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Work and suicide: An interdisciplinary systematic literature review

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Summary

Although organizational scholars have long been interested in employees' well-being and occupational health, less work has focused specifically on suicide behaviors among employees. This dearth of research is concerning given that individuals spend a significant portion of their waking hours at work, and suicide deaths among American workers are on the rise. To encourage the study of work and suicide with the intent of ultimately reducing mortality, we first provide a theoretical framework that incorporates two eminent theories of suicide: interpersonal-psychological theory of suicide and psychache theory of suicide. We then report the findings of an interdisciplinary systematic literature review that offers an overview of current research related to work and suicide, including antecedent, mediating, and moderating effects. The results of our systematic literature review are presented via the lens of our theoretical framework, supporting that it is an appropriate perspective to understand the relation of work and suicide. Finally, we conclude by identifying avenues for continued research on the interplay between work and suicide, again incorporating these research directions into our theoretical framework. Together, our manuscript integrates multiple domains of research, while addressing a timely and critical public health crisis that stems, in part, from employees' workplace experiences.

KEYWORDS
depression, occupational health, stress, suicide, well-being

1 | INTRODUCTION

In the United States, suicide is the 10th leading cause of death; an average of 129 suicide deaths occur each day, and approximately 48 000 individuals died by suicide in 2018 alone (American Foundation for Suicide Prevention [AFSP], 2020). The Center for Disease Control (Hedegaard et al., 2020) indicates that suicide rates have risen dramatically in the United States with over half of states experiencing a rise of more than 30% since 1999. National prevention organizations, such as the Suicide Prevention Resource Center (2015) and the National Institute of Mental Health (NIMH, 2020), argue that a comprehensive approach to suicide prevention is needed to reduce the number of suicide deaths, and such an approach involves multiple community stakeholders—including employers. Specifically, employers can provide upstream suicide prevention by attending to workplace factors that influence suicide risk and promoting psychological well-being and help-seeking. Unfortunately, many organizations are not prepared to adequately address employees' mental health needs or the aftermath that results from an employee's suicide death (i.e., postvention). This lack of preparedness stems, in part, from the dearth of academic research and resultant incomplete understanding regarding the relation between work factors and suicide.

Traditionally, organizational scholars have been interested in employees' well-being and occupational health (Bakker & Demerouti, 2007; Bradburn, 1969; Diener et al., 2003), yet less work has focused specifically on suicidal behaviors among employees (c.f., Howard & Krannitz, 2017). This dearth of research is concerning given that individuals spend a significant portion of their waking hours at work (Bureau of Labor Statistics, 2018) and suicide deaths among American workers are on the rise (Hedegaard et al., 2020). Further, suicide deaths impart negative consequences beyond the individual, affecting both coworkers and organizations connected to the deceased. It has been estimated that the annual organizational cost of suicide in the United States is 93.5 billion dollars, attributed mostly to lost wages and healthcare costs (Shepard et al., 2016). These costs may arise, in part, by coworkers who are affected by a colleague's suicide. Each suicide, on average, impacts 135 people who personally knew the deceased, resulting in estimates of almost 6 million people affected by the suicide of another person each year (Cerel et al., 2018). Coworkers often experience negative emotional (e.g., grief and guilt) and behavioral consequences (e.g., reduced productivity and social withdrawal) as a result of the loss imparted by suicide (DeRanieri et al., 2002; Mericle, 1993). Furthermore, it is important to underscore that suicide deaths mean a loss of life, which cannot be sufficiently quantified. Organizations have great reason to attend to the ways in which the workplace influences suicide among employees, yet current knowledge on the topic has not progressed in a manner that matches its importance.

The purpose of this review, therefore, is to provide management scholars with a comprehensive, interdisciplinary integration of prior research to synthesize existing knowledge and draw scholarly attention to the study of suicide and the workplace. To achieve this goal, we first introduce readers to suicide terminology and differentiate suicidal ideation, suicide attempts, and suicide. Next, we assimilate two prominent theories that have been used to study suicide-related motives and behavior, interpersonal-psychological theory of suicide (IPTS) (Joiner, 2005) and psychache theory of suicide (Shneidman, 1993), to develop a theoretical framework that provides a guide for organizational researchers to study suicide (Figure 1). Then, we report the findings of our interdisciplinary systematic literature review that offers an overview of the current state of research related to work and suicide, including antecedent, mediating, and moderating effects that can facilitate nuanced future studies. The results of the systematic literature review are presented via the lens of our theoretical framework, supporting that it is an appropriate perspective to understand the relation of work and suicide. Finally, we conclude by identifying avenues for continued research on the interplay between work and suicide, again incorporating these research directions with our theoretical framework. Such future work is essential to the prevention of suicide deaths within the working population. Together, our manuscript reviews multiple domains of research, while addressing a timely and critical public health crisis that stems, in part, from employees' workplace experiences.
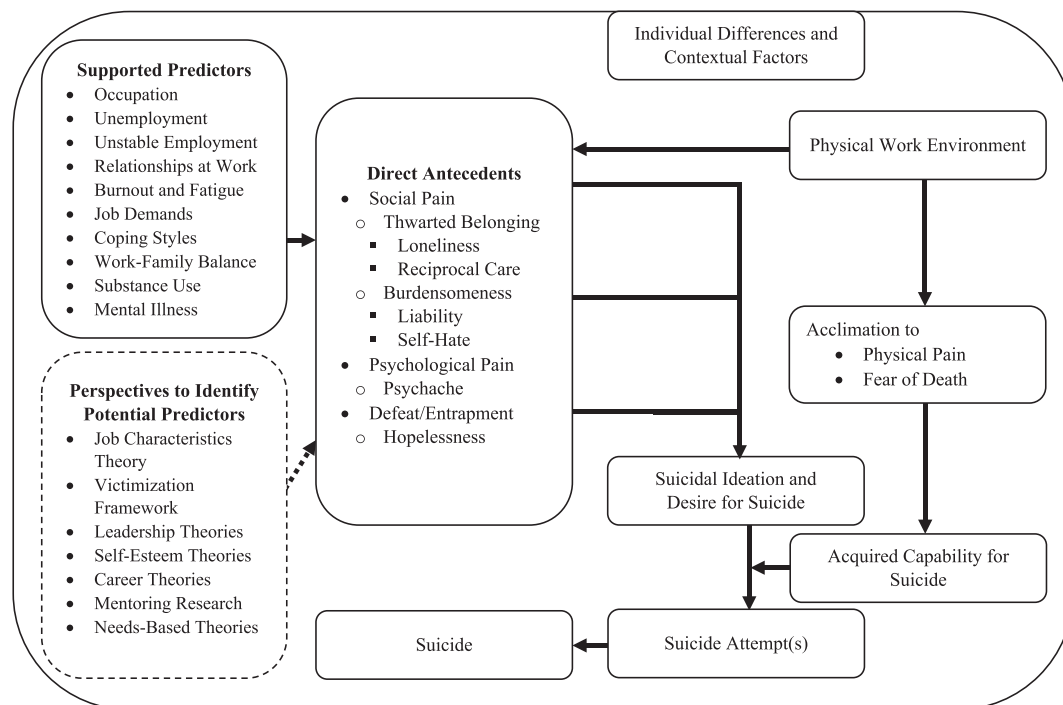

FIGURE 1 Theoretical framework of work and suicide. *Note*: The arrow between suicide attempt(s) and suicide does not indicate that a person who dies by suicide must first attempt suicide without resulting in death. Instead, it indicates that at least one suicide attempt must occur for a person to die by suicide, which could be the first suicide attempt

2 | BACKGROUND

Suicide is death caused by injuring oneself with the intent to die (Hedegaard et al., 2020). Suicidal thoughts and behaviors are believed to exist on a continuum from passive thoughts of death to death by suicide, which undergirds most prominent theories of suicide (Baumeister, 1990; Joiner, 2005; Shneidman, 1977, 1993; van Orden et al., 2010). Specifically, suicide decedents are believed to ruminate on their decision to attempt suicide and develop a desire to die by suicide throughout this process, which results in a reciprocal relationship between suicidal ideation and desire for suicide. The following stage in this continuum is suicide attempts in which individuals try to die by suicide. Some individuals die by suicide from their first attempt; others attempt suicide multiple times before dying by suicide; and yet, others attempt but never die by suicide (Hedegaard et al., 2020). The end of this spectrum is death by suicide, which refers to an intentional action that takes one's own life. It should be noted, however, that transitions on this continuum are not always linear. Research regarding important components of this continuum (e.g., planning for suicide and decision on a place) shows extreme heterogeneity in the timing of suicidal thoughts transitioning to suicidal behavior (Millner et al., 2017). For instance, although healthcare systems place great effort in suicide prevention by treating those who have survived a suicide attempt, many people who die by suicide do so on their first attempt, especially when a firearm is used (Anestis, 2016). Although many suicide decedents experience similar suicidal thoughts and behaviors within this continuum, their timing, frequency, and duration may considerably differ.

The study of suicide, therefore, is inherently complex, and researchers are often unable to study these core components of suicide as a causal process due to both methodological and ethical constraints. As noted by Millner et al. (2017), the transition from suicidal thoughts to behaviors may take months or years to unfold, and researchers would be expected to intervene if any escalation occurred. Instead, researchers often focus on predicting only one part of the process (e.g., suicidal ideation and suicide attempts). For example, researchers have studied predictors of suicidal ideation without assessing suicide deaths (Bartram et al., 2009; Dyrbye et al., 2014; Rosta & Aasland, 2013) as well as studied suicide deaths without assessing suicide ideation or attempts (Corso et al., 2007; Milner et al., 2015; Tiesman et al., 2015). Contemporary research in suicide prevention asserts the importance of studying the transition between elements of the suicide continuum (i.e., suicidal thoughts to death by suicide; Klonsky & May, 2015; Klonsky et al., 2018). Thus, researchers can effectively study suicide without measuring death by suicide, which is especially pertinent for organizational research. Organizational scholars have the opportunity to assess suicidal ideation, desire for suicide, and suicide attempts, which can aid in enhancing our understanding of how workplace factors contribute to these important outcomes while also providing opportunities for interventions prior to death by suicide.

To encourage organizational scholars to study the relation between work and suicide, it is necessary to understand prominent theories of suicide to guide such work. Theories of suicide provide

important information about the etiology and maintenance of suicidal ideation and factors that increase the likelihood of a suicide attempt, all with the goal of identifying modifiable targets in suicide prevention efforts (Klonsky et al., 2018). In the next section, we review two theories that have produced much of the contemporary research on suicide: the IPTS (Joiner, 2005) and psychache theory of suicide (Shneidman, 1993, 1998, 1999). These theories provide a foundation for applying and extending the theoretical foundations of suicide research to workplace contexts.

2.1 | Interpersonal-psychological theory of suicide

Like other theories of suicide, the IPTS assumes that suicidal thoughts and behaviors exist on the continuum described above (Joiner, 2005; van Orden et al., 2010). Suicidal ideation and desires for suicide are not sufficient for suicide to occur, however, as many people contemplate suicide but never transition to suicidal behaviors. The IPTS therefore proposes that an individual must develop the capability for suicide before they will act on their suicidal desires (Joiner et al., 2002; Joiner et al., 2005). Capability for suicide refers to "the reduction of the fear of death and increase in the tolerance for physical pain" (Smith et al., 2013, p. 98). As guided by evolution, humans have adapted to survive and are instinctively driven away from suicide, and this instinctual drive cannot be countered without becoming acclimated to certain powerful features of suicide (Lankford, 2015; Liddle et al., 2011). Those without an acquired capability for suicide will not enact suicidal behaviors as the thought of lethal self-harm may be too fear provoking or perceived as too painful to tolerate. For this reason, the acquired capability for suicide moderates the relations of suicidal ideation and desire for suicide with suicide attempts, such that these relations are strengthened in the presence of the acquired capability for suicide.

Further, subsequent research utilizing the IPTS has differentiated the acquired capability for suicide from access to lethal means, wherein the former is the ability to carry out self-harm, whereas the latter involves having a tangible way to enact suicidal behaviors. On its own, access to lethal means is also an important predictor of suicide—a point that will later be discussed in detail. The IPTS also specifies differential predictors of the acquired capability for suicide, suicidal ideation, and desire for suicide. The fearlessness of death and heightened tolerance to pain are the two primary predictors of the acquired capability for suicide. Fearing death and lower pain tolerance provides an evolutionary advantage, such that humans avoid stimuli that may cause them death or bodily harm (Joiner, 2005; van Orden et al., 2010). Those who attempt and/or die by suicide must contemplate the technical details of the action, such as the method, timing, and location. In doing so, they must come to terms with their own death as well as the physical pain involved in the action. If people are acclimated to the fear and potential pain of these actions, they are more likely to persist through and enact suicidal behaviors.

The IPTS also suggests two primary antecedents to suicidal ideation and desire for suicide: thwarted belongingness and perceived

burdensomeness (Joiner, 2005; van Orden et al., 2010). Thwarted belongingness refers to "a sense of disconnect from others, a breakdown in close social relationships, social alienation, and a general sense that one has limited, or no, social support" (Gunn, 2014, p. 25). The word "thwarted" indicates that people have a natural need for social connections. When these social connections are denied or perceived to be denied, then the individual enters a state that is direr than loneliness. This state is thwarted belongingness. The other primary antecedent identified by the IPTS is perceived burdensomeness. Perceived burdensomeness is the "perception that you are a burden on those around you and society as a whole" (Gunn, 2014, p. 25), and it is often associated with belief that close others would be better off if you were dead. When analyzing suicide notes, Joiner et al. (2002) noted that those who died by suicide often described how their own shortcomings caused others to suffer.

van Orden et al. (2010) elaborated upon the IPTS by detailing the dimensions of thwarted belongingness and burdensomeness, which are loneliness and lack of reciprocal care as well as liability and self-hate, respectively. This differentiation suggests that the dimensions of thwarted belongingness and burdensomeness produce different effects on suicidal ideation and desire for suicide. van Orden et al. (2010) also highlighted the role of hopelessness in suicidal behaviors, which was integrated from the escape theories of suicide derived from animal observations (Baumeister, 1990; Taylor et al., 2011). Williams (1997) observed, for example, that many animals enact certain behaviors when they believe that they are hopelessly trapped (e.g., arrested flight). These behaviors do not aid in the escape from such situations, but they are rather meant to signal that the animal is defeated. Williams (1997) suggested that similar dynamics occur among humans, whereby individuals engage in certain behaviors when they feel that their life circumstances are hopeless (i.e., reduced motivation to improve situation), with the final behavior being suicide. When experiencing thwarted belongingness or perceived burdensomeness, people may not develop a strong desire for suicide if they believe that the situation can be addressed (Kovacs & Garrison, 1985; Saltz & Marsh, 1990); however, if the situation is perceived as hopelessly intractable, then suicide may be perceived as a viable—and possibly only—outcome (Taylor et al., 2011; Williams, 1997). Thus, suicidal desire is most likely to occur at the intersection of thwarted belongingness, perceived burdensomeness, and hopelessness related to these interpersonal concerns (Chu et al., 2017; Tucker et al., 2018).

In sum, the IPTS elucidates how thwarted belongingness, perceived burdensomeness, and hopelessness jointly play a role in the development of suicidal thoughts, which can lead to suicidal behaviors when sufficient capability for suicide is acquired. Still, another potential cause of suicide is due to the deprivation of human needs, as outlined in the psychache theory of suicide detailed below.

2.2 | Psychache theory of suicide

Shneidman (1993, 1998, 1999) proposed the psychache theory of suicide, which, like Joiner's (2005) theory, centers on psychological constructs that increase the risk for suicide. This theory suggests that psychological pain (i.e., psychache) is produced by the deprivation of essential human needs. Psychache is not just mental discomfort. As described by Shneidman (1998), it is "mental suffering; mental torment ... hurt, anguish, soreness, aching, misery – in the mind. It is the pain of excessively felt shame, or guilt, or humiliation, or loneliness, or loss, or sadness, or fear of growing old or of dying badly, or the like" (p. 14). Psychache is being denied essential human needs that produces a cognitive state of "constriction," such that people are unable to identify effective methods to reduce their psychache (Shneidman, 1998; Wenzel & Beck, 2008). When psychache reaches a "breaking point," people engage in suicidal behaviors to escape the pain; perhaps because they are too constricted to identify other methods or because they enter a state of hopelessness.

When applying psychache theory, authors often identify essential needs by adapting needs-based theories (Alderfer, 1969; McClelland, 1965; Murray, 1938). Among the most applied, in part due to its basis for many subsequent needs-based theories, is Maslow's hierarchy of needs (Maslow & Lewis, 1987). Maslow's hierarchy identifies five tiers of needs: psychological, safety, social belonging, esteem, and self-actualization. These tiers vary in their essentialness to human functioning, with the first being most essential and the fifth being least essential (but still important). Individuals must fulfill lower level needs before ascending to higher level needs.

When applying Maslow's hierarchy to understand suicide, most researchers consider the first (psychological), second (safety), and third (social belonging) tiers to produce psychache when not fulfilled (Germain, 2013; Güss et al., 2013; Mucedola, 2015; Sun et al., 2014). Without satisfying the first two tiers, people must continuously worry about ensuring their continued survival, which may produce a constant state of severe stress and eventual psychache. Without satisfying the third tier, people may feel disconnected from society, isolated, and unloved. Coinciding with the IPTS, people need to feel such connections to avoid feelings of thwarted belongingness and thoughts of suicide. On the other hand, the fourth (esteem) and fifth (self-actualization) tiers are less-commonly considered essential to human functioning. While these needs contribute to well-being and thriving, fewer authors have supported that failing to satisfy these needs can contribute to psychache or suicide (Collins & Cutcliffe, 2003; Firestone & Catlett, 1998). Therefore, failing to satisfy the first three tiers of Maslow's hierarchy may contribute to suicidal ideation and desire for suicide through psychache, whereas the effects of failing to satisfy the fourth and fifth tiers are less clear.

As the study of motivation has advanced, additional theories can aid in understanding why individuals die by suicide. Given the emphasis of unfulfilled individual needs as precipitates of suicidal thoughts and behaviors, we recognize the utility of self-determination theory (SDT; Deci & Ryan, 2011; Ryan & Deci, 2000) for organizational scholars studying the relation between work and suicide. According to SDT, individuals have the basic psychological needs of autonomy, competence, and relatedness. Individuals develop intrinsic motivation or self-determined extrinsic motivation when these needs are satisfied through performing a task, whereas they may disengage and search

for other tasks when these needs are not satisfied. If no task can be found to satisfy these needs, then individuals often experience worsened psychological well-being (Chirkov et al., 2003; Patrick et al., 2007). SDT can be useful for studying suicidal ideation and behaviors, particularly when individuals experience extreme barriers to fulfilling their psychological needs. When individuals experience an extreme lack autonomy, competence, or relatedness, it may result in psychache that would, in turn, influence suicidal ideation and desire for suicide. Should individuals' needs be obstructed for long periods of time, it may also result in a state of hopelessness in which the individual cannot foresee a future where their needs are met.

SDT can also be integrated with the IPTS to explain how unfulfilled needs may lead to suicidal thoughts and behaviors. Two of three SDT needs, competence and relatedness, directly relate to perceived burdensomeness and thwarted belongingness of the IPTS; those that feel that they are generally incompetent often perceive themselves as a burden onto others (supported by research on demoralization; Cockram et al., 2009), whereas those that have a poor sense of relatedness with others perceive their need to belong as being thwarted. While empirical work linking these two theories is limited, existing evidence supports that a lack of basic psychological needs is predictive of thwarted belongingness and perceived burdensomeness (Hill & Pettit, 2013; Tucker & Wingate, 2014) and that psychological needs are themselves predictive of suicidal ideation (Liu et al., 2019). A recent review of SDT specifically emphasized the necessity for researchers to examine *need frustration* (as opposed to need fulfillment) and to explore the boundaries of SDT by integrating it with other theories (van den Broeck et al., 2016). As such, we believe SDT could be quite useful for addressing research questions related to suicide, particularly when used in concert with the IPTS and psychache theory of suicide.

Taken together, suicide has been studied as a process instigated both by cognitions (e.g., suicidal ideation) and psychological pain (i.e., psychache). These foundational relationships are helpful in creating a framework by which to study suicide in a work context. Figure 1 depicts our developed theoretical framework based on the conceptual relations described in the IPTS and psychache theory of suicide. In the next section, we present the results of our systematic review, and we use these results to both support and expand our theoretical framework.

3 | SUICIDE AND WORK: A SYSTEMATIC REVIEW OF RESEARCH

Our review of research on suicide and work accomplishes two primary objectives. First, we survey current knowledge on suicide and work to provide an interdisciplinary integration of these literatures. Second, we use the findings of prior studies to support and expand our theoretical framework (Figure 1), thereby identifying what is known and what remains to be known regarding the relationship between work and suicide.

3.1 | Method

Systematic literature reviews use defined parameters to discover relevant sources. We applied prior recommendations (Denyer & Tranfield, 2009; Kitchenham et al., 2009; Moher et al., 2015; Shamseer et al., 2015; Tranfield et al., 2003) and mimicked prior systematic literature reviews (Bozer & Jones, 2018; Leclercq et al., 2019; Mäkikangas et al., 2016; Parris & Peachey, 2013; Tian et al., 2018) to identify search parameters and inclusion criteria to achieve this goal.

Searches were conducted using PsycINFO and Web of Science in March of 2020.[1] These two sources were chosen because they catalog sources relevant to both occupational research and suicidology, and both are commonly used in systematic literature reviews in the social sciences (Denyer & Tranfield, 2009; Leclercq et al., 2019). Using these databases, our search terms began with "suicid* and" followed by the following terms: "employ*," "workplace," "job," "occupant*," and "organizational." These five searches within both databases jointly identified 4949 sources to be reviewed. To determine whether sources should be included within our systematic literature review, the primary author first coded all sources for whether they were (1) written in English and (2) relevant to the study of work and suicide based on their title and abstract. This reduced the list of 4949 sources to 1302 sources. Afterwards, the primary author recorded whether the sources (1) included an empirical study (whether quantitative, qualitative, or mixed method) and (2) studied the relation of work and suicide by reviewing their full text. This reduced the list of 1302 sources to 577 sources, and each of these 577 sources was included in our systematic literature review. Data S1 provides an overview of these sources.

For each source, we coded the source type (e.g., article, dissertation), publication outlet, study country, participant occupation(s), defining participant characteristics (e.g., mental disorder and substance abuse), and research method (i.e., quantitative, qualitative, and mixed method). We then coded the study type, which was an attribute without predefined categories. To code this attribute, we applied an inductive content categorization coding approach (Fereday & Muir-Cochrane, 2006; Lehner & Kansikas, 2012; Thomas, 2006). We did not hypothesize any categories beforehand to reduce the biasing effects of the researchers' preconceived notions in the interpretation of the original sources. A set of 50 articles were first categorized based on similarities, and four categories naturally emerged (subset studies, occupational studies, aggregation studies, and general studies). Then, defining characteristics were clearly identified, and the remaining articles were categorized into the emergent categories. No article appeared to represent a fifth category, suggesting that the four identified categories were sufficient. This process closely followed prior studies and guidelines for inductive content categorization approaches, which supports the rigor and comprehensiveness of the current coding process (Fereday & Muir-Cochrane, 2006; Lehner & Kansikas, 2012; Thomas, 2006).

3.2 | Systematic review results

3.2.1 | Overview of research studies

We first provide a summary of the distinguishing characteristics of the sources included in our review. These characteristics include the publication outlet, study outcome, geographic location, and study method.

Publication outlet

Of the 577 included sources, only three appeared in a journal within the Financial Times 50 list, and all three appeared in the *Journal of Business Ethics*. Only 50 appeared in a journal within the ABDC list. These included journals were *American Journal of Public Health* ($N = 7$), *Social Indicators Research* ($N = 4$), *European Journal of Health Economics* ($N = 3$), *Journal of Business Ethics* ($N = 3$), *Journal of Consulting and Clinical Psychology* ($N = 3$), *Social Forces* ($N = 3$), and others ($N = 27$). Based on these findings, it can be argued that the study of work and suicide are being conducted almost entirely outside the fields of management and applied psychology, thus highlighting the opportunity for organizational scholars to empirically study the unique role of workplace factors in predicting suicide-related thoughts and behaviors.

Study outcome

When assessing all sources, 244 measured suicidal ideation (42%), 176 measured suicide attempts (31%), and 302 measured death by suicide (52%). Many of these sources measured multiple indicators, which included 112 that measured both suicidal ideation and suicide attempts (19%), eight that measured suicidal ideation and suicide deaths (1%), 31 that measured suicide attempts and death by suicide (5%), and six that measured all three (1%). The frequency of the measured suicide indicator differed by the type of study of which these types are described in the "Study methods" section below. Table 1 provides the frequency of measured suicide indicator separated by the type of study. These results underscore the lack of research that has measured multiple suicide-related outcomes with the majority of studies focusing on only one outcome, which is not necessarily a concern as argued above.

Geographic location

The studies included in our review utilized samples from across the globe. The most represented country was the United States ($N = 247$), but many studies were also conducted in the United Kingdom ($N = 41$), Australia ($N = 40$), Japan ($N = 24$), Finland ($N = 22$) Canada ($N = 21$), South Korea ($N = 19$), Sweden ($N = 15$), China ($N = 14$), and Italy ($N = 11$). Interestingly, 30 studies examined suicide using samples composed of participants from multiple geographic locations; such findings are important for establishing the generalizability of the results within diverse geographical contexts.

Study method

The sources included in our review employed multiple research methods. The quantitative approach ($N = 529$) was vastly more popular than the qualitative ($N = 45$) or mixed-method ($N = 3$) approach in the study of work and suicide. Our review also uncovered four primary designs used to study suicide and work: subset studies ($N = 69$), occupational studies ($N = 247$), aggregation studies ($N = 84$), and general studies ($N = 177$).

Subset studies were performed in 69 sources. Researchers conducting subset studies solely sample from a population often believed to have a strengthened or unique association with suicide. The most frequently studied populations included individuals who had specific mental illnesses ($N = 12$), died by suicide via unique means ($N = 9$), received mental health treatment ($N = 7$), had specific physical or mental disabilities ($N = 6$), experienced homelessness ($N = 5$), affected by substance abuse ($N = 4$), experienced certain life events (e.g., 11 September; $N = 4$), and employed by companies with high suicide rates ($N = 3$). Additional populations of interest included victims of workplace bullying, employees of merging organizations, victims of sexual assault, sexual orientation minorities, and racial/ethnic minority groups.

Occupational studies were performed in 247 sources. In these sources, researchers solely sample from a particular occupation, most often because employees within these occupations are believed to have higher rates of suicide. The most studied occupations were military members ($N = 67$), medical professionals ($N = 51$), police officers ($N = 27$), veterans ($N = 24$), farmers ($N = 20$), fire fighters ($N = 16$), and blue-collar workers ($N = 13$).

TABLE 1 Indicators of suicide measured in sources

	Suicidal ideation	Suicide attempts	Completed suicides	SI & SA	SI & CS	SA & CS	All three
Occupational studies	140 (57%)	96 (39%)	99 (40%)	74 (30%)	6 (2%)	13 (5%)	5 (2%)
Subset studies	36 (52%)	32 (46%)	25 (36%)	19 (28%)	1 (1%)	5 (7%)	1 (1%)
Aggregate studies	0 (0%)	4 (5%)	81 (96%)	0 (0%)	0 (0%)	1 (1%)	(0%)
General studies	68 (38%)	44 (25%)	97 (55%)	19 (11%)	1 (1%)	12 (7%)	0 (0%)
All studies	244 (42%)	176 (31%)	302 (52%)	112 (19%)	8 (1%)	31 (5%)	6 (1%)

Note: Categories are not exclusive, for instance, studied that measured both suicidal ideation and suicide attempts would be included within the total for suicidal ideation, suicide attempts, and suicidal ideation and suicide attempts.
Abbreviations: CS, completed suicides; SA, suicide attempts; SI, suicidal ideation.

Aggregation studies were performed in 84 sources. Researchers conducting aggregation studies analyze statistics aggregated from geographic regions, rather than studying suicide at the individual level. Most often, aggregation studies utilize existing datasets representing thousands—if not millions—of individuals. The aggregated geographic regions from these studies included world regions (e.g., continents; $N = 4$), countries ($N = 47$), country subunits (i.e., states, providences, and prefectures; $N = 29$), and city statistical areas ($N = 8$). Four of these sources included analyses for multiple types of aggregated geographic regions, such as countries as well as states.

Finally, general studies were performed in 177 sources. In these sources, researchers obtain a diverse sample and study variables believed to function similarly in broader populations. This approach is the dominant research design in management and applied psychology, and it is also labeled the variable-centered approach (Hofmans et al., 2020; Howard & Hoffman, 2018). The most commonly included variables studied alongside suicide in these studies were indicators of occupation ($N = 90$), employment status ($N = 65$), income and socio-economic status ($N = 63$), burnout and fatigue ($N = 23$), job characteristics and physical work environment ($N = 21$), job insecurity ($N = 21$), and interpersonal relationships at work ($N = 17$).

3.2.2 | Explaining what is known

In the current section, we review the commonly studied research questions regarding work and suicide discovered in our systematic literature review, and we integrate them with our suicide framework to support its validity. We categorize these findings as occupational differences and work-related predictors of suicide, discussed separately.

Occupational differences
Among the oldest streams of research related to work and suicide is the identification of occupations with elevated rates of suicide, which continues to the present day (Canu et al., 2019; Kreitman et al., 1991; Roberts et al., 2013; Skegg et al., 2010). In general, occupations that are studied the most (Table 2) are also those with the highest suicide rates. In the current systematic literature review, these occupations are military members, medical professionals, police officers, veterans, farmers, fire fighters, and blue-collar workers. The heightened suicide rates in these occupations, in part, influenced the conceptualization of acquired capability. In his book, Joiner et al. (2005) noted many of these professions as having heightened exposure to painful and provocative events. Drawing upon foundational theories of suicide, we propose that the heightened frequency of suicide in these occupations can be attributed to a reduced fear of death and pain as well as increased thwarted belongingness and hopelessness caused by the job itself.

Military members, medical professionals, police officers, veterans, and fire fighters all regularly encounter death. Access to lethal means and exposure to death may cause employees in these occupations to acclimate to the fear of death, which is corroborated by research supporting that observing deaths is positively related to suicidal

TABLE 2 Occupations chosen in occupational studies

Occupation (Frequency)	
Artists (1)	Athletes (1)
Blue-collar workers (13)	Chemists (1)
Divers (1)	Entertainment venue worker (1)
Farmers (20)	Fire fighters (16)
Government officials (1)	Medical professionals (51)
Military members (67)	Pilot (1)
Police officers (27)	Pensioners (1)
Self-employed (1)	Sex workers (5)
Social workers (1)	Suicide call center volunteers (1)
Teachers and professors (3)	Unemployed (3)
Veterans (24)	Vocational students (1)
Veterinarians (5)	White-collar worker (1)

ideation in these professions (Bryan et al., 2017; Horn, 1994; Stanley et al., 2015). While the process of dying may be foreign to many, employees in these occupations are often forced to be intricately attuned to death. In turn, these employees may no longer fear suicide if they were ever to develop the desire for it. Similarly, military members, police officers, veterans, farmers, fire fighters, and blue-collar workers are all occupations with notorious physical taxation, and many employees in these occupations utilize disability benefits before the end of their career (Autor et al., 2016; Summerfield, 2011; Torske et al., 2015). Occupations that require extreme, frequent physical exertions are associated with the onset of chronic and acute physical pain (Gossett & Harms, 2018), which influence employees' negative emotional states as well as their perceptions of death. For instance, employees in these occupations and similar others may acclimate to physical pain over time and fear suicide less than those in other occupations. Additionally, physical pain often occurs comorbidly with psychological disorders such as depression and anxiety (Gatchel et al., 2007) and motivates avoidance behavior in individuals, such that they become focused on ending the pain (Gossett & Harms, 2018). In agreement with Joiner et al. (2005), these employees may have a heightened rate of suicide because, in part, they are more acclimated to death, accustomed to pain, and developed a greater capability for suicide. This acquired capability for suicide, coupled with easy access to lethal means for suicide, may create a "perfect storm" of transitioning from suicidal thoughts to suicide if employees ever develop the desire for suicide.

The interplay of access to lethal means and the capability for suicide within these occupations should be stressed. Specifically, 51% of all suicides are by firearm in the United States, and 85% of suicide attempts by firearm result in death compared with less than 10% for all other methods (APHA, 2018). The elevated suicide rate in some occupations (e.g., military and police) may partially be due to their access to the most lethal method of suicide—firearms. Further, the differing lethality of suicide means is, in part, believed to contribute to the greater rate of suicide for men (Callanan & Davis, 2012; Denning et al., 2000). Whereas women are three times more likely to attempt

suicide than men, men are three times more likely to die by suicide than women (AFSP, 2020; Canetto & Sakinofsky, 1998). Men are also more likely to attempt suicide via firearm, causing their lower rate of attempt to result in an increased rate of suicide. To understand access to lethal means as an antecedent to suicide (whether workplace or otherwise), researchers must therefore consider the interplay surrounding the type of exposure to lethal means, the extent of exposure to lethal means, and gender. Such considerations are particularly important in countries with easier access to firearms, such as the United States.

Relatedly, post-traumatic stress disorder (PTSD) is a psychiatric disorder triggered by traumatic events, such as witnessing bodily injury or death (Brewin et al., 2017; Kessler et al., 2017). Although military members are known to experience elevated levels of PTSD, the disorder is not limited to the military alone. Instead, PTSD is also frequently observed in police, firefighters, and other similar occupations (Papazoglou & Chopko, 2017; Soomro & Yanos, 2019). PTSD is characterized by an array of detrimental features, including anxiety, depression, and hopelessness. Although these features directly contribute to suicidal ideation and behaviors, they can also impede individuals' ability to develop connections with others—thereby producing psychache (Humensky et al., 2013; Kashiwa et al., 2017). Employees with PTSD can develop effective strategies to manage their PTSD with the help of others, and we discuss steps that organizations can take to aid in this process within our practical suggestions section below.

Additionally, career stage may factor into suicide risk and death. For example, military members have a heightened risk of suicide in the beginning of their careers, and veterans have a heightened risk of suicide when transitioning to civilian life (Griffith, 2017; Griffith & Bryan, 2017; Langhinrichsen-Rohling et al., 2011). Upon entering the military, a poorly performing soldier may struggle to develop a sense of community, and they may feel that their fellow soldiers must compensate for their shortcomings. Such events may evoke feelings of thwarted belongingness and burdensomeness. Similarly, veterans often struggle with adapting when transitioning to civilian life. They may too struggle to develop a sense of community, and researchers have supported that veterans with transferrable work skills are less likely to consider suicide (Humensky et al., 2013; Kerr et al., 2018; Rose, 2015). This may again cause feelings of thwarted belongingness, but it may also cause feelings of psychache because these veterans may not have the skills to satisfy their lower-order needs. As veterans may have become accustomed to death and pain while serving in the military, their acquired capability for suicide may no longer "lay dormant" when they are removed from their social connections and occupational duties, resulting in an elevated desire for suicide (Bryan et al., 2010; Reger et al., 2018). These feelings of thwarted belonging, burdensomeness, and psychache may cause military members and veterans to experience greater suicide rates, in part because of heightened capability for suicide due to their profession, than most other occupations.

Research has also identified increases in suicide when occupations endure systematic hardships resulting in pay reductions and job losses, which is frequently seen in farmers and blue-collar workers. Unemployed individuals are also prone to increased suicide (Nordt et al., 2015; Reeves et al., 2012). We suggest that such life events, especially when occurring on a wide scale, result in psychache and hopelessness. Those enduring financial hardships are often unable to satisfy their basic psychological and safety needs, resulting in psychache, and these people may also experience feelings of hopelessness when prior jobs are unlikely to return and/or employees perceive their skills as not being transferrable. These individuals may also experience perceived burdensomeness if they are otherwise expected to provide for their family, which could devolve into thoughts that their family would be better off without them (e.g., life insurance payout). When this psychache, hopelessness, and perhaps burdensomeness is paired with the acclimation to death and pain that may be common in these jobs (e.g., farmer), these employees are more likely to desire suicide. Feelings of hopelessness may be absolved, however, if government assistance is available for those enduring economic hardships, as prior research has supported that suicide rates have a weaker relationship with unemployment rate in countries with expansive social programs (Kim & Cho, 2017; Noh, 2009).

Lastly, our theoretical framework may also explain greater suicide rates in occupations that are less commonly studied. For instance, greater suicide rates are often observed for veterinarians, and two supported explanations are their performance of euthanasia (Tran et al., 2014; Witte et al., 2013) and limited transferability of skills (Crane et al., 2017). Euthanasia may cause veterinarians to systematically experience an acclimation to death, and it may also provide both access to lethal means and intricate knowledge of lethal doses. Veterinarians' limited transferability of skills may also cause them to perceive their situation as hopeless. Even if a veterinarian wanted to escape their occupation, they may largely be unable to do so. Thus, our theoretical framework may be able to explain elevated suicide in other at-risk occupations.

Work-related predictors of suicide

In addition to identifying the occupations most at risk for suicide, researchers have also focused on uncovering work-related factors that increase suicidal thoughts and behaviors. Specifically, our review uncovered stressors (job insecurity and interpersonal relationships), burnout and fatigue, and job characteristics and physical work environment to be among the most commonly studied predictors in general studies of suicide and work. Prior research has also identified several protective mechanisms that can lessen an employee's risk of suicide, including coping styles and workplace social support, which are important to discuss alongside these other commonly studied predictors.

Stressors

Authors have repeatedly established a link between occupational stress and suicidal ideation (Pienaar et al., 2007; Stanley et al., 2018; Xiao et al., 2017), which corresponds to research showing that the majority of those who survive a near lethal suicide attempt experienced one or more negative life events within 48 h of the attempt (Bagge et al., 2013). Whereas some studies assess job stressors in a

unidimensional manner, many authors consider specific types of stressors to understand their effects on suicidal ideation and desire for suicide, as each type may produce differing relationships and explanatory mechanisms. The two most commonly studied stressors in our review were job insecurity and interpersonal relationships.

Unstable employment can obstruct essential needs such as shelter, security, and safety (Green & Leeves, 2013; Tsurugano et al., 2012), and some authors have shown that the effect of unstable employment is similar to the effect of unemployment on suicide (Kim & Cho, 2017; Min et al., 2015). Those with unstable employment may find it difficult to become accustomed to any situation because it may rapidly change, and they may constantly fear the possibility of losing their job. They may never fully satisfy their safety and security needs unless they can rely on public safety nets (Mäki & Martikainen, 2012), which is not guaranteed. Thus, job instability can be understood as an antecedent to suicide via the inability to satisfy needs and psychache.

Alternatively, interpersonal relationships are clearly associated with the IPTS, as the failure to cultivate friendships can result in thwarted belongingness. It should be noted, though, that two dynamics of interpersonal relationships may have particularly strong effects on suicidal ideation. Workplace ostracism refers to being ignored or excluded by others at work (Ferris et al., 2017; Howard et al., 2020). O'Reilly et al. (2015) supported that being ostracized may have even more negative well-being outcomes than harassment. These authors argued that harassment signals that the focal target matters to others and affects their social environment, whereas ostracism indicates that the focal target is inconsequential to others and plays little role in their interpersonal context. We argue that the same may be true regarding the effect of ostracism on suicidal ideation, as employees may endure extreme feelings of thwarted belongingness when experiencing ostracism. Also, it is often implied and sometimes directly proposed that employees' relationships with their leaders have an exaggerated effect on their interpersonal perceptions, given their leader's position of power (Boxer et al., 1995; Howard et al., 2020; Yang & Wei, 2018). Many researchers have investigated the relation of leadership constructs with suicidal ideation, supporting a link between the two. For instance, military leaders that cultivate meaning in their subordinates' military service is associated with less suicidal ideation via the mediators of thwarted belongingness and perceived burdensomeness (Trachik, Oakey-Frost, et al., 2020; Trachik, Tucker, et al., 2020). This research is still in its infancy, and few leadership constructs have been tested in multiple studies. For this reason, further research is needed on the relation of leadership and suicide, as a link between the two has already been established.

Lastly, other stressors have been intermittently studied (e.g., overtime work and emotional demands), but none frequently enough to draw firm claims regarding their effect on suicidal ideation. For this reason, we discuss other stressors below in our agenda for future research.

Burnout and fatigue

Many sources support a direct relation between burnout and suicidal ideation, which is often stronger than the relationship between stress

and suicidal ideation (Dyrbye et al., 2014; van der Heijden et al., 2008; West et al., 2012). Burnout includes three components: depersonalization, inefficacy, and exhaustion (Maslach et al., 2001; Maslach & Leiter, 2008). Each of these components relates to our theoretical framework. When experiencing depersonalization, employees become socially distant and begin to see others as objects to manage their stress and exhaustion. For instance, a cashier may see their customers as objects to process as quickly as possible, which could enable the cashier to work faster but impedes their desire to build social connections. Doing so, therefore, causes employees to ignore interpersonal relationships, develop feelings of isolation, and perceive a sense of thwarted belongingness. Burnout also produces poor self-perceptions and prevents feelings of accomplishment (i.e., inefficacy). Whether a perceptual bias or actual poor performance, perceived inefficacy can directly produce perceived burdensomeness, especially if employees perceive their coworkers as picking up their slack. Lastly, the central quality of burnout, exhaustion, results in cognitive construction and reduced motivation. Those experiencing burnout are often less likely to identify avenues to reduce their burnout, and they are also less likely to pursue these avenues (Bianchi et al., 2018; Halbesleben & Bowler, 2007; Li et al., 2013). In turn, burnout may produce feelings of hopelessness, as employees may begin to view their conditions as unchangeable.

By and large, burnout has mostly been studied among medical professionals, including physicians, psychiatrists, nurses, and medical students. Not only was burnout associated with predictors of suicide (i.e., hopelessness; Pompili et al., 2006), but it was also predictive of suicidal thoughts and behaviors (Lheureux et al., 2016; Schernhammer & Colditz, 2004; Taghva et al., 2015). Interestingly, across these studies, emotional exhaustion emerged as the strongest predictor of suicide-related outcomes (Lahoud et al., 2019; Lheureux et al., 2016; Wallace, 2017). The high rates of burnout have been attributed, in part, due to highly demanding working conditions, including increased job demands (Jovanovic et al., 2009; Wallace, 2017). Together, burnout has been supported to relate to suicide, and this relation could—and should—be understood via our theoretical framework.

Job characteristics and physical work environment

Job demands are the most studied job characteristic or aspect of the physical work environment, which largely poses the same theoretical implications as the study of stressors (Dawson et al., 2016; Gilboa et al., 2008). The second most studied, however, is job control. Authors often study the relation of job control and suicide in an atheoretical manner or cite the job demand–control model (Karasek, 1979) without fully explicating their effects (Tsutsumi et al., 2007; Yoon et al., 2016). Nevertheless, multiple studies have supported that job control predicts suicidal ideation, but this effect notably weakens when accounting for other relevant predictors, including job demands (Milner et al., 2017; Wallace, 2017). Although commonly studied, the explanatory mechanisms of the relation between job control and suicidal ideation are still uncertain, which requires future research applying our theoretical framework. Specifically, job control can fulfill the

need for autonomy, but it is unclear whether autonomy produces psychache when unfulfilled. Low job control may produce feelings of hopelessness, though, as employees may perceive they have little power over their jobs and no avenue to change their circumstances. The unclear association of job control with our theoretical framework reflects its positioning in the current literature, and identifying its relation with psychache or hopelessness could provide notable benefits.

Other job characteristics have been studied via the lens of work design theory, which proposes that job characteristics produce experienced meaningfulness (Choi, 2018; Humphrey et al., 2007; Milner et al., 2018; Nahrgang et al., 2011). A sense of meaning in life has been shown to mediate the relationship between suicidal ideation and both thwarted belongingness and perceived burdensomeness (Kleiman & Beaver, 2013). Meaningfulness may also prevent psychache and hopelessness. When employees experience meaningfulness, they are invigorated by their work experiences; they may be more likely to satisfy their basic needs and less likely to perceive their situations as unchangeable. It should be noted, however, that job characteristics may inadvertently assess whether occupations satisfy basic psychological needs. That is, a job that provides autonomy and task significance is also more likely to provide stable employment, and unstable employment may even interfere with job characteristics like autonomy and task significance. Assessing autonomy and task significance may therefore also assess satisfying basic psychological needs. Thus, more nuanced research is needed before these assertions regarding meaningfulness can be incorporated into broader theoretical models and frameworks.

Additionally, many authors have expressed an interest in the physical properties of the work environment. Often, these properties are specific to an occupation, such as exposure to excessive noise (Yoon et al., 2014), sunlight (van Wijngaarden & Savitz, 2000), or pesticides (Krawczyk et al., 2014). These studies typically conceptualize these aspects as stressors, but they may also prevent the satisfaction of essential needs. That is, these detrimental properties may cause employees to habitually feel unsafe and, in turn, produce feelings of psychache.

Protective factors

Although less commonly studied than the predictors discussed above, it is necessary to consider both internal and external protective factors of suicide, which refer to factors that mitigate the influence of antecedents on suicidal thoughts and behaviors. Internally, employees have different coping mechanisms, and some are more effective than others (Pienaar et al., 2007; Rathod et al., 2011). Beehr et al. (1995), for instance, created a police occupational coping scale with four dimensions: religiosity, problem-focused (i.e., minimizing the stressor itself), emotion-focused (i.e., minimizing the emotions that result from the stressor), and rugged individualism. They supported that emotion-focused coping had a strong negative relationship with suicidal ideation, whereas the other three coping methods had much weaker relationships. Other authors have similarly shown that various coping approaches have differential impacts on suicide (Pienaar et al., 2007; Rathod et al., 2011). For instance, Pienaar et al. (2007) found that

approach-focused coping reduced suicidal ideation, whereas avoidance-focused coping increased it. In a study of workplace stress among psychiatrists, positive coping strategies included seeking support and socializing, whereas negative strategies included worrying, losing sleep, and being anxious (Rathod et al., 2011). Likewise, Wallace (2017) reported that a supportive work environment acted as an effective coping mechanism for employees. These studies indicate that coping strategies play an important role in suicidal ideation and emphasize the need of adequate coping strategies to prevent or reduce feelings of thwarted belongingness, burdensomeness, hopelessness, and psychache. Therefore, occupations may differ by their applicable coping strategies (Beehr et al., 1995), and even general models of coping strategies may function differently across occupations (Pienaar et al., 2007; Rathod et al., 2011).

Alternatively, external protective factors can also reduce suicide among employees, including work–family balance (Howard & Krannitz, 2017; Kanai, 2009; Wang et al., 2016). Prior research has supported that feelings of poor social relationships at work may produce suicidal ideation, but family and even friend connections can partially reduce feelings of thwarted belongingness and suicidal ideation (Cochrane & Robertson, 1975; Nie et al., 2020). For this reason, businesses should be mindful of work–family balance and permitting their employees to cultivate their personal relationships. Likewise, if workplaces prevent these strong relationships from being developed with family and friends, then employees may have little opportunity to resolve their feelings of thwarted belongingness. The detrimental effects of poor work–family balance may partially explain the relations between working hours and suicidal ideation (Choi, 2018; Kanai, 2009; O'Connor et al., 2000), suggesting that neglecting relationships in any life domain may produce thwarted belongingness, suicidal ideation, and desire for suicide.

Relatedly, for several decades, one of the most commonly studied antecedents of suicide was female labor force participation (Chen et al., 2017; Davis, 1981). Researchers often proposed that working women have worse well-being and greater suicidal ideation, as the strain of occupying two life roles (housewife and worker) produces detrimental effects. Researchers instead observed that working women had greater well-being and less suicidal ideation (Burr et al., 1997). A proposed justification for this observation was that working women had greater agency over their life, and they could better control their own outcomes. We suggest that such effects resulted in working women having less psychache because they could better satisfy their own psychological needs, and they also reduced feelings of hopelessness because they could improve their situations themselves. Research is needed to support these proposals, however, and bring the study of female labor force participation and suicide to a new era.

4 | SUICIDE AND WORK: AN AGENDA FOR CONTINUED RESEARCH

Given the ability of our framework to explain prior results regarding work and suicide, we now consider future directions that can be

studied via the theoretical lens of our framework. We propose that associating our theoretical framework to commonly applied theories in management and applied psychology is the most promising direction for future research. Doing so could link suicide to ample existing knowledge on employees and work, as it would associate suicide with all variables studied under the purview of the extant theories. Below, we discuss these theoretical integrations in the following order based on their relation with variables in our theoretical framework: acclimation to death and pain, thwarted belongingness and burdensomeness, hopelessness, and psychache.

4.1 | Antecedents to acclimation to death and pain

We identified several influences on the acclimation to death and pain in scope of job characteristics and the physical work environment, which were frequent for military members, police officers, farmers, and blue-collar occupations (Krawczyk et al., 2014; van Wijngaarden & Savitz, 2000; Yoon et al., 2014). Our framework can be integrated with job characteristic models and theories to identify additional antecedents of the acclimation to death and pain beyond those presently studied in research (Morgeson & Humphrey, 2006; Nahrgang et al., 2011). When applying work design theory (Humphrey et al., 2007), for example, three aspects that may be relevant to suicide via habituating employees to death and physical pain may be occupational dangers, physical taxation, and poor ergonomics. Although current results on the physical work environment could be interpreted via this lens (e.g., noise and sunlight), research directed by these models and theories is needed to determine whether their broader relationships hold when studying suicide (e.g., mediating and moderating mechanisms). Integrating these theories also emphasizes the need to study narrower aspects of the work environment. For instance, job characteristic models and theories typically do not include exposure to death and/or access to lethal means, although they both are aspects of the work environment. Both of these factors have been supported to predict suicide (Burns et al., 2016; Dul et al., 2012; Miller, 2005), and therefore, future work on the work environment and suicide should consider the manner in which such antecedents can be positioned in broader models of the work environment.

4.2 | Antecedents to thwarted belongingness and burdensomeness

Organizations are social spaces, and the failure to develop meaningful relationships at work can result in thwarted belongingness. Theories previously applied to understand social interactions at work may prove to be useful in understanding thwarted belongingness and suicide. Aquino and Lamertz's (2004) victimization framework was recently applied to understand the antecedents and outcomes of ostracism (Howard et al., 2020), and it proposes two types of victims to workplace mistreatment (including ostracism). Submissive

victims are excessively passive and are unwilling to defend against any mistreatment, whereas provocative victims are excessively aggressive and cause others to retaliate against them. These victim archetypes have been used to identify more specific victim traits and behaviors that precipitate mistreatment (e.g., neuroticism and agreeableness) (Aquino & Thau, 2009; Tepper et al., 2006). In extending this victimization framework, researchers could test whether these archetypes with associated traits and behaviors may incur mistreatment that produces feelings of thwarted belongingness and subsequently suicidal ideation and desire.

Leaders have a powerful influence on the social connections of their subordinates, and leaders can cause followers to even ostracize targeted employees (Howard et al., 2020; Zhao et al., 2019). Leaders are also expected to communicate performance feedback, and they can greatly shift the perceptions of followers regarding their own performance (Li et al., 2011; van den Bossche et al., 2010) or even experienced meaningfulness (Trachik, Oakey-Frost, et al., 2020; Trachik, Tucker, et al., 2020). An abusive supervisor may take feedback opportunities to belittle the employee and make them feel useless (Aryee et al., 2007; Tepper, 2000; Whitman et al., 2014). These prior findings suggest that both thwarted belongingness and burdensomeness can be substantially influenced by leaders, and thereby leadership theories may be insightful to the study of work and suicide. We suggest that theories associated with abusive supervision are particularly relevant. Aquino and Lamertz's (2004) victimization framework also proposes two types of victimizers, domineering perpetrators and reactive perpetrators, which can both exist in leadership roles. Domineering perpetrators resemble the traditional conceptualization of abusive supervisors: coercive, authoritarian, arbitrary, punitive, and stifling. Reactive perpetrators may enact in similar behaviors but only in response to a norm violation or identity threat. As with victims, these two victimizer archetypes can be used to identify traits and behaviors that precipitate abuse, and thereby, Aquino and Lamertz's (2004) victimization framework can identify antecedents of thwarted belongingness and burdensomeness associated with leaders.

Theories used to understand the relation between self-esteem and behaviors may also be informative in understanding perceived burdensomeness, specifically self-consistency theory (Korman, 1970, 1976) and behavioral plasticity theory (Brockner, 1988). Self-consistency theory proposes that individuals behave in manners that are consistent with their self-image and/or shift their self-image to be consistent with their behaviors (Korman, 1970, 1976). A person with a negative view of themselves will often perform worse at work, and a poor performer will often develop more negative views of themselves. Those with a poor self-image may engage in a self-fulfilling prophecy, wherein they perform poorly and subsequently develop feelings of burdensomeness. Alternatively, behavioral plasticity theory proposes that individuals with low self-esteem are more affected by their external environment (Brockner, 1988). In this case, those with low self-esteem may develop a greater sense of burdensomeness when performing poorly at work, as they are more susceptible to signals from their external environment (e.g., supervisor feedback). In both cases, the employee would be more likely to contemplate and

desire suicide due to their perceived burdensomeness. If either of these theories are valid for understanding perceived burdensomeness, then it could also detail the supported relationship between self-esteem and suicidal desire (Wilburn & Smith, 2005; Wild et al., 2004)

4.3 | Antecedents to hopelessness

Several researchers have assessed the effect of career-related variables on suicide, such as job skills and skill transferability (Canu et al., 2019; Crane et al., 2017; Milner et al., 2018). Most of these investigations approach these relations in an atheoretical manner. Instead, we suggest that researchers should integrate career theory and our theoretical framework to better understand these relations, such as the theory of work adjustment (Dawis et al., 1968; Judge, 1994) and social cognitive career theory (Lent et al., 2002). Specifically, many career-related variables may reduce suicidal ideation and desire for suicide by also reducing hopelessness. That is, when employees are better equipped for long-term skill success, they likely view their circumstances are more malleable and correctable—and therein less hopeless. These assertions are supported by extant research demonstrating that occupational therapy can be a suitable approach to reduce suicidal ideation, even for those who have already attempted suicide (Custer & Wassink, 1991; Kashiwa et al., 2017). In these studies, therapists work with clients to reassess their current career trajectory, develop personalized goals, and, in certain circumstances, aid in finding new employment. Therefore, while work may contribute to suicide, work can also prevent suicide.

Similarly, ample research has supported that mentoring relationships can improve employees' development and career growth via informational and instrumental benefits, but they also contribute to well-being by providing psychosocial benefits (Eby & Robertson, 2020; Single & Single, 2005). These relationships with more senior employees can provide career perspective to junior employees. That is, when a setback occurs in the junior employee's career, those with mentors can receive support and reassurance. In turn, this may calm employees when facing difficulties, in addition to any informational and instrumental benefits (e.g., advice and resources). We suggest that the perspective provided by mentors may reduce feelings of hopelessness, as mentors may identify multiple resolutions for the mentees, and their friendship may lessen feelings of thwarted belongingness. These effects may be exacerbated for minority groups, as prior research has supported that minority employees may particularly benefit from mentoring relationships (Dreher & Cox, 1996; Ragins, 1997).

4.4 | Antecedents to psychache

Psychache theory is directly tied to needs-based theories, and we discussed the relevance of Maslow's hierarchy and SDT due to their application in prior suicide research (Hill & Pettit, 2013; Tucker & Wingate, 2014). Needs are pivotal to many other theoretical perspectives and research domains, however. Notably, models of job crafting have increasingly incorporated the role of needs, such as De Bloom et al.'s (2020) Integrative Needs Model of Crafting. This model proposes that individuals develop crafting motives due to needs discrepancies, and the effect of crafting efforts on outcomes is mediated by needs satisfaction. By incorporating this model with our theoretical framework, researchers could test whether job crafting is a viable approach to satisfy needs, reduce psychache, and decrease suicidal ideation, and prevent death by suicide. Similar sentiments could be expressed for other recent studies integrating need satisfaction with job crafting (Bindl et al., 2019; van Wingerden et al., 2017; Zhang & Parker, 2019). Likewise, researchers could even utilize more established models of job crafting (e.g., Wrzesniewski & Dutton, 2001) to identify antecedents and types of job crafting, which could uncover behaviors that employees perform that may ultimately reduce their suicidal ideation via needs satisfaction.

When applying these needs-based theories, it should be emphasized that certain antecedents of other elements within our theoretical framework may also predict psychache. We previously emphasized that unemployment may cause both psychache and hopelessness. Similarly, both Maslow's hierarchy and SDT include interpersonal relationships as an essential need. Although social relationships (or the lack thereof) are often associated with suicide via thwarted belongingness, they may also influence suicide due to feelings of psychache. Similarly, a central element of SDT is choice, as people may explore several avenues to satisfy their needs (Deci et al., 1994; Deci & Ryan, 2011; Ryan & Deci, 2006). It is possible that those who have their needs repeatedly thwarted when choosing multiple avenues to satisfy them, in turn, experience even greater thwarted belongingness and psychache, and these needs-based theories may thereby produce predictions regarding the magnitude of relations rather than their direction alone. Thus, these dual pathways to suicide may partially explain the powerful effects of unemployment and social relationships on suicide and show that antecedent effects on suicide may be more complex than simple mediated relationships.

4.5 | Additional antecedents

Our last points of theoretical discussion regard four aspects that are extremely important to understanding suicide and have been studied in the context of the workplace, but they are less commonly studied in research specifically on work and suicide. The first of these is substance use. It has been estimated that approximately 30% of all suicide attempts involve alcohol (but not necessarily intoxication), and approximately 20% involve opiates (Anestis et al., 2014; Cherpitel et al., 2004; Substance Abuse and Mental Health Services Administration [SAMHSA], 2014, 2016). It is well-known that substance use is influenced by occupational dynamics. Notably, ample research has supported that interpersonal relationships at work can encourage alcohol consumption, even to a dangerous extent (Frone, 2015, 2016; Wang et al., 2010). The interplay of interpersonal relationships, substance use, and suicide appears to implicate workplace dynamics, but

little research has proposed or investigated these linkages—a clear need for future research. Specifically, although substance use is often implicated in suicide attempts, it is also believed to contribute to thoughts of suicide and desire for suicide before the attempt (Cherpitel et al., 2004; SAMHSA, 2014, 2016). Future research should thus assess the role that substance use plays in the link between work and suicide.

Second, those with mental illnesses are more likely to contemplate and attempt suicide. It has been estimated that 90% of adults who die by suicide are suffering from one or more mental illnesses at the time of their death (Bertolote & Fleischmann, 2002), and individuals with mood disorders (e.g., depression and bipolar disorder) comprise about 60% of those with a suicide attempt history yet represent only 20% of the population (HHS, 2020; NIMH, 2020). While this does not indicate that a person with a mental illness will attempt suicide, it does suggest that this population merits additional research. In recent years, researchers have begun to perform more focused research on those with mental illnesses at work (Follmer & Jones, 2018; Johnson et al., 2020). These authors have illustrated that employees with mental illness experience the workplace in unique ways that merit attention from managers and organizations. For example, employees with mental illness are often victims of stereotyping and stigma, which influences their workplace outcomes including task performance, job and career attitudes, and perceptions of employment barriers. Also, the ways in which individuals are treated at work influence suicidal ideation, which is especially concerning for vulnerable employees such as those with mental illness (Follmer & Follmer, 2021; Leach et al., 2017). By attending to the workplace experiences of employees with mental illness, organizations can help improve both their well-being and work-related outcomes. Actions for creating inclusive organizations include stigma reduction training, Employee Assistance Programs, and flexible workplace policies that enable employees to manage their mental illness (e.g., flextime and open door policies; Follmer & Jones, 2020). Going forward, additional research is needed to better understand the ways in which organizations can help prevent suicidal thoughts and behaviors among employees with mental illnesses.

Third, membership in certain social identity groups may increase the risk of suicide-related thoughts and behaviors. For instance, ample evidence has demonstrated that individuals who identify as lesbian, gay, bisexual, transgender, and related communities (LGBT+) are significantly more likely to attempt suicide and to die by suicide compared to heterosexual individuals (Lyons et al., 2019). One reason for these disparities are the internalized and societal stigmas surrounding LGBT+ individuals (Clements-Nolle et al., 2006; Perez-Brumer et al., 2015). Recent findings indicate that LGBT+ individuals were more likely to experience work-related problems prior to dying by suicide (Lyons et al., 2019) and were more likely to report experiences of discrimination and mistreatment at work than non-LGBT+ individuals (Witte et al., 2020), suggesting that the workplace may provide a useful avenue for continued suicide risk prevention and intervention. By creating climates that are inclusive, enforcing zero-tolerance discrimination policies, and attending to the working conditions of LGBT+ employees, organizations can improve the overall work experiences of LGBT+ individuals.

Gender also significantly influences suicide risk and death. In what is known as the gender paradox of suicidal behavior, women are significantly more likely to attempt suicide, whereas men are significantly more likely to die by suicide (Schrijvers et al., 2012). Evidence suggests that motivations underlying suicidal attempts and behaviors vary between men and women, with men significantly more likely to engage in suicide attempts with the intent to die (Freeman et al., 2017). Furthermore, unemployment and occupational factors are significant predictors of suicide deaths among men (but not for women; Qin et al., 2000). Perhaps one reason that gender disparities in suicide deaths persist is that women are much more likely to engage in help-seeking behaviors compared with men (Calear et al., 2014), which has implications for suicide prevention strategies. It should be noted, however, that the decades of research on the gender paradox are void of intersectional understandings and assume the gender binary and general straight/heterosexual orientation. Increased suicide in LGBT+ individuals call to question the simplicity of this paradox and highlight important nuances to understanding gender and suicide. As organizations build suicide prevention programs, it is necessary to take into account how gender influences not only suicidal intent but also help-seeking behaviors.

Lastly, we highlight that every suicide is unique, and a multitude of personal and contextual factors influence a person's decision to attempt suicide. Researchers and practitioners should consider suicide via a person-specific approach (Howard & Hoffman, 2018) or a person-centric lens (Weiss & Rupp, 2011). Although a person may not "check the boxes" regarding the risk-factors of suicide, this does not indicate that they should be ignored altogether, and we stress the importance of healthy, inclusive workplaces to ensure the well-being of all employees—whether demonstrating risk signs or not.

4.6 | Practical suggestions

With theoretical implications and directions for future research noted, we now turn to practical suggestions. These are separated by actions taken before (upstream approaches) and after (postvention approaches) a suicide occurs.

4.6.1 | Upstream approaches

A common idiom is, "An ounce of prevention is worth a pound of the cure," and this may be particularly true for suicide. Many authors have proposed that upstream approaches are most effective to prevent suicide, and workplaces are ideal contexts to apply such approaches (Cwik et al., 2019; Sandler et al., 2016; Wyman, 2014). Public health organizations, such as the Suicide Prevention Resource Center (SPRC), provide recommendations for programs that business can develop to reduce suicide, and we summarize common recommendations below.

Upstream approaches typically take two forms, and organizations should implement both (SPRC, 2015; NAASP, 2015). Businesses can first develop work climates that foster communication, connectedness, and belongingness. It is the responsibility of organizations to ensure that their managers and leaders foster inclusive and psychologically safe environments, and mentoring programs can aid in developing sound interpersonal connections. Suicide may be curbed by simply encouraging friendships among employees. Further, organizations should ensure that they are not restricting social connections that employees can develop with those outside the organization by implementing work–life balance policies. Although it is preferred for employees to feel included at work, relationships with outside friends and family can instill a sense of belongingness that prevents suicidal ideation. Organizations can even develop partnerships with organizations in the community (e.g., universities, faith-based organizations, and minority interest groups) and provide direct avenues for their employees to develop these outside relationships.

Additionally, businesses should develop programs that identify and assist employees that may be at risk for suicide. All organizations should have a designated person that employees can contact when experiencing suicidal ideation, but many organizations also take more proactive approaches to identifying those with suicidal ideation. Some organizations may be wary of directly assessing employee suicidal ideation due to concerns regarding privacy, but businesses could still evaluate employees' workplace stressors and general well-being. Employees with certain stressors, such as those specified in our review, or poor well-being may need assistance to improve their situation. Once identified, organizations could provide solutions to the employees' problems, and they could also utilize support programs. These programs may be created and administered internally, but a growing number of businesses have developed partnerships with outside organizations that provide external support services. These organizations may provide therapy from a licensed psychologist or even peer-support counseling (e.g., incorporating suicide survivors into supportive programming for others at-risk; Hom et al., 2018). Either route, the goal of these programs is to not only identify and address current problems but also to provide employees with the tools and capabilities to address any issues that may arise in the future. Thus, organizations should strongly consider creating such programs if they have not already.

Despite organizations' best efforts, some employees may still feel uncomfortable disclosing their suicidal ideation or behaviors to work colleagues out of fear of being stigmatized or discriminated against (Follmer & Jones, 2020). For instance, employees who have high-level social responsibilities (e.g., physicians, police officers, and teachers) may be fearful that others will no longer trust them to competently complete their job duties after a suicide-related disclosure is made. For these reasons, it is imperative that organizations invest resources in adequately training managers and HR professionals to respond to suicide-related disclosures in order to prevent exacerbating employees' distress after a disclosure is made. Prior research has demonstrated that interventions targeting leaders' mental health literacy have been effective at increasing their self-efficacy and intentions to promote mental health at work as well as at reducing disability claims (Dimoff et al., 2016). Expanding these trainings to include suicide-specific content would be valuable. Because employees may still fail to disclose their suicide-related thoughts and behaviors, it is important that organizations make available resources that employees could access independently and anonymously. At a minimum, providing information regarding suicide hotlines,[2] whether by posting information on public boards, sending emails, or providing pamphlets, could help raise employees' awareness of available support services. Organizations could also provide contact information for local counselors and therapists, along with information regarding the use of insurance for such services.

4.6.2 | Postvention approaches

Although upstream approaches are necessary to prevent suicide, they cannot prevent all suicides. For this reason, businesses must be prepared to apply interventions after a suicide death has occurred, which is called a postvention (SPRC, 2015). Postventions typically have three objectives: facilitate the grieving process, mitigate negative effects of exposure, and prevent subsequent suicides. The most effective postventions are planned ahead, such that strategies are developed, needs are anticipated, and relationships are fostered with relevant parties (e.g., grief counselors). By doing so, organizations can respond more quickly and effectively to a suicide death. The SPRC has developed a Survivor Outreach Team Training Manual (2015) to aid organizations in performing preparatory activities.

Organizations can choose to develop and apply their postventions internally or externally, but postventions are often more effective if they possess certain characteristics. These are fully described in the U.S. National Guidelines provided by the National Action Alliance for Suicide Prevention (NAASP), but we presently present the 15 primary goals of postventions as recommended by the NAASP (2015) in Table 3. These goals are categorized in four strategic directions. Strategic Direction 1 encapsulates Goals 1–4, which focuses on ensuring health and empowered individuals, families, and communities; Strategic Direction 2 encapsulates Goals 5–7, which focuses on clinical and community preventive services; Strategic Direction 3 encapsulates Goals 8–10, which focuses on treatment and support services; and Strategic Direction 4 encapsulates Goals 11–15, which focuses on surveillance, research, and evaluation. By applying these goals, organizations can more fully ensure that their postventions benefit employees and reduce suicide.

4.7 | Methodological considerations

To conclude, we provide methodological considerations for the study of work and suicide. Although any research on work and suicide by management and applied psychology scholars would benefit the current literature, given their current lack of representation, these researchers should be open to methodological approaches and research contexts that may be foreign to these fields of study.

TABLE 3 Recommended postvention goals by the Suicide Prevention Resource Center

	Recommendation
Goal 1	Integrate and coordinate effective suicide postvention activities across jurisdictions, organizations, and systems through increased communication, collaboration, and capacity building.
Goal 2	Communicate accurate and useful information about the impact of suicide on individuals, organizations, and communities; the availability of services for people affected by suicide; and the nature and importance of suicide postvention.
Goal 3	Work to ensure that media, entertainment, and online communications about suicide and its aftermath do not contribute to the distress of people bereaved by suicide or to the risk of suicidal behavior among people exposed to a fatality.
Goal 4	Create the infrastructure and delivery systems for training a wide array of service providers in suicide bereavement support and treatment and in minimizing the adverse effects of exposure to a suicide.
Goal 5	Develop and implement protocols in communities and across caregiving systems for effectively responding at the scene and in the immediate aftermath of all suicides.
Goal 6	Ensure that people exposed to a suicide receive essential and appropriate information.
Goal 7	Develop and implement effective postvention practices in organizational, workplace, and school settings.
Goal 8	Ensure that all support and treatment services delivered to the suicide bereaved are accessible, adequate, consistent, and coordinated across systems of care.
Goal 9	At the level of support services, provide an array of assistance, programs, and resources that help bereaved individuals and families cope with and recover from the effects of their loss to suicide. Services at this level may include information, emotional support, and guidance; psychoeducation about suicide, grief, trauma, and effective self-care; and participation in peer help and other community-based services.
Goal 10	At the level of professional clinical services, provide an array of treatment, programs, and resources that help people affected by unremitting or complicated grief, PTSD, depression, suicidality, and other acute or potentially debilitating conditions.
Goal 11	Design studies of suicide loss survivors using appropriate scientific methods.
Goal 12	Establish valid and reliable estimates of the number of people exposed to suicide and the immediate and longer-term impact of exposure. This includes people (a) exposed to and (b) affected by a given suicide, as well as those who suffer (c) short-term and (d) long-term bereavement complications.
Goal 13	Identify common and unique impacts of suicide bereavement as well as individual difference variables that function as risk factors for or buffers to such effects.
Goal 14	Study the utilization and efficacy of interventions and services designed to assist people bereaved by suicide.
Goal 15	Promote bridging of research and practice by soliciting engagement of relevant stakeholders in scientific studies of suicide loss and intervention.

Note: Due to the severity of suicide and concerns regarding the misrepresentation of any NAASP recommendations, these goals were directly copied from their U.S. National Guidelines (NAASP, 2015).
Abbreviation: PTSD, post-traumatic stress disorder.

Notably, research on unemployment has supported that the unemployed are more likely to contemplate suicide, but research has also supported that the children of unemployed parents are also more likely to contemplate suicide (Agerbo et al., 2002; Christoffersen, 2000). These authors argue that regulatory strategies and coping mechanisms are developed during childhood, and extreme stressors during this period of development may cause children to develop deleterious strategies and mechanisms. Even if these children secure steady employment as adults, they may be conditioned to habitually ruminate on their finances. Although the study of children is uncommon in the field of management and applied psychology, this research context may be necessary to fully understand the relation of work and suicide.

Similarly, interest in the study of employee aging and retirement continues to grow (Fisher & Ryan, 2018; Wang & Shi, 2014). Many authors have identified that the retirement transition can be exciting for some but daunting for others, especially those who derive a great sense of meaning from their employment (Heisel et al., 2020; Page

et al., 2020; Qin et al., 2000). Retirement can cause people to feel that their life no longer has a purpose, but it can also produce feelings of thwarted belongingness and perceived burdensomeness. Workplaces enable people to connect with others, prove themselves to be useful via their work, and obtain a salary that can sustain themselves and their family. When these features are taken away by retirement, people may experience severe distress if they cannot identify other avenues to satisfy their needs. These effects may be exacerbated if the retiree was forced to retire, such as by economic downturns (Page et al., 2020). For this reason, researchers of work and suicide should investigate post-employment dynamics, as this may be a particularly vulnerable time for individuals. Some authors have even identified interventions that can reduce suicide in this population (Heisel et al., 2020), which may be improved by integrating work-related theories.

Subset studies and occupational studies typically pose similar methodological concerns, as both seek in-depth information regarding a specific population similar to a case-study. These studies are not

necessarily meant to apply to other populations, but authors sometimes generalize to these other populations to derive specific inferences regarding a relevant phenomenon. For instance, an author studying homeless individuals may provide insights into the relationship of financial stress and suicide, arguing that extreme instances (e.g., homelessness) may relate to more typical instances (e.g., financial stress). Such generalizations may pose methodological or statistical concerns, such as range restriction, and authors must consider the limits to their generalizations and provide warnings that their results may not apply more broadly.

Alternatively, aggregation studies pose unique methodological and statistical concerns of their own. Aggregation studies run the risk of committing an ecological fallacy, wherein group-level observations are inappropriately used to make inferences about individual-level phenomena (Raudenbush & Bryk, 2002; Snijders & Bosker, 2011). Multilevel research has repeatedly shown the possibility of misleading claims based on inappropriate cross-level inferences, and observed results may even depict the opposite of the true effect when an ecological fallacy is committed (Firebaugh, 1978). Aggregation studies of suicide run the risk of committing such a mistake, as they derive inferences regarding suicide, an individual-level phenomenon, from group-level observations. Furthermore, the study of population-level suicide rates also poses measurement concerns. Countries differ on their recording of suicide, and not all suicides are correctly identified as such. For instance, countries differ on whether suspected suicides are included within suicide reporting statistics, and countries may appear to have greater or lower suicide rates based on the inclusion of suspected suicides. These concerns cause "objective" measures of suicide to possibly be misleading in aggregation studies (Bryan et al., 2014; Hutson et al., 1998; Mazza et al., 2011). Despite their concerns, aggregation studies remain popular, perhaps due to the increasing availability of relevant large-scale datasets.

General studies also suffer from methodological concerns of their own. General studies often rely on self-reported suicidal ideation or attempts. Both employees and employers may be wary of surveys that include items regarding suicide attempts; employees may not reply truthfully, and reaching individuals prior to a suicide attempt or death can be difficult (Husky et al., 2016). Even the way surveys are built may overrepresent or underrepresent the incidence of suicidal thoughts and behaviors (Millner et al., 2015). Further, many general studies compare suicide frequency across occupations by either assessing self-reported suicidal ideation or obtaining obituary reports of suicide decedents. These studies often produce contradicting results, perhaps due to (a) differences in occupations between countries, (b) changes in occupations across time, and/or (c) natural sampling variations. Each of these three possibilities can be addressed by performing more studies on occupation and suicide in various contexts with large sample sizes. In addition, these types of studies can be made more robust by relying on advanced research methods including longitudinal designs and ecological momentary assessment studies, rather than utilizing cross-sectional designs (Davidson et al., 2017). Finally, research on the work and suicide, like suicidology more broadly, rarely incorporates measures of access to lethal means,

specifically firearms. Contemporary suicide prevention research has focused more on access to lethal means, how these means are stored, and familiarity with one's planned means for suicide (Anestis, 2016; Bryan et al., 2011). Future work regarding work and suicide should learn from suicidology's incorporation of assessment tools (both self-report and objective) regarding access to lethal means and implement them in a way to understand this important part of the capability for suicide both in and out of the workplace (Anestis et al., 2020; Anestis & Bryan, 2013).

We further stress that researchers must be careful regarding their measurement of key constructs associated with suicide (Shahnaz et al., 2020). Large-scale mortality databases are often believed to include objective indicators of suicide, but these databases are typically created from death certificates. The information included on a death certificate is decided by a physician or coroner who must make decisions based on their sometimes-limited information, causing these indicators to not be objective (Huguet et al., 2014; O'Carroll, 1989). This concern is exacerbated when making comparisons between independent entities (e.g., states and countries), as the entities may have differing criteria for deaths that constitute a suicide.

Furthermore, measures of suicidal thoughts and behaviors are not free from concerns. Currently, no gold standard exists for the measurement of constructs associated with suicide (Ghasemi et al., 2015). For this reason, Table 4 provides a list of measures for which notable support has been demonstrated, which can guide researchers towards appropriate methodologies in studying the relation of work and suicide. Nevertheless, researchers should continuously be aware of new developments regarding the measurement of suicidal thoughts and behaviors, especially considering research showing that the psychometric properties and validity of these scales may notably differ (Ghasemi et al., 2015; Gutierrez et al., 2019; Savin-Williams, 2001). Regardless of the scale, participants may be hesitant to provide accurate responses regarding suicidal thoughts and behaviors unless entirely assured that their answers are confidential and anonymous, which can reduce the risk of social desirability in responding (Podsakoff et al., 2003). If researchers can identify participants' identities, protocols for responding to individuals with heightened levels of suicidal ideation or suicide attempt behaviors need to be established in advance (to facilitate intervention) as well as shared with participants (so that they can determine whether or not they wish to participate given these conditions). Thus, researchers should also continuously monitor developments to the methodological best practices for the study of suicidal thoughts and behaviors, and it is necessary for researchers and practitioners to be transparent about their use of collected data.

Lastly, we proposed several popular theories and theoretical frameworks in management and applied psychology that could inform research on suicide. Researchers should begin by applying extant measures associated with these theories and theoretical frameworks to determine their relation with constructs associated with suicide; however, it is possible that ceiling effects in these extant measures do not capture extremes. For instance, extant measures developed from

TABLE 4 Selection of measures that assess constructs in the interpersonal-psychological theory of suicide and psychache theory

Measure	Type of measure	Relevant psychometric investigations
Suicidal thoughts and behaviors[a]		
Self-Injurious Thoughts and Behaviors Interview (SITBI)	Adult and youth semi-structured interview and self-report	Nock et al. (2007)
Self-Injurious Thoughts and Behaviors Interview-Revised (SITBI-R)	Adult and youth semi-structured interview and self-report	Fox et al. (2020)
Columbia Suicide Severity Rating Scale (C-SSRS)	Adult and youth semi-structured interview and self-report	Gutierrez et al. (2019), Gutierrez et al. (2020), Madan et al. (2016), Posner et al. (2011)
Suicide Behavior Questionnaire-Revised (SBQ-R)	Adult self-report	Gutierrez et al. (2019), Gutierrez et al. (2020), Rueda-Jaimes et al. (2017)
Self-Harm Behavior Questionnaire (SHBQ)	Adult and youth self-report	Gutierrez et al. (2019), Gutierrez et al. (2020), Muehlenkamp et al. (2010)
Ask Suicide-Screening Questions (ASQ)	Adult and youth semi-structured interview and self-report	Horowitz et al. (2012), Horowitz et al. (2020), Inman et al. (2019)
Thwarted belongingness and perceived burdensomeness		
Interpersonal Needs Questionnaire (INQ)	Adult and youth self-report	Allan et al. (2016) (short-form), Gutierrez et al. (2016), Hill et al. (2015), van Orden et al. (2012)
Broad hopelessness		
Beck's Hopelessness Scale (BHS)	Adult and youth self-report	Balsamo et al. (2020) (brief version), Beck et al. (1974), Thurber et al. (1996)
Hopelessness about thwarted belongingness and perceived burdensomeness		
Interpersonal Hopelessness Scale (IHS)	Adult self-report	Mandracchia et al. (2019), Tucker et al. (2018)
Acquired capability		
Acquired Capability for Suicide Scale (ACSS)	Adult self-report	Gutierrez et al. (2016), Rimkeviciene et al. (2016), Rimkeviciene et al. (2017)
Acquired Capability With Rehearsal for Suicide Scale (ACWRSS)	Adult self-report	George et al. (2016)
Painful and provocative event exposure		
Painful and Provocative Event Exposure Scale (PPES)	Adult self-report	Brown et al. (2018), Poindexter et al. (2017)
Painful and Provocative Event Exposure Scale-Revised (PPES-R)	Adult self-report	Forrest et al. (2019)
Psychache		
Psychache Scale	Adult self-report	Holden et al. (2001)
Unbearable Psychache Scale (UP3)	Adult self-report	Pachkowski et al. (2019)
Orbach and Mikulincer Mental Pain Scale (OMMPS)	Adult self-report	Orbach et al. (2003)
Mee-Bunney Psychological Pain Assessment Scale (MBPPAS)	Adult self-report	Mee et al. (2011)

Note: The measures detailed are not endorsed as "best practices" or as an all-encompassing list of measures but rather a brief survey of measures that have received significant evaluation.
[a]Extensive reviews of measures that assess suicidal thoughts and behaviors were published in 2001 (Brown, 2001) and 2015 (Batterham et al., 2015).

SDT for relatedness may gauge general feelings of social connections, but they may not differentiate those who feel ostracized from those who are generally dissatisfied with their social relations. For this reason, researchers may discover smaller-than-expected relations between these extant measures and constructs associated with suicide, such as thwarted belongingness and even suicidal ideation and behaviors. Future researchers should assess the qualities of items within extant measures to determine whether revised scales could produce stronger and more accurate relations between these constructs, such as using item response theory to determine whether inclusive items assess the entire range of the relevant constructs (Embretson & Reise, 2013; van der Linden & Hambleton, 2013).

Likewise, they should also assess whether constructs similar to those in widespread frameworks may be more suitable to study alongside suicide. For instance, it may be more appropriate to incorporate the tenets of SDT to assess the relation of workplace ostracism and suicide, as ostracism can be considered an extreme lack of relatedness, and it has already been shown to produce large negative effects on psychological well-being (Ferris et al., 2017; Howard et al., 2020; O'Reilly et al., 2015). If initially supported, SDT could then be continuously used to obtain a more nuanced view of this relation. Thus, the study of suicide and work could be benefited by empirical research into the psychometrics of extant measures as well as "extreme" versions of constructs in psychological theory.

Relatedly, it may be helpful for researchers to assess measures and test constructs within populations that are most vulnerable for experiencing suicidal ideation or behaviors (e.g., individuals with mental illness; Follmer & Follmer, 2021). It cannot be assumed that measures function similarly across all populations, and it likewise cannot be assumed that constructs demonstrate the same predictive abilities across all populations (Howard & Hoffman, 2018). Nuanced investigations into relevant populations can derive great insights into suicide for those individuals, and researchers should not make assumptions regarding the utility of measures and constructs for these populations from results discovered in the general population.

5 | CONCLUSION

Our goal was to develop a framework that can be broadly applied to understand the relation of work and suicide. We applied the IPTS and psychache theory to achieve this goal, which we then supported via a systematic literature review. This review showed that much existing research on work and suicide could be understood via our framework, and we identified many research directions. Thus, our framework is an effective means to organize existing research and a roadmap for future inquiry among management and applied psychology scholars.

DATA AVAILABILITY STATEMENT

Data S1 provides coding results regarding the articles included in the current systematic literature review. Any questions or requests regarding the systematic literature review can be directed to the primary author, Dr. Matt C. Howard (mhoward@southalabama.edu).

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ENDNOTES

[1] We recognize that the Defense Technical Information Center database includes unpublished reports on the relation of work and suicide, particularly in the context of the military. Although we did not use this database in the current article, we encourage future researchers to perform similar systematic reviews including this database.

[2] Suicide hotlines differ by country and perhaps even areas within countries. For this reason, organizations should ensure that they provide the correct suicide hotline information, and two helpful resources to achieve this goal are http://www.suicide.org/international-suicide-hotlines.html and https://en.wikipedia.org/wiki/List_of_suicide_crisis_lines.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.