of the Interpersonal Theory found modest support for the model (Chu et al., 2017; see also Ma et al., 2016). Other areas of psychology have improved their capacity to explain and predict behavior by incorporating dual-process approaches (see Sherman et al., 2014, for a review). As described above, dual process models provide both theoretical and measurement advances over previous theories of the relationship between attitudes and behaviors by incorporating interactive automatic and controlled processes (see Wicker, 1971). The application of a dual-process framework has consequently improved explanation and prediction in a number of areas involving mental health, including addiction (Wiers & Stacy, 2006), anxiety

(Teachman et al., 2012), and sexual assault (Widman & Olson, 2013). Much of this work incorporates advances in implicit measurement in clinical domains (Roefs et al., 2011).

Considering automatic properties of suicide-relevant cognitions can improve our understanding of suicidality in at least three ways. First, thoughts of oneself, close others, or one's future might prompt weak or strong negativity, and dual-process models emphasize the downstream consequences of associations with varying associative strength: stronger associations are more likely to guide perception, cognition, and behavior automatically, are more difficult to counteract through more motivated processes, are less context-dependent, and are more difficult to change (Fazio, 2007). Thus, variability in the associative strength of concepts relevant to suicidality is likely to have important implications for prediction. In contrast, the survey tools employed in most research inquire about the frequency of suicide-relevant thoughts (e.g., the Beck Scale for Suicidal Ideation; Beck et al., 1979), or judgments of the extent to which relevant thoughts are "true for me" (e.g., the Interpersonal Needs Questionnaire; Van Orden et al., 2012). Such information, while valuable, does not directly track the automaticity of suicide-relevant cognitions.

Second, automatic processes are less susceptible to motivated responses (e.g., Gawronski & Strack, 2004; Olson et al., 2007). Social and intrapsychic motives typically tug individuals toward expressing positive rather than negative judgments of the self, others, and the future. Suicide is highly stigmatized, and a vexing clinical reality is that many at-risk individuals are reluctant to admit their suicidality: in one telling study, nearly 80% of suicide decedents denied suicidality in the days preceding their deaths (Busch et al., 2003; see also Isometsä et al., 1995). Reluctance to disclose is a particularly notable problem among members of the military (Greene-

Shortridge et al., 2007). Indexing automatic attitudes circumvents these problems via the relative uncontrollability of the response.

Of course, many individuals *are* willing to admit suicidal ideation, and a prudent default stance is that such individuals should be believed. Yet, many others are likely to experience suicidal ideation or socially undesirable thoughts surrounding its precursors but are unwilling or unable to express those thoughts on a survey or in an interview. Dual-process models expressly distinguish those who are willing and able to report socially undesirable attitudes (e.g., suicidality) from those who harbor such attitudes but who are motivated to suppress their expression. It is possible that these two classes of individuals vary in their suicide risk (c.f. Podlogar et al., 2016; Podlogar & Joiner, 2019), and, as we will describe, our dual process perspective helps delineate how and why that might be.

Lastly, a nascent body of research illuminates roles for automatic cognition in suicidality. Those roles, however, have mostly been investigated in isolation. For example, while automatic self-death associations have shown reliable relations with suicidality (e.g., Glenn et al., 2017), very little work has considered the determinants of these associations, as well as their interrelations with other personal, interpersonal, and environmental factors relevant to suicide (see Harrison et al., 2014, for a notable exception). Analogous points can be made about automatic associations between the self and anxiety (Glashouwer et al., 2010), close others (e.g., McNulty et al., 2019), and automatic evaluations of life and death (e.g., Hussey et al., 2016). We will consider the determinants of these associations, their controlled counterparts, and how these interacting processes assemble into an integrative model of suicidality.

The Automatic and Controlled Antecedents of Suicidal Ideation and Action Model

The Automatic and Controlled Antecedents of Suicidal Ideation and Action (ACASIA) Model describes the impact of interactive automatic and controlled processes and opportunity variables on suicidality within an ideation-to-action framework. The primary objects of cognition are the self, close others, the future, and the performance of lethal acts, which align with factors considered by the Interpersonal Theory (IPT; Joiner, 2005; Van Orden et al., 2010). Also in keeping with the IPT, the primary criterion is human suicide and suicidal ideation; that is, the model aims to account for variability in suicidality without distinguishing "kinds" (cf. Maris, Berman, & Silverman, 2000). The IPT overlaps with other models, including the 3-Step Theory (Klonsky & May, 2015), the Integrated Motivational-Volitional Model (O'Connor, 2011) and Escape Theory (Baumeister, 1990), in their inclusion of intrapersonal processes (e.g., psychic pain, agitation and entrapment, and hopelessness), interpersonal processes (e.g., belongingness and connectedness), as well as an array of contextual factors (e.g., access to lethal means). Most of these theories emphasize controlled cognition. For example, the Integrated Motivational-Volitional Model and the Interpersonal Theory both emphasize the role of deliberative processes, the former in the formation of suicidal intent and the latter in the performance of lethal acts; neither of these theories allows room for relatively impulsive forms of suicidal behavior. The Escape Theory, on the other hand, articulates a pathway from cognitive deconstruction to disinhibition, allowing for relatively low-thought self-destructive acts. The ACASIA model, however, allows for both automatic and controlled inputs to suicide, and makes specific predictions about the conditions under which automatic and controlled processes culminate in the desire to die, lethal intent, and lethal acts.

The Interpersonal Theory (IPT), on which the ACASIA model is based, identifies relevant interpersonal and intrapersonal factors as contributors to initial suicidal ideation. The

role of close others is considered primarily through thwarted belongingness, which entails a perceived loss of social connections and a sense of isolation. The role of the self is considered primarily through perceived burdensomeness, which entails a belief that one is expendable, or worse, that others would be better off if one were dead. The presence of either of these is sufficient to produce suicidal ideation. Hopelessness, a pessimistic future outlook coupled with the belief that one is impotent to change it, amplifies the effects of thwarted belongingness and perceived burdensomeness and can increase suicidal ideation. Thus, the desire to die is most potent when one experiences a triad of thwarted belongingness, perceived burdensomeness, and hopelessness. However, action on suicidal ideation requires the capability to engage in lethal acts. Capability includes overcoming the fear of death, the fear of killing, and the avoidance of pain and physical harm. An individual experiencing suicidal ideation is more likely to form suicidal intent upon overcoming these fears, and is more likely to act on that intent (i.e., make a lethal or near-lethal suicide attempt) upon stifling a strong fear of pain and harm, and, finally, having access to and familiarity with lethal means. It is important to note that each of these factors can have trait-like (stable) and state-like (labile) qualities (Rogers & Joiner, 2019; see Joiner, 2005; Van Orden et al., 2010, for more detailed descriptions of the theory).

In the following subsections, we incorporate each of these factors into our dual-process model, describing each in terms of their automatic and controlled counterparts. In describing their automatic components, we also describe their implicit assessment. We further clarify relevant motives and opportunity variables for each component. Then, we delineate potential interactions between automatic and controlled components in predicting suicidal ideation and action. Table 1 summarizes key components of the model, and Table 2 articulates its primary predictions.

Close Others & Thwarted Belongingness

Current Conceptualization. Humans are an exceedingly social species who harbor a fundamental need to belong (Baumeister & Leary, 1995). Simply defined, belongingness is the experience of positive affect in the context of an ongoing relationship, and thwarted belongingness is the perception of the absence of this confluence. Distal, often structural factors can contribute to thwarted belongingness. Durkheim (1897), for example, described differences in social integration among different populations in Europe and their impact on death by suicide, and more recent forays into cultural and geographic factors support the role of these and other distal factors (e.g., Wray et al., 2011). Others (e.g., Shneidman, 1993) focus on proximal interpersonal factors that contribute to failure to belong, such as family conflict, social rejection, and the loss of a close relationship partner. Ultimately, both the distal and proximal factors contributing to thwarted belongingness manifest in two distinct ways: the first is loneliness, stemming from a sense of disconnection from others, and the second is the absence of reciprocal care, an exchange of support between oneself and close others.

Current Measurement. Thwarted belongingness is most often assessed via survey, particularly the Interpersonal Needs Questionnaire (INQ; Van Orden et al., 2012; see also the UCLA Loneliness Scale; Russell et al., 1980). The INQ includes items like, “These days, I feel disconnected from other people,” and, “These days, I feel like I belong” (reverse-scored). In line with our earlier discussions of dual-process theories and their implication for measurement, such controlled judgements are potentially the result of: 1) relatively automatic, affective-based responses (if respondents “go with their gut” as indicated in path *a* in Figure 3), 2) the output of a motivated process to fulfill a belongingness motive, as in path *b* in Figure 3, or 3) some combination of the two. Explicit responses to self-report measures cannot disentangle these

possibilities. Accordingly, although the INQ measure of thwarted belongingness has proven predictive of suicidal ideation, albeit in some studies more strongly than others (Ma et al., 2016), it is unclear the extent to which its predictive value stems from people reporting how they feel at the automatic level or the output of a motivated process. And this distinction is critical: to what extent does suicidality stem from the automatic sense that one is disconnected from others, an inability to fulfill a belongingness motive, and/or the abandonment of a motive to belong?

Automatic Conceptualization. We conceptualize the automatic determinants of belongingness as the spontaneous, unintentionally-activated affect or "gut feeling" one experiences upon perception or thought of others, especially close others. They are represented in memory as simple associations between a close other (or others, such as meaningful groups) and an affective response (e.g., my spouse-negative). Automatic associations involving close others can have stable, trait-like qualities and also be context-dependent. One might, for example, experience a burst of joy at the sight of one's spouse in the home or on vacation, but experience negative affect upon seeing that same spouse in the context of an argument. Thus, automatic evaluative reactions to close others that one attributes to them serve as the automatic inputs to judgments of thwarted belongingness.

Implicit Measurement. As described earlier, implicit measures gauge the strength of association between concepts, and several (including the IAT and priming tasks) are viable candidates. In the case of thwarted belongingness, the concepts are close others and automatic affect responses. Implicit measures require specifying both concepts, which raises questions about who those close others and what those affective responses might be. Regarding close others, the INQ items refer to "supportive friends," "social gatherings," and "people" generally. As it is not designed to gauge immediate affective responses, the INQ does not specify any

particular affect. We reason that because the valence (positive-negative) dimension is the most global of affective responses, it makes sense to start there, so we have (McNulty et al., 2019). In a series of three longitudinal studies of marriage, we assessed respondents' automatic associations between negative/positive affect and one important close other, the spouse, using an evaluative priming measure. The primes were images of spouses taken from different angles, and the targets were words of obvious positive and negative connotations (e.g., *awesome*, *horrible*). Relative to their baseline response latencies (i.e., latencies to categorize the words after neutral primes), we inferred automatic threats to belongingness to the extent that perception of one's spouse facilitated responses to negative relative to positive words, which implies that one's spouse automatically activated more negative than positive affect (Fazio, 2007). Consistent with the idea that such automatic evaluative associations can predict suicidality later, automatic spouse-negative associations predicted increases in suicidal ideation over time across all three studies, even after accounting for their controlled counterparts (McNulty et al., 2019).

A spouse is just one close other, but nonetheless an important one. Indeed, the suffocation model of marriage (Finkel et al., 2014) describes how people increasingly expect spouses to fulfill a variety of needs. Thus, it is not surprising that automatic negative evaluations of this particular close other relate to suicidality, and this pattern aligns with research indicating spousal separation and divorce as predictors of suicidality (Wyder et al., 2009). Nevertheless, and as a way of further refining the ACASIA model, specific predictions can be derived from a variety of theoretical viewpoints about which "others" to whom negative evaluative reactions most contribute to thwarted belongingness, and, in turn, increased suicidality.

Both evolutionary theory (e.g., Buss, 2015) and attachment theory (Cassidy & Shaver, 2002) suggest family-of-origin relations and romantic attachments as candidates. Indeed,

disrupted relations with parents and other family members are predictors of suicidality (Borowsky et al., 2001). In adolescence, friends and peers increase in importance. And although dyadic relationships are probably more important than collective relationships (i.e., group memberships) among men and women (Gaertner et al., 2012), men tend to identify more with groups than do women (Gabriel & Gardner, 1999). Thus, we predict that automatic negative evaluative reactions toward one's important peer relations and groups would be relatively better predictors of suicidal ideation among adolescents and men, respectively. Contextual and historical factors may also enter in; for example, civilian suicides tend to decrease when a nation is at war (Rojcewicz, 1971). Here, the relevant others might be "fellow citizens" with whom one feels increasingly connected during national crises.

In addition to specifying which close others are most relevant to thwarted belongingness, the automatic affective response to those others can be specified beyond the positive-negative dimension. Basic implicit measurement work reveals that it is possible to assess automatic affect at more specific levels (e.g., Quirin et al., 2009; Rohr et al., 2012), allowing the development of more nuanced tests of the specific affects related to suicidality. For example, does suicidality increase to the extent that one experiences automatic activation of sadness vs. anger or disgust upon perception of one's spouse? Anger and disgust are high arousal emotions, which may energize action. Indeed, anger in response to relational conflict can facilitate destructive interpersonal behaviors (Lemay et al., 2012). Sadness, on the other hand, is more aligned with loneliness, an important component of thwarted belongingness; it is also conceptualized as an appraisal of loss, particularly interpersonal loss (e.g., Lazarus, 1991). Thus, both automatic other-sad associations and other-anger or other-disgust associations are potentially relevant

candidates for more nuanced conceptualizations of automatic predecessors of thwarted belongingness.

Motivation. A critical contribution of a dual-process perspective is its articulation of the interactive effects of automatic and controlled processes. Recall from our review of the MODE model that automatic associations should predict responses in the absence of either motivation or opportunity to respond in ways other than those implied by one's automatic response. If one's relevant motives are not in conflict with one's automatic attitudes, or one does not have the time or capacity to alter one's behavioral response, the automatic response is the default. If motivated and able, more deliberate processing can determine responses.

Two motives seem particularly relevant for thwarted belongingness. First is the need to belong. Although this need is probably universal, individuals do differ in their belongingness motives (Leary et al., 2013). Those higher in the need to belong tend to be more neurotic, socially anxious, and sensitive to rejection, but they are also more agreeable, actively seek out social engagement (Leary et al., 2013), and are more attentive to social cues (Pickett et al., 2004). These patterns suggest pursuit of an unmet (or only partially met) need among those high in the need to belong.

Secondly, and perhaps a more specific manifestation of the need to belong, people are motivated to see their relationships and relationship partners in a positive light (Murray et al., 1996). Relationship-enhancing motives can obscure the reporting of automatic affect toward close others on the survey measures typically used to assess qualities of relationships. Support for this logic can be found in research indicating implicit measures of relationship satisfaction are often better predictors of long-term relationship outcomes than are explicit measures (e.g., Lee et al., 2010; McNulty et al., 2013). Because relationship-enhancing motives are so strong,

explicit measures that assess relationship quality (and, hence, the extent to which belongingness motives are likely to be met) can overestimate the extent to which people actually feel their belongingness needs are met (see McNulty & Olson, 2015).

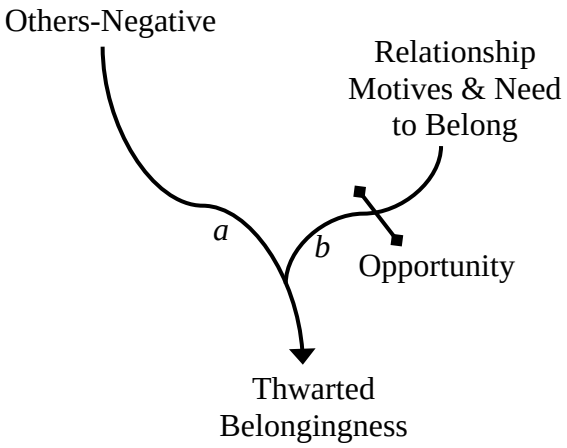
Nevertheless, motives can function not only to distort perceptions but also to create realities. That is, belongingness motives can (when opportunity allows) facilitate controlled cognitions and behaviors that can determine one's social engagement and ultimately judgments of belongingness. For example, relationship-enhancing motives cultivate behaviors that can improve relationships (e.g., through idealization of one's partner; Murray et al., 1996). Similarly, the need to belong can motivate behaviors likely to increase a sense of belonging (although it is also true that thwarted belongingness can sometimes cultivate dysfunctional behaviors that further alienate the individual from others, e.g., Baumeister et al., 2007). People with unmet belongingness needs can also develop relationships with social surrogates (Derrick et al., 2009) and religious figures (e.g., Granqvist et al., 2010), which can increase a sense of belongingness and buffer against social rejection in the absence of satisfying tangible relationships. Thus, belongingness motives can compensate for automatic responses indicating failure to achieve belongingness by influencing controlled cognitions and behaviors, such as the cognitions one considers and attributions one makes when arriving at a judgment of one's belongingness, as well as behaviors (e.g., seeking social engagement) that promote belongingness.

Opportunity. From the above analysis, it may seem that motivation may allow one to protect oneself from automatic negative associations involving close others indefinitely by promoting cognitions and behaviors that fulfill belongingness motives more effortfully. Critically, however, motivations are rendered impotent in the absence of the cognitive or physical opportunity to override any automatic negative associations. As reviewed earlier,

individuals are often cognitively taxed, tired, rushed, or in some other way lack the capacity to engage in more motivated thought and action. Thus, an array of opportunity variables, some determined by context (e.g., time pressure) and others determined by individual differences (e.g., impulsivity), can function to diminish the impact of motivated processes on perceived belongingness, rendering judgments of belongingness more determined by automatic evaluative responses attributed to close others. Here, we highlight a few that may be particularly relevant.

First, social rejection itself can undermine self-regulation (Baumeister et al., 2005), with the ironic result that those most motivated to re-connect have reduced capacity to do so. This is at least partly because the negative affect from social rejection can be overwhelming. Secondly, stress is a particularly important opportunity variable in the context of interpersonal relationships. Chronic stressors in particular are consistently associated with decreased relationship satisfaction and longevity (Neff & Karney, 2017). One explanation for this association is that stressful experiences minimize people's self-regulatory capacity (Hofmann et al., 2012), thereby limiting their ability to override any spontaneous negative interpersonal affect. Indeed, in two studies, stress increased the extent to which people's explicit relationship evaluations aligned with their automatic feelings toward their partners, reflecting a reduced capacity to override automatic (negative) responses to partners (Hicks et al., in press). Thus, stress and other factors that minimize people's cognitive capacity (e.g., alcohol, distraction, physical isolation, etc.) minimize the extent to which they are able override any negative automatic feelings in favor of more motivated conclusions and thereby put them at greater risk of suicidal ideation (given automatic partner-negative associations and, as described next, limited opportunity to override them).

Figure 3. Thwarted Belongingness from a Dual-Process Perspective



Dual-Process Predictions. According to our model, under low opportunity conditions the automatic response activated upon perceptions of close others should largely determine one's judgments of belongingness: relatively positive automatic responses to close others (however they might be defined) should predict judgments of high belongingness, and relatively negative automatic responses to close others should predict judgments of low belongingness (path *a* in Figure 3). Under high opportunity conditions, however, motivated belongingness can promote cognitions and behaviors that overcome more negative automatic reactions to close others to better predict judgments of belongingness (path *b* in Figure 3).

The ACASIA model makes another novel prediction about the interaction of automatic and motivated processes surrounding belongingness. The fact that motives are so critical to staving off automatic threats to belongingness makes it important to consider that motivations can change. While the pursuit of social connections typically increases after an instance of social exclusion (Maner et al., 2007), belongingness motives may weaken over time to the extent that one experiences repeated and prolonged exclusion or perceived failures to belong, which in turn would reduce pursuit of social connection. Relatedly, the attachment literature reveals that

repeated social rebuffing can foster avoidant attachment (Waters et al., 2000), which reflects a weakening (and, in extreme forms, abandonment) of the belongingness motive. Those who exhibit low automatic belongingness (i.e., relatively strong other-negative associations) in conjunction with a weakened belongingness motive neither feel an automatic sense of belongingness nor strive—either cognitively or behaviorally— toward social connection. Our model predicts suicidality to be greatest among these individuals.

The Self & Perceived Burdensomeness

Current Conceptualization. Humans are motivated to be valued by the self and others (Leary & Baumeister, 2000). Failure to satisfy this motive is reflected in a sense that one is expendable, that one's presence is burdensome to others, and, at the extreme, that one's death is worth more than one's life. Distal determinants of perceived burdensomeness include family conflict, chronic illness, incarceration, and unemployment, among others (Van Orden et al., 2010). These factors contribute to a specific dimension of perceived burdensomeness, liability, which can be construed as a judgment about the relative overall costs and benefits one brings to close others. A second dimension of perceived burdensomeness, self-hatred, includes such indicators as low self-esteem and shame. According to the IPT, self-hatred is relatively affective in nature, which implies automatic qualities.

Current Measurement. The INQ (Van Orden et al., 2012) includes items designed to assess perceived burdensomeness, including, "These days the people in my life would be better off if I were gone," and "These days I think I am a burden on society." As discussed above, judgments expressed on explicit measures can reflect either an automatic response, motivated cognition, or some combination of the two. Interestingly, relative to the measure of thwarted belongingness, the INQ measure of perceived burdensomeness has proven more predictive of

both suicidal ideation and suicide attempts across several studies (e.g., Ma et al., 2016). It is unclear why this might be, but one possibility is that respondents are more willing to express automatic negative views about the self than negative views about others, thus rendering current measurement of perceived burdensomeness more reflective of automatic responses (compared to the measure of thwarted belongingness). Of course, a dual-process approach could examine this possibility directly by incorporating measures of both automatic and controlled responses.

Automatic Conceptualization. Judgments of burdensomeness must, at minimum, involve negative views of the self. At the automatic level, these negative self-views entail simple associations between the self and negative affective responses. General self-negative associations have been conceptualized as implicit self-esteem (Greenwald & Farnham, 2000; this is in contrast to explicit self-esteem, which is defined as one's thoughtful, deliberative judgments about the value of self and is typically assessed with the Rosenberg self-esteem inventory). But self-esteem is just one aspect of one dimension of the IPT's conceptualization of perceived burdensomeness, and it appears to be a rather broad, distal variable insofar as suicidality is concerned (as the simple association between suicidality and self-esteem, whether measured explicitly or implicitly, is relatively weak; Harter, 2006; McNulty et al., 2019). Further specification of self-associates (e.g., self-useless, self-hate) may better capture the automatic associative elements involving the self that contribute to judgments of burdensomeness.

Implicit Measurement. Automatic self-negative associations were first investigated via the self-esteem IAT, which involves categorizations of self- and other-related items with positive and negative items (Greenwald & Farnham, 2000). Other measures include the name-letter preference task (the extent to which one prefers one's own initials compared to others' views of those same letters), which has been found to predict depressive symptoms over the course of 6

months (Franck et al., 2007). Other research conflicts with these findings, however, including some showing *positive* implicitly assessed self-esteem among depressed patients (De Raedt et al., 2006). These mixed main effect findings suggest a greater need for specifying self-associated negative affect as well as unexamined moderating effects of other relevant variables.

The IPT argues specifically for self-relevant loathing, hatred, and shame as dimensions of burdensomeness. Research on self-directed hostility highlights the role of high arousal self-directed negative affect (e.g., Renshaw & Kiddie, 2012), including self-hostility, self-hate, and self-disgust (Chu et al., 2013). Thus, just as with thwarted belongingness, we predict that implicit measures may be most useful to the extent that they capture more specific self-relevant associations beyond simple valence. Some research has uncovered relationships between suicidality and implicitly assessed self-associations to depression (e.g., "self-depressed") and anxiety (e.g., "self-anxious;" Glashouwer et al., 2010). We suggest measures that capture higher arousal emotions (e.g., self-disgust) as well as emotions that imply stable negative states of the self (e.g., self-shame) or the self as inefficacious (e.g., self-useless) as potential self-associates worthy of pursuit to capture the automatic aspects of perceived burdensomeness.

Motivation. Interactions involving automatic and controlled responses require consideration of the relevant motives likely to influence the extent to which the former predict latter. Here we consider the dialectical motives of modesty and self-enhancement, as well as self-efficacy. The goal to achieve positive self-regard is universal (Sedikides et al., 2003), but modesty norms can, at least in certain contexts, dictate against self-aggrandizement (Tice et al., 1995). Both motives shape explicit responses to surveys inquiring about views of the self (Baumeister et al., 1989); individuals may appear either more or less positive toward the self than their automatic responses indicate, depending on their motives and the context. For

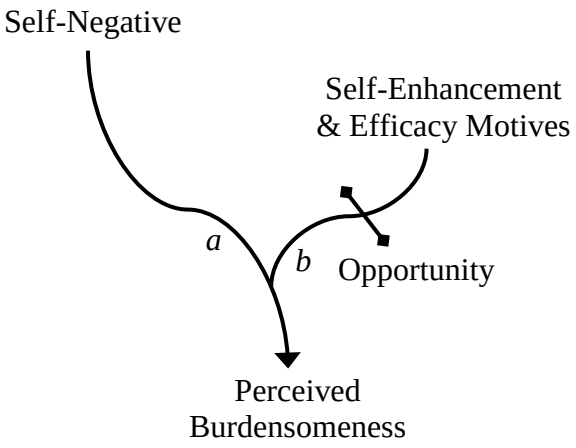
example, narcissistic individuals appear more positive toward the self on their self-reports compared to their performance on implicit measures, suggesting an inflation of their self-views on explicit measures (Olson et al., 2007, Study 1). And, when implored to be honest when responding explicitly, implicit and explicit measures of self-esteem converge (Olson et al., 2007, Study 2). Thus, motivated processes affect how individuals respond to surveys on self-views.

However, these motives can positively impact self-relevant judgments, behavior, and health. For example, in creativity and persistence tasks, those experimentally manipulated to self-enhance perform better (O'Mara & Gaertner, 2017). Further, self-enhancement can improve psychological health over time (i.e., reduce depressive symptoms and increase subjective well-being; O'Mara et al., 2012). That said (and consistent with the complex interplay of motives, automatic processes, and opportunities), overly positive self-reported evaluations of the self can also be a mental health liability among people facing particularly negative circumstances that could be ameliorated with self-directed effort (O'Mara et al., 2011).

Self-efficacy, the belief that one has the capacity to act in a given situation (Bandura, 1982), is conceptually distinct from self-esteem in that it is not about how one feels about the self, but rather a belief in one's abilities. In overlapping with primary motives oriented toward mastery, self-efficacy has motivational properties. For example, a number of positive health-related behaviors are associated with self-efficacy (Strecher et al., 1986), and those with relatively high self-efficacy persist longer at challenging tasks (e.g., Schunk, 1991). Thus, like self-enhancement, self-efficacy energizes individuals to pursue positive outcomes. We suspect self-enhancement and self-efficacy motives may minimize the extent to which high arousal negative emotions associated with the self lead to the judgment that one is burdensome to others; modesty motives, in contrast, may accentuate that link.

Opportunity. The dual process perspective that guides our thinking suggests such motives will only impact judgments of burdensomeness when opportunity allows; when opportunity is low, self-enhancement motives should be less able to affect self-relevant judgements and more automatic self-associations will determine perceived burdensomeness. In addition to the operationalizations of opportunity already discussed (e.g., time, distraction, stress, fatigue, etc.), a variety of variables function to reduce one's capacity to pursue self-relevant motives. These include both personal (e.g., impulsivity, emotional dysregulation; Daruna & Barnes, 1993; Marx et al., 1992) and structural factors (e.g., occupational and relational mobility; Breed, 1963; Chang et al. 2013). That is, people's opportunities to make meaningful contributions may constrain their abilities to judge themselves as not burdensome.

Figure 4. Perceived Burdensomeness from a Dual-Process Perspective



Dual-Process Predictions. Our reasoning leads to the hypothesis that under conditions of low opportunity, one's automatic self-associations will largely determine judgments of burdensomeness, with more negative self-associations leading to greater judgments of perceived burdensomeness (path *a* in Figure 4). When opportunity is relatively high, one's motives, particularly efficacy and self-enhancement motives, will largely determine judgments of

burdensomeness (path *b* in Figure 4). However, self-enhancement and efficacy motives may be abandoned after repeated failures to achieve them. As with thwarted belongingness, such failures are likely to occur under conditions of chronic low opportunity (e.g., incarceration). Thus, and analogous to thwarted belongingness, our model predicts that the most at-risk individuals will be those who exhibit greater automatic negative self-associations and relatively weak self-enhancement and self-efficacy motives.

Some work has addressed the interactive effects of automatic and controlled self-views on suicidality, although none has addressed the role of self-related motives per se (e.g., Creemers et al., 2012; Franck et al., 2007). Surprisingly, this work indicates that it is those with *high* implicitly assessed and *low* explicitly assessed self-esteem who are more likely to exhibit depression, loneliness, and suicidal ideation. Creemers and colleagues (2012) suggest that a high implicit/low explicit measurement pattern is likely to be an unstable one (and, we would add, a rare one; see Olson et al., 2007). Because most individuals have stable and relatively high implicitly assessed self-esteem (see Bosson et al., 2000), those reporting low self-esteem explicitly are likely to have suffered a recent blow to it (e.g., failure or rejection), which may explain the increased incidence of suicidal ideation among those exhibiting high implicitly assessed and low explicitly assessed self-esteem. Future work, particularly longitudinal work, should pursue this question.

We located only one study of suicidality that considered implicit-explicit interactions beyond mere valence: Glashouwer and colleagues (2010) observed the greatest suicidal ideation and prevalence of past suicide attempts among individuals with relatively strong implicitly assessed self-anxious/depressed associations and high levels of explicit (self-reported) depression and anxiety. If one accepts that self-reports of high depression and anxiety reflect low

motivation or opportunity to appear to the self or others as psychologically well, this pattern is consistent with our dual-process logic: as there is little motivation or opportunity to counteract automatic self-negative associations, those associations exert greater impact on downstream responses. No work to our knowledge has considered self-associations regarding specific emotions (e.g., self-hatred, self-shame) or the role of motives in moderating the links between such associations and suicidality. Nor has research considered the moderating role of opportunity, and we can assume that the patterns described by Glashouwer and colleagues emerged under relatively high opportunity conditions (i.e., there were no time constraints and participants were recruited from the general population). When opportunity is low, we maintain our prediction that automatic processes will have increased influence on judgments of burdensomeness.

Hopelessness

Current Conceptualization. Hopelessness, a key contributor to depression (Abramson et al., 1978; Mandler, 1964) and suicidality (Minkoff et al., 1973), is defined by Abramson and colleagues (1989) as an expectation of future negative outcomes (or a lack of positive future outcomes) coupled to the belief that one is impotent to effect change in them. Hopelessness can be multiply determined, but often arises as a consequence of dysfunctional attributional thinking about negative life events. These negative life events are, at least historically, not specified, but recent work suggests that hopelessness specifically about the self and one's relationships is uniquely predictive of suicidality (Tucker et al., 2018).

Current Measurement. The Beck Hopelessness Scale (BHS; Beck et al., 1974) assesses expectations about the future and one's ability to impact it, and contains items like, "I never get what I want, so it's foolish to want anything," and "I might as well give up because there's

nothing I can do to make things better for me." Its ability to predict suicidal ideation, lethal suicide attempts, and non-suicidal self-injury (NSSI) is well-documented (e.g., Kovacs & Garrison, 1985).

Automatic Conceptualization. Humans' future-orientation rivals their sociability in as much as what's-to-come regularly occupies their thoughts, judgments, and behavior (Seligman et al., 2016). According to temporal construal theory, cognition increases in abstraction and generality as the contents of cognition increase their distance from the present (Trope & Liberman, 2003). Interestingly, those in the throes of suicidality are even more likely to construe events in greater generality and less concrete detail (Williams et al. 1996). Thus, "the future" looms abstractly among all, and large and forebodingly among the suicidal (see Riskind, et al., 2000). From "fortune-telling" (an overconfident negative future outlook; Jager-Hyman et al., 2014) to pervasive dread, hopelessness is often experienced as overwhelming negative affect upon activation of future-relevant thoughts. Thus, we conceptualize the automatic determinants of hopelessness as future-negative associations.

Implicit Measurement. Any measure that gauges simple associations (e.g., IAT, priming) is a suitable candidate to assess future-positive/future-negative associations. Future exemplars may include "tomorrow," "later," and, "ahead," and may be contrasted to either present (e.g., "now," "today") or past (e.g., "before," "earlier"), and whether the contrast to the future is the present, the past, or a neutral or non-category may prove important. Measures may be specified to detect specific affective associations to the future (e.g., future-dread vs. future-negative), but we know of no research that has taken this approach. Notably, a simple future-negative association does not entail one's beliefs about the future's malleability. Our reasoning is that it is

unlikely that such beliefs are represented as simple associations or experienced as automatic gut-feelings. Instead, such considerations are subsumed by motivation and opportunity parameters.

Motivation. Regarding future-related motivations, dispositional optimism, the tendency to expect positive future outcomes, is most relevant (see Carver & Scheier, 2014, for a review). Although optimism is a belief state (insofar as it regards expectancies), it has motivational properties: optimists think and act in ways that produce positive outcomes: they exhibit more adaptive coping in response to stressors (Nes & Segerstrom, 2006), work harder at maintaining their relationships (Assad et al., 2007), and take more proactive measures to improve their health (Rasmussen et al. 2009). In short, optimism entails a motivated pursuit of positive future outcomes. Consistent with our view that it comprises a portion of hopefulness (i.e., the motivated component) but is empirically distinct from it, explicit measures of optimism and hopelessness show only moderate inverse relations (e.g., Hirsch & Conner, 2006).

Opportunity. In addition to relevant conceptualizations already discussed, we include what we refer to as a "family of malleability beliefs" in the opportunity factor for hopelessness. These have in common perceptions of one's ability to affect the future, regardless of future goals, and include beliefs about the malleability of individual people (including the self) as well as social and institutional structures.

Regarding individual malleability, people vary in the extent to which they believe they and others are capable of change, what Dweck (2013) refers to as incremental versus entity theories of personality. The former entail a belief that people can grow and change through effort, a "growth mindset," and the latter entail a belief in fixed (often innate) facets of personality—that traits, natural aptitudes, and deficits are stable. Relatedly, free will beliefs vary between people (Baumeister et al., 2009). We suggest that those who subscribe to more

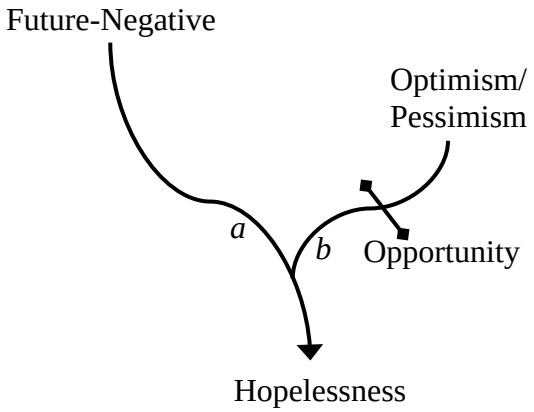
deterministic views of human nature perceive there to be less opportunity for their motives to have impact on future outcomes. Although little work has considered the origins of these mindsets, parenting and teaching practices (e.g., Dweck & Lennon, 2001), and religious and other cultural value systems are likely candidates. Simply put, entity mindsets and deterministic views limit the likelihood that people will employ any motivated processes to override any automatic negative-future associations. In each of these cases, it is the perception of the capacity for change, regardless of an individual's future goals, that render these beliefs opportunity variables.

Social mobility should similarly load into the opportunity factor of hopelessness. Despite any motivation one might have regarding relationships, the inability to exit a dissatisfying relationship, or to form new relationships, also implies a lack of opportunity; this variable has been extensively examined in the close relationships literature (e.g., Rusbult & Buunk, 1993). Cultural differences in relational mobility, the extent to which individuals have opportunity to form new relationships and end old ones, are also relevant, with East Asian cultures exhibiting less than Western cultures (e.g., Falk et al., 2009; Schug et al., 2009). Whether for interpersonal or cultural reasons, feeling powerless to pursue interpersonal goals should lead automatic future associations to more strongly predict hopelessness judgments.

We suggest that mobility regarding education, employment, and social class also constitute opportunity variables. Socioeconomic mobility was discussed by Durkheim (1897) and refined in later sociological perspectives (e.g., Henry & Short, 1954). Some of this work indicates elevated suicide rates among those with little possibility for upward mobility (e.g., Breed, 1963) or loss of status (e.g., Maris, 1967). In more recent work, suicide has been associated with downturns in the global economy, particularly among populations who have

historically experienced low unemployment and whose unemployment rates have recently risen (e.g., Chang et al., 2013). What these patterns have in common, we argue, is increased suicidality among those who lack opportunity to maintain or improve their socioeconomic conditions. As opportunity is not directional, we do not expect it alone to impact suicidality. Instead, it should exert its influence via the stifling of any future-relevant motives (i.e., optimism), and allow for greater input of automatic hopelessness, as we explain below. Moreover, just as with self- and other-related motives, it is possible that chronic low opportunity (such as those described above regarding economic and social conditions) may lead to eventual abandonment of future-related motives (i.e., reduced optimism).

Figure 5. Hopelessness from a Dual-Process Perspective



Dual-Process Predictions. Analogous to the other factors we have considered, we argue that under low opportunity conditions, automatic future associations should predict judgements of hopelessness (path *a* in Figure 5). Under high opportunity conditions, one's future-relevant motives (e.g., optimism/pessimism) should hold more predictive value (path *b* in Figure 5). Thus, if one is motivated but unable to affect one's future, automatic affective response to the future will predominantly determine judgments of hopelessness. These automatic responses should

determine judgments of hopelessness even among motivated (e.g., optimistic) individuals if they temporarily experience diminished opportunity (e.g., through fatigue or distraction), but also if they have little personal, interpersonal, or structural opportunity for change. As with self- and other-related factors, this should translate into moderated effects on suicidality. Specifically, individuals with negative automatic future associations who are unmotivated to affect their future (e.g., are low in optimism) and/or have little actual or perceived opportunity to do so should report more hopelessness. Moreover, just as repeated social rejection may weaken the belongingness motive, so too might repeated failures to achieve future-oriented goals (through reduced opportunity) reduce optimism. Thus, the most at-risk individuals should be those who harbor automatic future-negative associations and who are low in optimism.

Capability and the Formation of Suicidal Intentions

Current Conceptualization. Thwarted belongingness, perceived burdensomeness, and hopelessness each contribute to a desire to die. But most individuals with even a relatively strong desire to die will never make a lethal or near-lethal suicide attempt because death is foreboding and suicide attempts can be painful. The capability to die by suicide requires: 1) overcoming the fear of death, 2), an increased ability to tolerate pain and stifle an automatic threat-avoidance response, and 3) access to lethal means. As described in our earlier discussion of the DIP model, research on fear and threat processing indicates that humans, like all studied animals, are attuned and reactive to perceived threats to bodily harm. Accordingly, threat avoidance reactions are automatic, precede evaluations and behavioral responses to all other classes of stimuli, and are difficult to extinguish (March et al., 2018a,b).

Given an active desire to die, overcoming the fear of death can result in the formation of suicidal intent (Joiner, 2005). Intent is critical, as, according to the Theory of Reasoned

Action/Planned Behavior, intentions are often the best predictors of actions (Ajzen, 1991). Indeed, with respect to suicidality, scholars have argued that intent translates abstract desire into behavior via "plans and preparations" (Joiner et al., 1997); individuals contemplate method, time, location, and preparatory activities (including acquiring lethal means) required to enact plans. However, even with overcoming of the fear of death, the execution of such plans will be limited by the ideator's ability to stifle a reflexive avoidance of threats to bodily harm. Thus, overcoming the fear of death and overcoming avoidance of pain and injury are likely to develop somewhat independently of one another, and are thus distinguished in our model.

Some individuals' histories provide fodder for an attenuation of the threat response, including painful and provocative experiences stemming from combat exposure, a history of interpersonal violence, NSSI, or previous suicide attempts, among other experiences (Van Orden et al., 2010). In the same way that exposure therapy weakens phobic responses (Parsons & Rizzo, 2008), such experiences provide a pathological pathway for the partial weakening of the threat response. Individual difference variables like impulsivity can also cultivate capability: impulsive individuals have more painful and provocative experiences (e.g., accidental injuries) owing to their diminished tendency to engage in reflection and consider consequences of actions (Bender et al., 2011).

Current Measurement. Capability is often measured with the Acquired Capability for Suicide Scale (ACSS; Van Orden et al., 2008), which has recently been revised to the Acquired Capability for Suicide Scale - Fearlessness About Death Scale (ACSS-FAD; Ribeiro et al., 2014). The updated scale includes items like, "I am not at all afraid to die," and, "The pain involved in dying frightens me" (reverse-scored). Of the revised scale's seven items, only one (above) queries about pain (in the context of death), and the rest focus solely on fear of death.

Instruments designed to assess pain tolerance include the Discomfort Intolerance Scale (Schmidt et al., 2007) and Fear of Pain Scale (McNeil & Rainwater, 1998). There are more direct ways of assessing pain tolerance via reactions to exposure to painful stimuli (e.g., thermal pain threshold, pressure algometer, cold pressor). And while not a measure of fear of death or pain per se, the Painful and Provocative Events Scale (PPES; Van Orden et al., 2008) assesses experiences predicted to reduce fear of death and pain (e.g., having been in a car accident, having tattoos and piercings, having been a victim of physical abuse, etc.). Among those who report a desire to die, the ACSS and ACSS-FAD are predictive of suicide risk (Van Orden et al., 2008) and suicide attempt history (Anestis & Joiner, 2011). In short, measures of capability are designed to differentiate those who act on the desire to die from those who do not.

Figure 6. Capability from a Dual-Process Perspective

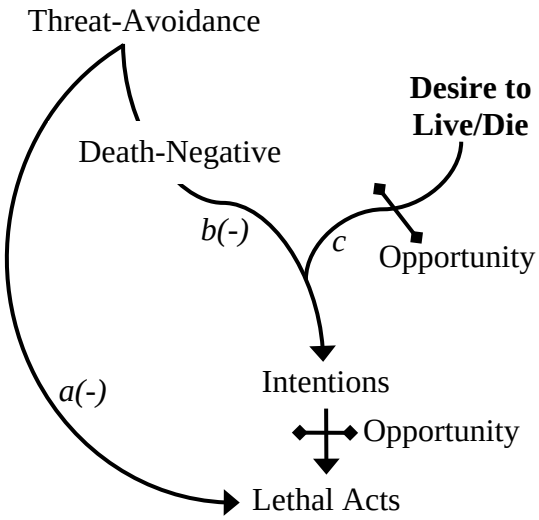


Figure 6 Note: Paths a and b are negative to indicate attenuating effect of death-avoidance and death-negative associations on formation of suicidal intentions and lethal acts.

Automatic Conceptualization. We employ the DIP model distinction between very early threat processing (Figure 6, path a) and later (but still automatic) evaluative processing (Figure 6, path b). Immediate threats to bodily harm (including self-harm and lethal or near-lethal suicide attempts) should, according to the DIP model, evoke automatic threat avoidance processing, including freezing and/or withdrawal (see March et al., 2018a, for more details). We refer to these as "threat-avoidance" responses. In taking a neurological "low road" (LeDoux, 2014), they can trigger behavioral responses (e.g., escape) prior to evaluative (positive-negative) processing and propositional reasoning, as indicated in path *a* in Figure 6 (which is negative to reflect threat-avoidance associations' attenuating influence on lethal acts). Such threat responses are exceedingly difficult to overcome. The DIP model argues that automatic threat processing and its associated behavioral responses will be present, albeit perhaps weakened, among even the most suicidal individuals, and will prompt avoidance of self-injury despite any automatic or motivated tendencies toward the threat. Consistent with this view, although it appears possible to weaken threat-avoidance associations through NSSI and other painful and provocative experiences (Korner et al., 2007), it appears unlikely that people can entirely eliminate them. Thus, our model allows for only limited potential for overcoming threat-avoidance responses.

Shifting from threat responses to death associations, death, from our perspective, is an attitude object in the same way the self, close others, and the future are, and is capable of acquiring negative and/or positive associates. Death holds a negative connotation for most, implying near-universal death-negative (and, perhaps, as we discuss below, life-positive) associations (Hussey et al., 2016). Among those with a desire to die, thoughts of death tend to become more accessible, and hence more available for new and updated associations (O'Connor, 2011). However, even among the most suicidal individuals, death rarely becomes positive

(Joiner, 2005). And, according to the DIP model, and as indicated in the negative path *b* of Figure 6, automatic threat avoidance responses should contribute negative valence to death. Still, in becoming the lesser of two evils, death-negative and/or life-positive associations may weaken with a strong desire to die. Importantly, as we do not consider death-negative associations to be as primal as threat-avoidance responses, we argue that death associations are more malleable. According to the model, weakening of death-negative associations allows for motivated processes (e.g., the desire to die) to exert greater influence on the formation of suicidal intentions, and ultimately, action on those intentions which overcome threat-avoidance motives.

In addition to valence, death may also enter into associations with the self. Typically, and premised on basic motives to self-enhance and to identify with others, people associate the self with desirable traits and valued social identities (Koole et al., 2001). For example, people are generally quicker to associate positive traits than negative traits to the self (Greenwald & Farnham, 2000), and they are quicker to associate the self to valued ingroups than outgroups on implicit tasks (Greenwald et al., 2002). Among individuals for whom self-enhancement and belongingness motives are unfulfilled, those self-associates will likely be negative. Indeed, we have already discussed self-negative associations in the context of perceived burdensomeness. Among those with active suicidal ideation, we expect those self-associates to be more strongly negative and increasingly oriented toward death through rehearsal of negative self-related cognition (in line with the APE model discussed earlier).

Implicit Measurement. Regarding threat-avoidance associations, we suspect that people have limited conscious access to their pain tolerance and automatic tendency to avoid threats to bodily harm, and thus that dissociations between explicit and implicit assessments are likely (see Glenn et al., 2011). As threat avoidance is near-universal, people are probably not exposed to

enough variability in threat avoidance tendencies to generate accurate views of who (including themselves) might be relatively low or high in it. Thus, threat avoidance as an individual difference variable is particularly well-suited to implicit measurement. We have used a variety of methods to assess the superiority of threat processing (e.g., March et al., 2017). Participants are exposed to either a negative-nonthreatening, neutral, positive, or threatening stimulus. Response patterns to these stimuli in visual searches, eye-tracking, and startle-eye-blink tasks are consistent across tasks: participants' visual gaze is more likely to alight on threatening stimuli, they are more likely to find threatening stimuli in a visual array, and they evidence stronger startle eye-blink responses upon the unanticipated presentation of threatening stimuli relative to all other stimulus types. Although this threat superiority effect holds true across participants, there is individual variability in these responses. These tasks have potential as implicit measures of individual differences in threat avoidance, although we are aware of no research that uses them as such. Empirical work within the suicide literature has examined startle eye-blink and other autonomic responses (e.g., Hazlett et al., 2016), but much of it has been within the context of NSSI and emotion dysregulation. None of it has distinguished responses to threatening vs. nonthreatening-negative stimuli (which is critical from the perspective of the DIP model), nor has this work been situated within an ideation-to-action framework. Nevertheless, work on visual attention processes in suicidality reveals interesting patterns among acutely suicidal individuals. For example, it has been observed that acutely suicidal individuals appear to be "staring death down," which is consistent with a pattern of reduced startle eye-blink responses (Joiner et al., 2016) and a weakened threat-avoidance response.

The field has also witnessed progress on the role of automatic death associations, particularly self-associations with death. Nock et al., 2010 (see also Glenn et al., 2017)

developed an IAT that assesses the association between self vs. others (e.g. *I, myself* vs. *they, them*) and death vs. life (e.g., *die, dead* vs. *alive, survive*). Among individuals presenting at a psychiatric emergency department, this IAT successfully distinguished those who had made a suicide attempt from psychologically distressed individuals who had not; further, it out-performed common indicators, including attempt history and clinical assessments, in predicting later attempts (but see Harrison et al., 2018). Finer distinctions among automatic suicide-related associations can also be made, including self-harm and self-suicide associations, but general self-death associations appear to be superior to more specific associations in predicting future self-harm (Glenn et al., 2017; Randall et al., 2013).

We suspect self-death associations do not align entirely with the reduced fear of death dimension of capability because death associations alone should not relate directly to suicidality; only in the context of a desire to die should reduced fear of death lead to increased suicidality. Our view is that the self-death IAT reflects an automatic identification with death in the same (albeit pathological) way that other work has shown automatic self-identification with desirable traits and social identities, as discussed earlier (Greenwald et al., 2002). Thus, automatic self-death associations may be a better reflection of motivation in the context of our model, specifically, an approach motivation to death, and thus a component of the desire to die (path *c* in Figure 6). This reasoning appears consistent with Nock and colleagues (2010, p. 515), who speculate that “an implicit association with death/suicide may represent one of the final steps in the pathway to suicide...” As we describe in detail later, it is also consistent with evidence that desires and goals, particularly those which are strongly held, can acquire automatic properties via rehearsal (Ferguson & Bargh, 2004).

Additional work has addressed automatic evaluations of death (i.e., death-positive vs. death-negative associations) and life. For example, Hussey and colleagues (2016) distinguished between positive and negative associations to life and death using the Implicit Relational Assessment Procedure (IRAP), which disentangles positive and negative associations to a given concept (Barnes-Holmes et al., 2010). Hussey and colleagues distinguished between general life-evaluation and death-evaluation associations, and self-specific associations (i.e., *my life* and *my death*). Separating positive and negative valence and general vs. self-specific associations allowed for the identification of a unique association among individuals with suicidal ideation: they showed a "my death-*not*-negative" bias, whereas non-suicidal individuals showed a "my death-negative" bias. Interestingly, the groups did not differ on "my life-positive," "my life-negative," and "my death-positive" associations (but see Randall et al., 2013). Consistent with self-death's role in capability, additional work suggests that self-death associations are distinct from self-negative associations (Tucker et al., 2018). Finally, although measures of death-fear associations have been developed (e.g., Halberstadt & Jong, 2014), they have not been incorporated into suicidality research.

Motivation. The desire to live and the desire to die are the relevant motives at the point where capability enters the ideation-to-action framework, with those desires beings products of the confluence of thwarted belongingness, perceived burdensomeness, and hopelessness. Suicidal individuals are often conflicted in the desire to live versus die (Kovacs & Beck, 1977). However, consistent with research within the IPT, we argue that the desire to die will increase (and in turn overpower the desire to live) as a function of the confluence of automatic and controlled aspects of thwarted belongingness, perceived burdensomeness, and hopelessness.

Opportunity. Regarding opportunity, specific factors beyond those previously discussed seem particularly relevant to capability. Agitation is one. Among those in the throes of acute suicidality, severe agitation, often described as "wanting to crawl out of one's skin," is often present. Ribeiro and colleagues (2011) add severe psychic anxiety, emotional turmoil, and panic attacks as additional signs of agitation, all of which can compromise cognitive resources, and are found in perhaps the majority of suicide decedents in the days and weeks prior to their deaths. We speculate that agitation is distinct from misery associated with thwarted belongingness, perceived burdensomeness, and hopelessness, and instead is the result, at least in part, of a predator-prey mindset resulting from acute suicidality (Joiner & Stanley, 2016), in which the individual perceives the self to be both predator and prey. Interestingly, threat and fear research, including that from the animal behavior literature, reveals that predator and prey enact similar perceptual and behavioral processes, including narrowing of attentional focus and mustering of resources to act quickly in either attack or defense (Löw et al., 2007), but the predator begins from a more deliberative, goal-oriented position (the desire to kill), and the prey begins from a more automatic and reflexive one.

Impulsivity is another relevant opportunity variable. We argue that impulsivity plays two distinct roles in capability, the first distal and facilitative of suicide and the second more proximal and deterrent. The first, described above, is the tendency for those high in impulsivity to accumulate more painful and provocative experiences that result in a weakened threat avoidance response (e.g., increased pain tolerance); this tendency is facilitative of suicidal behavior. The second is here, within the opportunity factor, and is deterrent. Impulsive individuals tend to have a reduced capacity to reflect, plan, and consider behavioral alternatives (e.g., Daruna & Barnes, 1993). Impulsivity is also associated with reduced ability to stem the

impact of automatic impulses on one's responses (e.g., Dalley et al., 2011; Logan et al., 1997). Hence, impulsivity also falls functionally within the opportunity variable in that impulsive individuals have reduced capacity to inhibit the impact of any automatically activated associations on responses. That is, regardless of their motivation, more impulsive people may be less able to overcome their automatic impulses to avoid threats to bodily harm.

Access to lethal means (e.g., the availability of a firearm or methods of asphyxiation) also falls within the opportunity factor of capability insofar as a strong desire to die—even among those who have overcome the fear of death and have dampened threat avoidance—cannot be enacted without access to the means to engage in a lethal act. Indeed, intervention studies indicate that the simple intervention of removing or distancing such means from access to suicidal individuals (e.g., by asking friend to take possession of one's firearm) reduces suicide risk (Florentine & Crane, 2010). Thus, lack of access to lethal means can prevent the desire to die from impacting behavior.

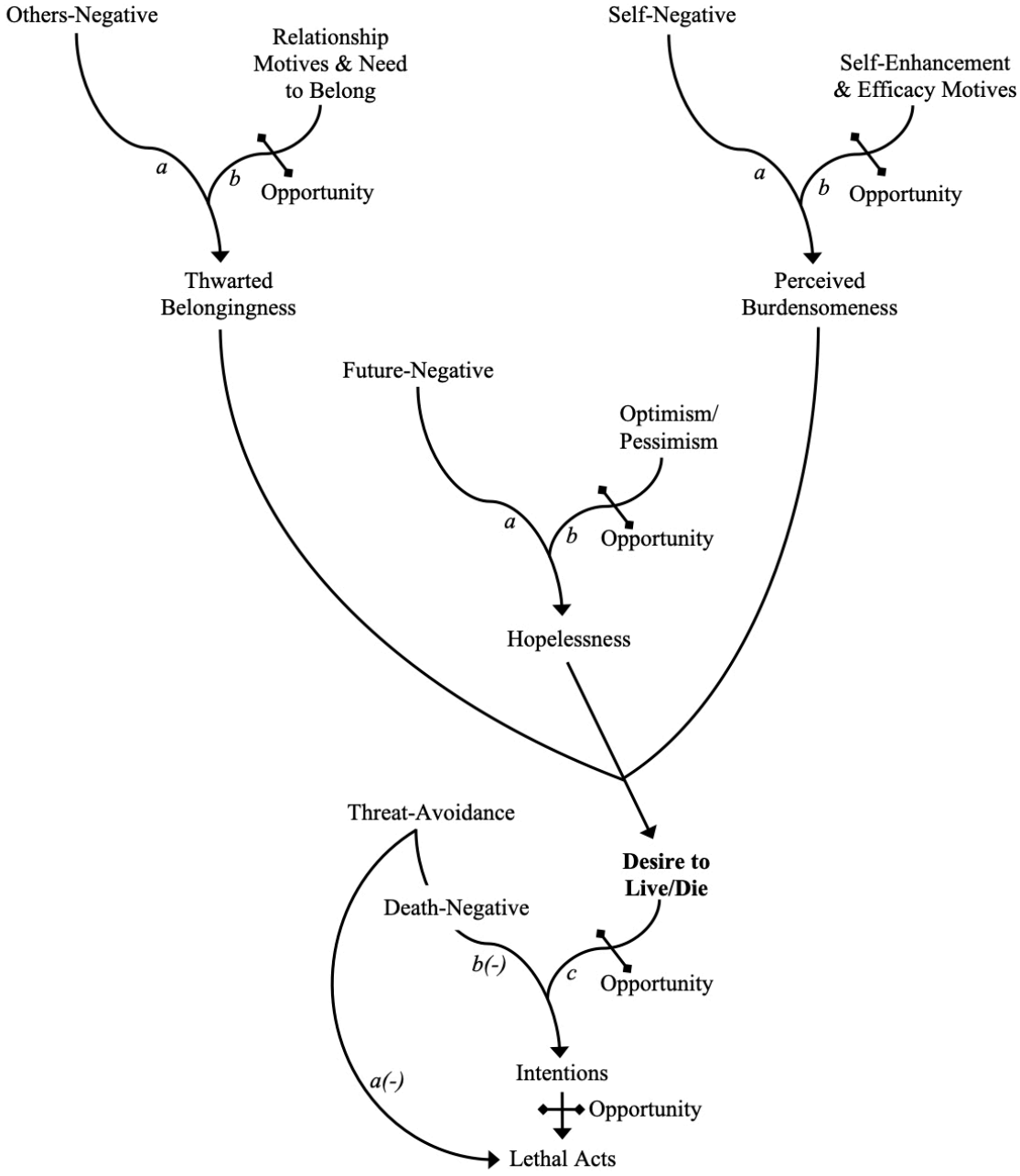
Dual-Process Predictions. In the case of capability and suicidal intent, the automatic processes we have discussed (i.e., threat avoidance and death-negative associations) steer an individual away from death, whereas the desire to die motivates an individual toward death. Thus, lower automatic fear of death will predict the formation of suicidal intent among those with a desire to die when opportunity allows, and action on that intent is predicted to occur under high opportunity conditions coupled with a weakened threat-avoidance response. Because some fear of death and particularly threat-avoidance remain even among the most suicidal individuals, paths *a* and *b* in Figure 6, by default, *reduce* capability. Although we have reviewed evidence consistent with the weakening of these automatic buffers against capability, it is the desire to die (or, not live) that must overcome any of their remnants, via path *c*, which is possible only when

opportunity permits. This is consistent with evidence that many people tend to be sober and focused immediately prior to lethal action (Joiner, 2005; Anestis et al., 2014). Thus, we predict that even weakened threat-avoidance and reduced fear of death, along with a motivation to die, will not lead to lethal acts absent sufficient opportunity to override remnants of these automatic associations. Finally, our model predicts that those most likely to form the intention to die are those with lowered automatic death-negative associations (i.e., lowered fear of death), a strong motivation to die, and elevated opportunity to act on that motivation. The likelihood of the performance of lethal acts by these individuals will be determined by the extent to which the automatic threat-avoidance response is weakened and opportunity to perform them is high.

There are potentially two mechanisms through which a suicidal individual might overcome the well-entrenched avoidance of physical pain and fear of death. One involves reduced fear of death and a weakened or inhibited threat-avoidance response, as we have discussed. Another is the accumulation of a kind of steadfastness (as speculated on in Joiner, 2005, p. 53), or, what would be conceptualized in the ACASIA model as an increase in opportunity. In this scenario, the fear of death and pain remain to some extent, but one is increasingly able to persist through them via increased behavioral control; cognitive resources are mustered and focused on performing a painful, daunting task. This reasoning aligns well with the predator-prey stance, in which available attentional resources—however diminished by stress and distraction—are narrowed to serve the deliberate goal of self-harm. Of course, one might show both a decrease in fear of death and pain and increased persistence through any of its remnants, hence our prediction of an interaction: weakened automatic fear of death and pain, coupled with unfettered opportunity to pursue a strong motivation to die, produces the greatest

risk of lethal acts. Finally, to the extent that plans and preparations are well-rehearsed, less opportunity is necessary to enact them (Gollwitzer, 1999).

Figure 7. The Automatic and Controlled Antecedents of Suicidal Ideation and Action (ACASIA) Model



Integration of Dual-Process Factors into the ACASIA Model

Having provided independent dual-process conceptualizations of the role of close others, the self, the future, capability, the formation of suicidal intent, and the performance of lethal acts, we now describe how they relate in the context of the integrated ACASIA model (see Table 2). First, a judgement of either thwarted belongingness or perceived burdensomeness alone is capable of producing the desire to die. A judgment of hopelessness exacerbates the impact of the former two factors with regards to suicidal ideation, and some work provides support for this predicted 3-way interaction on suicidal desire (Hagan et al., 2015; Tucker et al., 2018). As our dual-process framework essentially decomposes each of these three judgments into automatic and controlled predictors, the predictive situation becomes more complicated. However, the prediction that automatic processes should have greater impact absent motivation or opportunity holds across all components of the model. For example, under conditions of low opportunity, suicidal ideation should be more predicted by the interaction of the automatic determinants of thwarted belongingness (i.e., others-negative), perceived burdensomeness (i.e., self-negative), and hopelessness (i.e., future-negative). Under conditions of high opportunity, motivated determinants of thwarted belongingness (i.e., affiliative motives), perceived burdensomeness (i.e., self-enhancement and efficacy needs), and hopelessness (i.e., optimism/pessimism) should be stronger predictors of ideation. As we have argued, motivations to belong, self-enhance, and expect positive future outcomes can all buffer against the negative effects of automatic processes to the contrary. Of course, motivated processes require opportunity to produce these buffering effects. That is, relevant negative automatic associations should predict the desire to die even for those high in motivations to the contrary when opportunity is low.

In cases where opportunity is high, yet one is low in motivation to connect, self-enhance, or pursue positive future outcomes, the model also predicts that the relevant automatic associations should prevail in predicting the desire to die. And regardless of opportunity, ideation should be particularly pronounced among individuals who harbor automatic negative self, other, and future associations, and who also lack relevant buffering motives. Hence, the strongest desire to die should be observed among individuals who exhibit automatic thwarted belongingness (i.e., others-negative), perceived burdensomeness (i.e., self-negative), and hopelessness (i.e., future-negative), but who are also relatively low in their controlled counterparts (i.e., the motivation to belong, self-enhance, and seek positive future outcomes).

People who develop this desire to die then have two competing motives—the motive to die and the motive to live. And, as described above, the capability to act on these motives has two automatic components, one threat-related, and the other death-related. The former is particularly tenacious, and behavioral control to enact the motive to die will always be inherently limited. However, weakened automatic threat responses and reduced death-negative associations allow for increased opportunity for the motive to die to prevail, which should increase the likelihood of engaging in lethal acts among those with a desire to die. Again, opportunity (including practical capability) is paramount in overcoming automatic resistance to the desire to die and obstacles to implementing intentions to die. Concretizing plans via intent removes obstacles, resulting in an increased likelihood of death by suicide. Moreover, from a dual-process perspective, individuals will often mentally rehearse these plans, which is likely to automatize them, resulting in specific associations between the self and injury, suicide, or death generally (e.g., Glenn et al., 2017), and reducing the resources necessary to put them into action (see also Gollwitzer, 1999).

In terms of temporal dynamics, automatic associations and motivations involving the self, close others, and the future are predecessors of the desire to die; each alone can produce such a desire according to the dual-process predictions outlined above, and their confluence can intensify it. Thus, as one moves toward more negative views of the self, close others, and the future, through automatic or controlled processes or both, the desire to die intensifies. Certainly such desires can wax and wane; as we discuss in greater detail below, automatic components of the ACASIA model, like other automatic associations, have both trait-like (stable) and state-like (labile) properties. But formation of the intent to die is most likely among those for whom negativity in one domain (e.g. close others) is not buffered by positivity in another (e.g., the self). As the desire to die intensifies, capability, which is likely to develop independently of other components, becomes increasingly relevant. Only those who have overcome threat-avoidance and death-negative associations are likely to develop intent, and then only those who have ample opportunity are likely to engage in suicidal behavior. Thus, the model helps to illuminate why, among the number of individuals with a strong desire to die, relatively few die by suicide. Moreover, in positing such motivationally intensive processes that counteract well-entrenched self-preservation, the model challenges theoretical views promoting more impulsive and less deliberate forms of suicide.

It is a particular, and thankfully relatively rare, combination of features that results in death by suicide, according to the model: the interaction of negative automatic associations of the self, close others, and the future and weakened goals regarding them, along with weakened threat and death associations, and an opportunity to complete lethal acts, including overcoming vestiges of threat-avoidance and access to lethal means, that is most likely to result in suicide death. The model results in a characterization of suicidality as practiced performance: a strong

desire produced by relevant background factors—often automatic—motivates practice and mental rehearsal. Indeed, these "skills," such as they are, are difficult to acquire. The performance itself requires focus and willful, skillful execution against a backdrop of countervailing motives and fears.

The ACASIA may also help explain why many people who actually do attempt suicide once never do so again; the experience of a suicide attempt can produce intrapersonal and interpersonal consequences that buffer against future attempts. Intrapersonally, the attempt may produce aversive consequences that sensitize against further attempts (e.g., death may become more strongly associated with negativity and the fear and pain involved in the attempt may strengthen automatic threat-avoidance associations). It is worth noting that most individuals who survive a suicide attempt express regret, perhaps partly for these reasons. Interpersonally, an attempt can also catalyze support mechanisms from both close others and professionals, thus reducing the likelihood of future attempts, perhaps by increasing belongingness and decreasing perceived burdensomeness.

On the Origins and Malleability of Automatic Suicide-Relevant Associations

We have described a "snapshot" model thus far, specifying the effects of given variables at a single point in time. Next we emphasize dynamic aspects of the ACASIA model by describing how suicide-relevant associations form, change, and exchange mutual influence with more motivated cognitions.

How do suicide-relevant associations develop? The mind is particularly attuned to environmental covariations (Reber, 1989), and automatic associations are argued to reflect them (e.g., Olson & Fazio, 2001; Petty et al., 2006; Rydell & McConnell, 2006). Compared with more deliberative reasoning, little effort is required to learn covariations (Jones et al., 2010); to the

extent that such regularities are attended to in the environment, they are likely to be encoded. Because attention is drawn to valence (Roskos-Ewoldsen & Fazio, 1992), covariations involving valence are particularly likely to be encoded (March, Olson, & Fazio, 2018). And, because the encoding of valenced covariations is less susceptible to the waxing and waning of conscious attention, temporary goals, and deliberative reasoning, automatic attitudes produced by covariation learning may be more representative of one's actual experience with valenced events. Indeed, valanced experiences involving a partner appear to predate and predict automatic evaluative associations involving that partner (Hicks et al., 2016, 2018; McNulty et al., 2017; Murray et al., 2010).

There is some debate about the stability/instability of automatic associations (Cone et al., 2017; Gawronski et al., 2017). Our position is that their stability is context-dependent: they may be stable in information-stable environments (e.g., Rydell & McConnell, 2006), but labile in unstable environments or in response to new information that prompts reinterpretation of previous knowledge (e.g., Cone & Ferguson, 2015). There may also remain vestiges of previously learned associations even after substantial changes in the information environment (e.g., Petty et al., 2006), making strong automatic association difficult to unlearn (Fazio, 2007). This may be why automatic evaluative responses to one's spouse tend to better predict long-term relationship outcomes (e.g., McNulty et al., 2013) and suicidal thoughts (McNulty et al., 2019) than more controlled evaluative responses.

Associations form and strengthen in part through repeated exposure to covarying objects (i.e., evaluative conditioning or EC; Jones et al., 2010) and mental rehearsal of those covariations (e.g., Smith et al., 1996). But which objects? According to the Implicit Misattribution Model of EC (March et al., 2018), the affect activated by a known object can be attributed to that object, to

update evaluative associations involving that target, or it can be misattributed to contiguous objects, particularly objects that are salient and hence likely to capture attention (Jones et al., 2009). Applying this logic to the formation of suicide-relevant associations requires consideration of: 1) factors that increase the likelihood of regular, repeated experiences of affect, and 2) factors that make suicide-relevant objects (e.g., the self, close others, death, etc.) reliably salient in the context of that affect. We consider such factors next.

Sources of regular, repeated affect are many, and theories of suicidality consider them (e.g., intimate partner violence, social rejection). As noted earlier, one's attributions regarding such affect are critical. Repeated negative experiences with close others will lead people to form and develop other-negative associations (Hicks et al., 2016, 2018; McNulty et al., 2017; Murray et al., 2010). To the extent people attribute negative affect repeatedly activated by close others to a lack of social connectedness, they will judge their belongingness to be thwarted. Consequently, thwarted belongingness, as we have described it, should develop according to one's interpersonal experiences and attributions, first automatically and then, in the absence of motivations or opportunities to the contrary, at a controlled level.

Some sources of affect are more regular and repeating than others, particularly those originating from the self. Any internally generated negative affect, in being more frequently present, is an obvious candidate, but chronic negative affect as a function of brooding (comparing one's current state to a desired state) and state-oriented rumination (repeatedly dwelling on why one is experiencing negative affect) are pernicious sources. Such chronic negative affect relates to suicidal ideation (Selby et al., 2013), particularly ruminating on it (Morrison & O'Connor, 2008; Rogers & Joiner, 2017). We argue that brooding and rumination relate to suicidal ideation at least partly because they build and strengthen negative associations

to the self (and perhaps others and the future as well, depending on the salience of those objects). Further, rumination increases the experience of negative affect (Kirkegaard Thomsen, 2006), and as negative affect increases, so does attention paid to it (Fredrickson & Branigan, 2005; Salovey, 1992), potentially culminating in a cascading of negative affect (Selby & Joiner, 2009) that can become associated with objects of attention (Duval & Wicklund, 1972; Storms, 1973).

Insofar as the self is reliably "present" and salient, such affect may become associated with the self, contributing to automatic perceived burdensomeness. To this point, there are reliable individual differences and situational factors that can influence the extent to which the self is salient and thus likely to enter into associations with any experienced affect. Chronic self-focus is one such variable, and there is some evidence that it relates to suicidality (e.g., Morin & Craig, 2000; Schaller, 1997). Indeed, Escape Theory argue specifically that lethal acts are attempts at escaping the aversive experience of self-awareness (Baumeister, 1990). Self-focus is, in fact, generally aversive (Mor & Winquist, 2002). Chronic self-focus and its ensuing negative affect should lead to more self-attributions of negative events, creating self-negative associations (e.g., self-shame, self-disgust). This should be particularly true among individuals with a pessimistic explanatory style. It should be noted that perfectionism and self-criticism also encompass both negative affect and self-salience and should also foster self-negative associations. Although no research has examined it, our model suggests that the relationship perfectionism and self-criticism share with suicidality (e.g., O'Connor & Forgan, 2007) is likely to be mediated by automatic self-negative associations generated through ruminative brooding (O'Connor & Noyce, 2008). There is work demonstrating that self-criticism lowers explicit self-esteem (e.g., Dunkley & Grilo, 2007), but we are unaware of any work that examines these variables' impact on automatic self-negative associations.

NSSI is generally considered to be a source of capability in the context of the IPT (Joiner et al., 2012). Even though the goal of NSSI is often self-regulatory (i.e., it serves the purpose of managing strong affect; see Nock & Prinstein, 2004), it has the effect of increasing capability by increasing pain tolerance (Franklin et al., 2011). We argue that NSSI is likely to do so at the automatic level, by weakening the threat-avoidance response. This is particularly likely as NSSI becomes repetitive. Similarly, those with more painful and provocative experiences and who have a higher pain tolerance should evidence weaker threat avoidance responses (and thus be more likely to act on any intentions to perform lethal acts).

NSSI is also likely to enter into automatic associations with the self. Even though relief is the most commonly reported state after NSSI (Briere & Gil, 1998), negative affect (from physical pain) is likely to be attributed to the self as the salient agent that produced it. Again, as NSSI becomes repetitive, such associations should strengthen. Very little work has investigated the long-term consequences of NSSI, and we know of no work that has investigated the consequences of NSSI on suicide-relevant automatic associations involving the self, threat-avoidance, or other relevant objects. A first foray into this line of reasoning might examine the longitudinal effects of NSSI on automatic perceived burdensomeness (i.e., self-negative associations) and pain tolerance.

Recent work has considered associative approaches to *reducing* self-injurious behaviors known to increase capability (Franklin et al., 2016). Using an EC procedure designed to associate self-injury with negative stimuli and the self with positive stimuli, Franklin and colleagues (2016) were able to temporarily reduce self-injury among participants with histories of NSSI. Whether this effect came about through changes in automatic associative vs. more

motivated processes, and whether this effect was mediated by self-associations or associations involving threat, should be investigated.

Future work may also benefit from other applications of EC. EC has broad potential to impact several suicide-relevant associations because of its repeated stimulus presentation style and adaptability to various stimuli (e.g., close others, the self, the future). For example, EC has been shown to improve automatic spousal attitudes (e.g., McNulty et al., 2017), which in turn can influence suicidal ideation (McNulty et al., 2019). EC can also increase automatic self-esteem (e.g., Dijksterhuis, 2004), although no work to our knowledge has applied such interventions to suicidality.

It is possible that automatic associations in one domain influence associations in another. As described earlier, people are flexible and sometimes inaccurate in the attributions they make—whether intentionally or unintentionally—about the source of experienced affect. For example, automatic self-associations can predict changes in automatic associations involving close others (McNulty, Baker, Olson, 2014). When affect lacks a clear source, it may be attributed to whatever is most salient, as described above. If automatic negative associations are particularly strong, spillover to other objects is likely.

It also is important to note that deliberative, motivated processes can also impact automatic associations. For example, self-criticism can be either automatic or deliberative. The mental imagery and "flash forward" of one being dead often observed among suicidal individuals tend to be repetitive and are likely to be sources of self-death associations. The desire to die, as it becomes stronger, may be rehearsed in a way that promotes negative associations involving the self, close others, and the future. People can—and probably do—deliberatively rehearse and therefore strengthen associations of many kinds.

These more complex possibilities involving dynamic feedback from associations to associations, from goals to associations, are consistent with APE model logic described earlier (Gawronski & Bodenhausen, 2006, 2014), and provide interesting fodder for research.

On the Origins and Malleability of Opportunity and Motivation

As the non-directional gating mechanism that determines whether relatively automatic processes vs. more motivated processes predominate in responses, the opportunity variable figures prominently in the ACASIA model. Here we expand our conceptualization of opportunity and consider oft-studied variables in the suicidality literature in terms of their relevance to opportunity. Many of these variables are temporary and situational in nature. However, we also consider variables that have the potential to increase or decrease opportunity as a more stable trait. We have already discussed a number of relevant opportunity variables (e.g., temporary deficits in cognitive capacity, impulsivity, distraction, social rejection, etc.). While distinct, they share a common functional quality in that they decrease the impact of controlled cognition on judgments and behavior. In addition to other documented roles in suicidality, we propose that other variables more familiar to suicidality researchers share this functional property.

Consider, for example, working memory capacity and cognitive deficits. Although much work documents a relationship between impaired short-term/working memory and suicidality (e.g., Richard-Devantoy et al., 2015), a recent review indicates that the evidence linking cognitive deficits and suicidality is mixed (Cha et al., 2019). Cha and colleagues concluded that basic cognitive deficits (those that pertain to executive function, problem-solving, and memory) are only distally related to suicidality. Our model suggests that these basic cognitive deficits, as opportunity variables, are inconsistently related to suicidality because they are moderators of the

impact of motivated processes on suicidal ideation and action. Because opportunity is not directional, there should not be a one-to-one relationship between opportunity and suicidality in the absence of other suicide-relevant cognitions. For example, our model predicts that basic cognitive deficits should only increase suicidality to the extent that automatic determinants of thwarted belongingness, perceived burdensomeness, or hopelessness are present. Thus, future research on cognitive deficits should consider their interactive effects within the context of a dual-process conceptualization.

Like cognitive deficits, sleep disturbances are related to suicidality (Pigeon et al., 2012). It is critical to note, however, that insomnia and other sleep disturbances co-occur with other suicide-promoting factors (Bryan et al., 2015), which are likely to account for much of the simple insomnia-suicidality correlation. In fact, when considered experimentally and controlling for confounding variables, there does not to appear to be a direct relationship between insomnia and suicidality (Bonnet & Arand, 1996). There is, on the other hand, strong evidence that sleep disturbances negatively impact emotion regulation (e.g., Walker, 2009) and executive function (Bonnet & Arand, 2003; Reynolds & Banks, 2010), which are operationalizations of the opportunity factor. However, and like the cognitive deficits described above, insomnia should most strongly predict suicidality in the presence of suicide-promoting automatic associations (e.g., self-negative, other-negative, and future-negative).

Strong affect is yet another factor that functions as opportunity (in addition, of course, to its other roles in suicidality described here and elsewhere). Mood disorders and other affective disturbances have well-known negative effects on executive function (e.g., Marx et al., 1992). Emotion dysregulation in particular is distracting and resource-consuming, which, according to our model's logic, will reduce the impact of any motivated processes on judgmental and

behavioral outcomes and thus increase the relative impact of automatic processes. Current operationalizations of dysregulation are consistent with this capacity-reducing interpretation (e.g., Gratz & Roemer, 2004). State-oriented rumination, in addition to providing affective fodder for association-building as described above, also decreases problem-solving capacity (Watkins & Baracaia, 2002). Automatic associations and motivation variables have yet to be incorporated into research examining the impact of emotion dysregulation on suicidality.

Extremely strong affect—especially agitation as discussed in the suicidality literature—is prevalent among acutely suicidal individuals. The determinants of agitation have not been directly addressed in the literature. Our dual-process framework suggests that agitation may (at least in part) be a product of unattributed negative affect activated by any number of negative life events. As discussed earlier, individuals are sometimes attuned to the sources of their automatically activated affect and sometimes not; sometimes attributions are not made at all. In cases where a source attribution is not made, whatever affect one is experiencing is likely to "go global" and, in our view, contribute to agitation. Whatever its origins, agitation should decrease capacity to act on one's desire to die, given its role as an opportunity factor. Existing evidence supports this reasoning: emotion dysregulation has a direct negative impact on capability (even though it can also contribute positively to capability indirectly through NSSI; see Heffer & Willoughby, 2018).

Most suicidal individuals do not die by suicide at least partly because their desire to die is not as strong as their automatic threat-avoidance and fear of death. Individuals can develop some capability (e.g., through painful and provocative experiences) but few are able to entirely overcome this obstacle to performing lethal acts. However, some individuals will have more resources to muster than others. Regulatory capacity is a malleable resource and can be

strengthened (e.g., Baumeister & Vohs, 2007; Duckworth et al., 2011). We posit that specific experiences and traits of some individuals on the path from ideation to action are likely to have added to their self-regulatory reserves, and, hence, increased dispositional opportunity. Assertiveness (Maser et al., 2002), for example, has in common with documented self-regulatory-building interventions a persistence in the face of obstacles in pursuit of some goal. Certain psychopathologies, namely anorexia nervosa (Pompili et al., 2004), also entail regular practice at self-regulation (Fairburn et al., 1999). Repetitive NSSI (e.g., Willoughby et al., 2015) also requires the repeated practice of mustering of cognitive resources. It is noteworthy that each of these variables has been shown to predict the performance of lethal acts among those with a desire to die. Our model suggests that they do so at least partly because they function as opportunity strengthening variables, allowing motives to overcome automatic responses that typically protect one's life. No work to our knowledge has tested the idea that these or other variables operate by building opportunity, or examined their interactions with relevant automatic cognitions. Finally, although self-regulatory capacity can be increased, it is important to note that it is still a limited capacity resource subject to be temporary depletion from use (Baumeister & Vohs, 2007). That is, people get tired of exerting cognitive control to manage strong emotions and automatic associations. An individual will be less able to exert control over additional automatic responses after an instance of exerting cognitive control.

Regarding the origins and malleability of suicide-relevant motives, the most basic of these (e.g., the need to belong, self-efficacy, and hope) appear to be universal. The inability to fulfill these motives is sufficient to foment suicidality. That is, the suicidal individual may wish to belong, but may believe achieving it is impossible. However, acutely suicidal individuals often appear to have abandoned their goals to belong, self-enhance, and so forth, wholesale, as we

have discussed. Our model proposes it is the combination of strong automatic suicide-promoting cognitions (e.g., self-negative) and the absence of relevant motives (e.g., to self-enhance) that should most strongly predict ideation and action.

What causes one to abandon these motives entirely? The dual-process theories upon which our model rests provide some direction. In focusing on how automatic-associative and propositional processes influence one another, the APE model (Gawronski & Bodenhausen, 2006, 2014) argues that the perceived validity of an activated association will be determined by the extent to which it is consistent with concurrently activated associations. Take, for example, a case where one experiences the activation of self-negative associations after receiving negative feedback at work. For some, this experience may activate similar associations (e.g., self-negative associations from a previous academic failure, a romantic failure, etc.). A flood of automatic self-negative associations from other contexts, according to the APE model, should increase the likelihood that the association in question is accepted as true. Further, it is likely that these consistent negative associations result from chronic lack of opportunity to achieve the relevant goals. If one then accepts that one is, indeed, bad at one's job, bad at academics, bad at relationships, etc., it suggests that one is unable to achieve the goal of self-efficacy. Thus, over time and experience of activated associations consistent with a failure to achieve a goal, one is likely to abandon the goal altogether (Latham & Locke, 2007; see also McNulty et al., 2014). It is likely lack of opportunity to successfully pursue these motives that lead to their abandonment.

Contributions, Directions, and Challenges

Dual-process approaches that consider the interplay of automatic and controlled processes have provided a fuller understanding of a variety of phenomena across cognitive and social (e.g., Sherman et al., 2014) and clinical psychology (Teachman et al., 2012). Recently,

researchers have considered the role of automatic processes in suicidality, many examples of which we have reviewed here, including the associations involving close others (e.g., McNulty et al., 2019) and the self (e.g., Nock et al., 2010). As evidence of their impact on suicidality has accumulated, so has the need for incorporating automatic processes into integrative models that address questions surrounding how and under what circumstances automatic processes impact suicidality, as well as how automatic and controlled processes interact in determining suicide-relevant outcomes. The present model is an attempt at such integration.

Integrative dual-process models, whether the one proposed here or others that will surely improve upon it, offer a number of contributions to the suicidality literature. First, dual-process models are models of both prediction and process; they provide mechanistic explanations of how relevant variables impact outcomes. Contemporary models of suicidality are largely predictive in that they identify relevant distal factors (which are often environmental) and proximal factors (which typically incorporate psychological considerations), that impact ideation and action. However, they often do not make clear how such factors exert their impact. For example, unemployment is a known distal factor affecting perceived burdensomeness in the context of the Interpersonal Theory (Van Orden et al., 2010). The ACASIA model offers explanations as to how the distress from unemployment might contribute to the self-negative associations that define burdensomeness at the automatic level, the downstream judgment that one is a liability, and the development of suicidal ideation.

Automatic processes incorporate qualities of suicidal affect and cognition that controlled processes do not. The strong affect, ruminative brooding, and the cognitive distortions they produce, the occasional inability to overcome them through force of will, and the struggle between one's "heart" and "head," are precisely what dual-process models are designed to

address. Although suicidality research certainly incorporates the role of strong affect, no current model formally distinguishes between automatic and controlled processes, identifies the functional distinctions between them, or articulates when and how they each exert impact.

These distinctions have implications for measurement. Surveys and interviews have proven value, but they also have liabilities. As discussed, explicit measures are prone to the influence of various motives. Also important is the limited ability of explicit measures to capture the qualities of automatic processes—their unintentionality, inescapability, and efficiency. Although no measure is "process-pure" and implicit measures differ among themselves in these capacities (see Fazio & Olson, 2003, for a review), implicit measures are better-suited to assess constructs that are more affective (Kendrick & Olson, 2012), spontaneous (e.g., Phillips & Olson, 2014), and uncontrollable (e.g., Klauer & Teige-Mocigemba, 2007). As recent work has shown (e.g., Creemers et al., 2012; Franck et al., 2007; Franklin et al., 2016; Glashouwer et al., 2010; Glenn et al., 2017; Hussey et al., 2016; McNulty et al., 2019; Nock et al., 2010; Tucker et al., 2018), the psychology of suicidality requires formal consideration of automatic processes, their proper measurement, and how they relate to one another and corresponding controlled processes.

Ultimately, the value of any model is to articulate testable predictions that improve prediction and explanation of relevant phenomena. We have articulated a number of hypotheses, several already with empirical support, regarding interactions between automatic and controlled processes in predicting suicidal ideation and lethal acts, as well as their combination into an integrated model. We have also highlighted the unique origins of suicide-relevant automatic associations, as well as the origins of suicide-relevant motives. As a primary moderator of the impact of relatively automatic vs. controlled processes on ideation and action, the opportunity

variable figured prominently. In addition to its moderating impact, we discussed its origins, including how suicide-related disorders and actions might affect it. It bears repeating that in being a non-directional gating mechanism, opportunity is a double-edged sword: it can open or close the gate to either suicide-promoting or -preventing factors, depending on existing associations and motives.

Finally, the model is clear in the functional roles—sometimes multiple—that suicide relevant variables play. The suicidality literature already recognizes the multiple roles some variables play in suicidal ideation and action. For example, alcohol interferes with interpersonal relations (Lamis & Malone, 2011) and emotion regulation (Sher & Grekin, 2007), and increases one's likelihood of accidents, injury, and aggression (Shorey et al., 2011; Smith & Cukrowicz, 2010), thus promoting capability over the long-term (while reducing it in the short-term). The model proposed here provides a formal order to the multiple functional roles relevant variables might play in the ideation-to-action framework.

Research utilizing the model should be mindful of specific challenges. First, although the model answers calls to diversify measurement in suicidality research by incorporating implicit measures, such measures are not without their own problems. Reaction time measures often have problematically low reliabilities, and some include confounds (e.g., Olson et al., 2009). Further, implicit and explicit measures can differ in a number of ways, and structural differences between them can artificially deflate their correspondence (Payne et al., 2008). Researchers should be aware of the strengths and weaknesses of implicit measures.

Paralleling methodological concerns surrounding implicit measures are conceptual concerns about the very nature of cognition, particularly whether parsing cognition into two cleaves nature at its joints. The mind is likely to engage in more than two kinds of processing

(e.g., Amodio, 2019), and even within dual-process perspectives—successful as they have been—there is debate about how to best distinguish them (Melnikoff & Bargh, 2018). Thus, a second challenge to the ACASIA model is whether its dual processes effectively embody the myriad ways in which cognition occurs in the context of suicide. Moreover, dual-process theorists debate how quickly automatic associations and corresponding motives and propositional beliefs form and change. As reviewed earlier, there is evidence for both stability and lability of automatic associations. Questions surrounding how quickly or slowly suicidal ideation and its determinants form and change abound, and it is our hope that the ACASIA model can be brought to bear on them.

The above challenges largely reflect challenges to dual-process models generally. Do theories of suicide, particularly the IPT, bring their own challenges that a dual-process perspective might compound? Although we cannot dismiss the possibility, our view is that dual-process models offer potential compensation for the weaknesses of current models of suicide. For example, we argued earlier that although the IPT has good empirical support, it leaves substantial variance in suicide unexplained. Our claim is that consideration of the automatic components of IPT factors improves prediction. However, the ACASIA model's claims go further than suggesting that automatic associations merely do some work in predicting suicidality. Support for the model would come particularly from evidence—yet to be uncovered— of interactive effects of automatic associations and relevant goals in predicting ideation and action, depending on the presence of opportunity.

Debates about whether suicide is "one thing or many" things also abound (e.g., Maris et al., 2000). The ACASIA model (and the IPT on which it is based) assumes it is one thing, and, moreover, that cognitions surrounding the self, close others, the future, and capability are

necessary and sufficient to explain it. These may be considered bold claims, but they are empirical ones. Thus, another important challenge the model faces is whether it adequately accounts for the variability observed in all manner of suicidal ideation and action. For example, the model allows little room for relatively thoughtless, impulsive acts of suicide that were not preceded by a standing desire to die, cognitive and motivational work to overcome threat-avoidance, and practice and preparation to perform a daunting task; it would be challenged by strong evidence for such acts. Finally, we must acknowledge that the model is complex and incorporates a relatively large number of variables. Tests of all its tenets in the context of a single study would be difficult. Nevertheless, we believe its complexity is commensurate with the complexities of suicide.

To conclude, we have presented the ACASIA (Automatic and Controlled Antecedents of Suicidal Ideation and Action) model. In so doing, we leveraged and concatenated advantages of existing models of suicidal behavior and dual-process models from social cognition to provide an integrative and over-arching account of an abiding menace to human health. Resting as it does on well-characterized foundations in suicide-related science and thought as well as dual-process theorizing and empirical work, the ACASIA model points the way toward avenues of future research, which have the potential to illuminate and ameliorate a grave form of misery.

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Table 1. ACASIA Model Components

	Component			
	Close others	Self	Future	Capability
Automatic conceptualization	Others-negative	Self-negative	Future-negative	Threat-avoidance, Death-negative
Relevant motives	Need to belong, Relationship motives	Self-enhancement, Self-efficacy	Optimism, Pessimism	Desire to live, Desire to die
Opportunity factors*	Relationship stress, Conflict, Rejection	Impulsivity, Emotion dysregulation	Individual & Structural Malleability Beliefs	Agitation, Impulsivity, Lethal access

*Note: General opportunity-related variables (e.g., alcohol, distraction, fatigue, stress, time pressure, cognitive depletion) apply to all model components. Those appearing in the table are argued to be particularly-relevant to a given component.

Table 2. ACASIA Model Primary Predictions

	Component			
	Close others	Self	Future	Capability
High opportunity conditions	Relationship motives predict thwarted belongingness & desire to die	Self-enhancement/ efficacy motives predict perceived burdensomeness & desire to die	Optimism/ Pessimism predict hopelessness & desire to die	Desire to die predicts intent & lethal acts
Low opportunity conditions	Others-negative associations predict thwarted belongingness & desire to die	Self-negative associations predict perceived burdensomeness & desire to die	Future-negative associations predict hopelessness & desire to die	Threat-avoidance associations & death negative associations prevent formation of intent & lethal acts
Greatest suicide risk	Strong others-negative associations & weak relationship motives	Strong self-negative associations & weak self-enhancement/ efficacy motives	Strong future-negative associations & low optimism/high pessimism	Weakened threat-avoidance & death-negative associations & strong desire to die