

NO EMPLOYEE AN ISLAND: WORKPLACE LONELINESS AND JOB PERFORMANCE

HAKAN OZCELIK
California State University, Sacramento

SIGAL G. BARSADE
University of Pennsylvania

This research investigates the link between workplace loneliness and job performance. Integrating the regulatory loop model of loneliness and the affect theory of social exchange, we develop a model of workplace loneliness. We focus on the central role of affiliation in explaining the loneliness–performance relationship, predicting that despite lonelier employees’ desire to connect with others, being lonelier is associated with lower job performance because of a lack of affiliation at work. Through a time-lagged field study of 672 employees and their 114 supervisors in two organizations, we find support that greater workplace loneliness is related to lower job performance; the mediators of this relationship are lonelier employees’ lower approachability and lesser affective commitment to their organizations. We also examine the moderating roles of the emotional cultures of companionate love and anger, as well as of the loneliness of other coworkers in the work group. Features of this affective affiliative context moderate some of the relationships between loneliness and the mediating variables; we also find support for the full moderated mediation model. This study highlights the importance of recognizing the pernicious power of workplace loneliness over both lonelier employees and their organizations. We offer implications for future research and practice.

“No man is an island, entire of itself; every man is a piece of the continent, a part of the main.”

John Donne, 2012 [1624]

Loneliness—“a complex set of feelings that occurs when intimate and social needs are not adequately met” (Cacioppo et al., 2006: 1055)—is an aversive psychological state. Psychologists have long studied the painful experience of loneliness and its outcomes (see Cacioppo & Patrick, 2008; Heinrich & Gullone, 2006 for reviews). Surprisingly, though, there has been very little examination of the processes and outcomes of loneliness in the workplace, even though most people spend a large part of their lives at work. Better understanding loneliness at work is important given the myriad pernicious emotional, cognitive, attitudinal, and behavioral outcomes that have been found as a result of being lonely (Cacioppo

& Patrick, 2008; Hawkley & Cacioppo, 2010; Heinrich & Gullone, 2006; Masi, Chen, Hawkley, & Cacioppo, 2011). These negative outcomes occur because people have an innate, primary drive to form social bonds and mutual caring commitments (Murray, 1938; Schachter, 1959), and they suffer when these social bonds do not meet their expectations or their need to belong (Baumeister & Leary, 1995), including at work (Barsade & O’Neill, 2014; Chiaburu & Harrison, 2008; Dutton & Heaphy, 2003; Wright, 2012).

This inquiry into the processes and outcomes of loneliness in the workplace is also important as loneliness has been characterized by scholars, as well as by the U.S. Surgeon General (Murthy, 2017), as “a modern epidemic” in need of treatment (Killeen, 1998). Loneliness is experienced by adults of all ages (Masi et al., 2011), with no sign that loneliness levels are abating (see Qualter et al., 2015 for a review).

Because loneliness is a relational construct (Weiss, 1973), it influences not only how lonelier people feel about themselves, but also how they feel about and behave toward others (Cacioppo & Hawkley, 2009; Jones, 1982; Jones & Hebb, 2003), and, importantly, how others feel about and behave toward them

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(Heinrich & Gullone, 2006). That broader impact makes loneliness particularly relevant to examine at work, since connection with others has been found to be an inherent part of employee motivation and satisfaction (Dutton & Heaphy, 2003). Indeed, we know from some of the earliest field studies in management that employees are driven not only by economic needs but also by the need to establish relationships and social attachments (Gouldner, 1954; Mayo, 1949). Given the pervasive and pernicious influence of loneliness in other life domains, and given how much time employees spend at work with each other, the investigation of workplace loneliness is important.

To better understand the relationship between workplace loneliness and employee attitudes, behavior, and performance, and to build our model of workplace loneliness, we draw from two theoretical traditions. The first comes from the nearly 40 years of psychological research tying greater loneliness to lowered affiliation (e.g., Cacioppo & Patrick, 2008; Heinrich & Gullone, 2006 for reviews), specifically Cacioppo and Hawkley's (2009) *regulatory loop model of loneliness*, which describes the psychological mechanisms within lonelier people. The second is the *affect theory of social exchange* (Lawler, 2001, 2006; Lawler & Thye, 2007), a sociological theory that takes into account the role of other people's thoughts about the lonely person. We integrate these theories to build and empirically test a model of workplace loneliness that helps explain why lonelier employees are less affiliative—and why that lack of affiliation relates to poorer job performance. Through this process, we aim to extend our knowledge in three domains. First, by improving our knowledge about loneliness in organizational settings, we aim to contribute to a more nuanced understanding of how affect is related to job performance (Elfenbein, 2007), and address the call for greater study of the outcomes of discrete affect at work (Barsade & Gibson, 2007). Second, because of the relational nature of loneliness, we add to the emerging theorizing about relational systems at work (Dutton & Heaphy, 2003; Grant & Parker, 2009) by better understanding how an employee's relational environments can include feelings of lack of affiliation and disconnection. Last, we contribute to the loneliness literatures in psychology and sociology by expanding our understanding of this powerful social emotion to the workplace context.

THE NATURE OF LONELINESS

We take an affective prototype approach to loneliness (Heinrich & Gullone, 2006; Horowitz, French,

& Anderson, 1982). According to affective prototype theory, each type of discrete affect is determined by a cluster, or prototype, of features that distinguish it. These features include all aspects of the affective experience: feeling states, physiological markers, and cognitive and behavioral categories (Shaver, Schwartz, Kirson, & O'Connor, 1987). The affective prototype model is broad enough to encompass affect as a state (including emotions and moods), a trait (dispositional affect), or a sentiment (evaluative affective responses to social objects)—all depending on the specific affect's intensity, duration, specificity, and evaluative focus (Barsade & Gibson, 2007). Loneliness, similar to other types of affect,¹ has been characterized as a state and a sentiment, but is generally not thought of as a trait (although it can be chronic) (Peplau & Perlman, 1982; Spitzberg & Hurt, 1989). The prototype model of loneliness also comports with the most cited definition of loneliness, which requires three key components: (1) an unpleasant and aversive feeling, (2) generated from a *subjective* negative assessment of one's overall relationships in a particular social domain, and (3) a belief that these social relationships are deficient (Peplau & Perlman, 1982). Defining loneliness through this affective prototype lens, we take into consideration the feelings loneliness arouses, the cognitions that comprise it, and the behaviors it evokes.

Because loneliness is a subjective experience, an employee does not have to be alone to feel lonely, and lonely employees can be lonely even when interacting frequently with many others if these interactions do not provide lonelier employees with their desired level of closeness (Fischer & Phillips, 1982). Whether employees feel lonely depends on the level of closeness, security, and support they seek in their interpersonal relationships (Jones & Hebb, 2003). Thus, the same work environment could fulfill the interpersonal needs of some employees while leaving other employees lonely.

Distinguishing Loneliness from Related Constructs

We differentiate workplace loneliness from related constructs such as workplace ostracism, which is an employee's perception that she or he is being intentionally excluded or ignored by others at work

¹ We intentionally use the term "affect" as an "umbrella term encompassing a broad range of feelings that individuals experience," including discrete emotions and generalized mood (Barsade & Gibson, 2007: 37).

(Ferris, Brown, Berry, & Lian, 2008). Ostracism differs from loneliness, the subjective nature of which makes it possible for two equally ostracized employees to feel different levels of loneliness—and for employees to feel lonely without being ostracized at all. Empirical research examining these constructs together has found moderated relationships between the two (Wesselmann, Wirth, Mroczek, & Williams, 2012), and ostracism by others has been discussed as an antecedent to loneliness (Leary, 1990), but loneliness and ostracism have not been found either theoretically or empirically to be the same construct (Wesselmann et al., 2012; Williams, 2007).

Loneliness is also neither a form of depression nor a personality trait. Cacioppo and Patrick (2008) offered compelling evidence that although loneliness is related to these constructs (and loneliness predicts depression [Nolen-Hoeksema & Ahrens, 2002]), conceptions of loneliness as a form of depression, shyness, or poor social skills are inaccurate (Anderson & Harvey, 1988; Hawkley, Burleson, Berntson, & Cacioppo, 2003; Hawkley & Cacioppo, 2010). There is also much evidence across myriad studies that loneliness is not a disposition, and differs from personality traits such as negative affectivity, introversion, and disagreeableness (e.g., Cacioppo et al., 2006; Russell, Peplau, & Cutrona, 1980). Last, loneliness differs from solitude (Heinrich & Gullone, 2006), which, contrary to loneliness, is a pleasant, desirable and freely chosen state (Derlega & Margulis, 1982).

WORKPLACE LONELINESS: A CONCEPTUAL MODEL

Loneliness researchers have found that people experience different levels of loneliness in different domains of their lives, such as family life, the romantic realm, and the social domain (DiTommaso & Spinner, 1993). In line with this research, we focus specifically on the workplace domain, and conceptualize degree of workplace loneliness as *employees' subjective affective evaluations of, and feelings about, whether their affiliation needs are being met by the people they work with and the organization they work for.*

Affiliation, a central influence on human behavior (Hill, 1987), is the degree to which people have close interpersonal bonds, harmonious relationships, and a sense of communion with others (Depue & Morrone-Strupinsky, 2005; Mehrabian & Ksionzky, 1974; Murray, 1938). Motivated by the desire for social contact and belongingness (Murray, 1938; Schachter, 1959), affiliation is a key component of

social interactions (Hess, 2006; Mehrabian & Ksionzky, 1974) and largely explains how loneliness influences life outcomes (Weiss, 1973). Affiliation manifests in two major ways: through attitudes and behaviors. Affiliative attitudes reflect how close and attached people feel to their social environments (Freeman, 1992), which, within the work context, we operationalize as employees' affective commitment to the organization (Allen & Meyer, 1990). Affiliative behaviors manifest in people's behavioral expressions of attachment and involvement in social interactions, particularly those expressions that indicate closeness (Mehrabian & Ksionzky, 1974). Inherent to the behavioral manifestation of affiliation is having others perceive you as being approachable, both verbally and nonverbally (Mehrabian & Ksionzky, 1974; Wiemann, 1977). Therefore, in the work context, we operationalize affiliative behaviors as an employee's affiliative approachability toward coworkers (which we refer to as "employee approachability" for conciseness).

We hypothesize that the workplace loneliness–affiliation relationship is related to work outcomes. Because loneliness arises from a person's basic need to belong to a social environment in which he or she feels psychologically secure and protected (Baumeister & Leary, 1995), it can be adaptive by increasing the lonely person's motivation to build or rebuild affiliations—but only if experienced as a short-lived emotion (Cacioppo et al., 2006; Qualter et al., 2015), such as feeling lonely for an afternoon, or in the first days of starting a new job. However, one of the most robust findings in the loneliness literature (e.g., Cacioppo & Patrick, 2008; Heinrich & Gullone, 2006; Jones & Hebb, 2003; Qualter et al., 2015) is that when loneliness becomes a more established sentiment—that is, a valenced assessment and comprising feelings about a particular group or interpersonal setting (Frijda, 1994)—it actually has the opposite effect, *impeding* the satisfaction of belongingness needs "through faulty or dysfunctional cognitions, emotions, and behaviors" (Heinrich & Gullone, 2006: 698). This occurs when people come to believe that the meaningful social connections they want are not available; their fear, hypervigilance, and subjective feelings of rejection cause them to withdraw and give up on building the very interpersonal relationships they crave (Masi et al., 2011).

Theoretical Framework

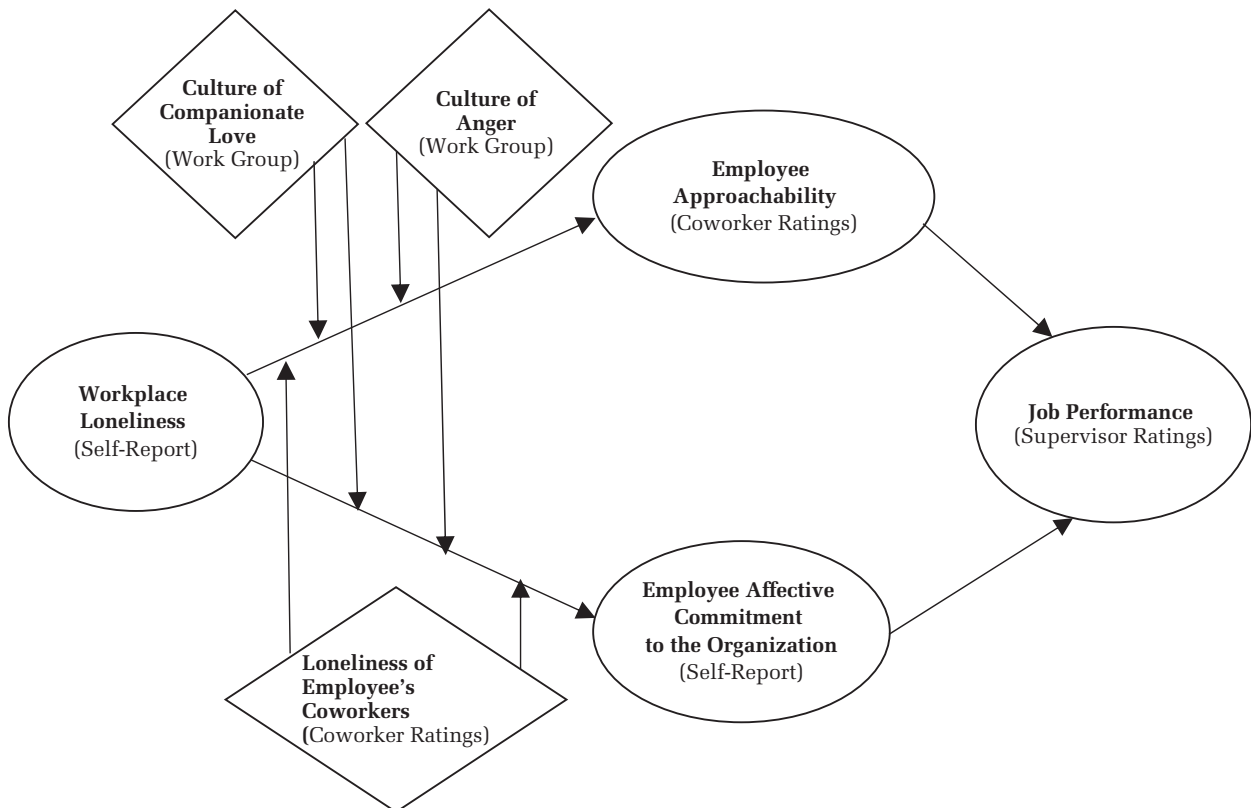
By combining these two theories relevant to our questions about workplace loneliness—the

psychologically oriented regulatory loop model (Cacioppo & Hawkley, 2009) and the interpersonally and contextually oriented affect theory of social exchange (Lawler, 2001)—we build a model of workplace loneliness showing that greater workplace loneliness predicts lower job performance, as mediated by lower employee affiliation (both attitudinal and behavioral). In addition, we predict that two situational factors moderate the relationship between workplace loneliness and lowered affiliation: the emotional culture of the employee’s work group (culture of anger and culture of companionate love) and the aggregate loneliness of other employees in the employee’s work group. We elaborate upon our model of workplace loneliness below (see Figure 1).

Regulatory loop model of loneliness. In their regulatory loop model of loneliness, Cacioppo and Hawkley (2009) showed that once people have made the evaluation that their relational needs are not being met, and that a particular context makes them feel lonely, they develop an acute need to feel psychologically protected and secure. This makes lonelier people more vigilant and defensive about

interpersonal relationships, prompting them to continually appraise situations to see whether these relationships can meet their belongingness needs and alleviate their loneliness (Weiss, 1973). Because loneliness is often accompanied by a “perception that one is socially on the edge and isolated from others” (Cacioppo, Grippo, London, Goessens, & Cacioppo, 2015: 243), lonelier people are overly vigilant to social threats, although not to other types of threat (Cacioppo, Balogh, & Cacioppo, 2015; Cacioppo, Bangee, Balogh, Cardenas-Iniguez, Qualter, & Cacioppo, 2016). This social hypervigilance leads them to fall prey to socially based attentional, confirmatory, and memory biases, all of which induce them to view their “social world as threatening and punitive” (Cacioppo & Hawkley, 2009: 451). As a result, lonelier people become less secure in social interactions (Hawkley et al., 2003) and more anxious about being negatively evaluated by others (Cacioppo et al., 2006; Cacioppo & Patrick, 2008; Jones, 1982). This socially anxious state leads lonelier people to be more likely to engage in inappropriate self-disclosure patterns (Jones, Hobbs, & Hockenbury, 1982) and to show other deficits in

FIGURE 1
Conceptual Model of Workplace Loneliness



social skills (Bell, 1985; Russell et al., 1980) that undermine their social interactions by eliciting more negative feelings, displays, and behaviors on the part of others (see Heinrich & Gullone, 2006 for a review).

In short, loneliness can create a hard-to-break cycle of negative social interactions, whereby greater loneliness causes more intrapsychic negative attributions about others, which prompt awkward or negative behaviors that actually breed less affiliation (Masi et al., 2011), which in turn gets reciprocated in kind (Mehrabian & Ksionzky, 1974; Perlman & Peplau, 1981). Thus, the people who most need to build secure relationships have the most trouble doing so (Rokach, 1989).² The memoirist Emily White (2010: 161) described the bitter irony of this loneliness cycle at work:

Out of everyone [in the group], I was probably the one who needed sociability the most... Yet when confronted with [others] who wanted to get close to me, I retreated into a stiff and stammering version of myself, and became oddly resentful of the people who were trying to befriend me... [M]y loneliness was altering my behavior and my perceptions of others.

Although the regulatory loop model of loneliness does an excellent job of explaining the maladaptive psychological motivations of lonely employees, this model alone is not enough to predict the effects of workplace loneliness on job performance. This is because it does not focus on the interpersonal nature of work—that is, the expectations that employees have of each other in their workplace interactions. The regulatory loop model also does not explain how the lack of affiliation employees feel toward their work group extends to a lowered commitment to the larger organization. To fill these gaps, we turn to the affect theory of social exchange, which provides a more interpersonally and contextually oriented lens through which to understand the affiliative and performance outcomes of loneliness within the social context of organizations.

Affect theory of social exchange. Lawler's (2001) affect theory of social exchange “explains how and when emotions produced by social exchange generate stronger or weaker ties to relations, groups, or networks” (321). The theory posits that social

exchanges between people produce positive or negative feelings (Lawler & Thye, 1999), which individuals in the exchange consider either intrinsically rewarding or punishing (Lawler, 2001; Lawler & Thye, 2007). The global feelings arising from these social exchanges then trigger cognitive attributional efforts to understand the sources or causes of these feelings, and these attributions influence how people assess their relations with specific others (such as members of their work team), as well as with their broader group (their organization as a whole) (Lawler, Thye, & Yoon, 2008). When negative feelings predominate, therefore, people decide that certain relationships are not worth the effort, and this decision fans out to ever-widening circles of potential connections.

All of this occurs through the process of affiliation (or disaffiliation), and affiliation in turn predicts prosocial behavior. Positive feelings experienced by a person from interactions with others within the group will be related to stronger affiliative attachments to the individuals in the group and organization, leading to a greater exchange of affective and helping resources (Lawler, Thye, & Yoon, 2014). Conversely, negative feelings, such as greater loneliness, will be related to weaker attachments, less affiliation (Lawler, 2006), and less exchange of affective and other help. The affect theory of social exchange shares with the regulatory loop model of loneliness the notion that affiliation (or its absence) is the key process resulting from an evaluation of one's social connections, and thus influences the quality of a lonely person's relationships. However, the affect theory of social exchange goes further by analyzing these feelings in a broader interpersonal context. This broader context is especially important in building a workplace model of loneliness because workplaces depend heavily on interpersonal exchange relationships. By considering the role of a lonely worker's coworkers, the affect theory of social exchange helps us make better predictions about the relationship between loneliness and job performance. In particular, this theory reinforces the role of affiliation, which also helps to explain why coworkers notice and care that their lonelier colleagues are less approachable, and why less approachability relates to lonelier employees' lowered job performance. Furthermore, by considering attributional processes, the affect model of social exchange (unlike the regulatory loop model) helps explain why the lower affiliation lonelier employees feel toward their immediate coworkers extends to lower affective commitment to the organization as

² Research has found that the reason why lonely people cannot get themselves out of this negative regulatory loop has to do with their attributions. They feel unable to change their situation because they attribute their loneliness to perceived lack of control, which leads to lower expectations of success and thus lower motivation to engage (see Heinrich & Gullone, 2006 for a review of this literature).

a whole. Below, we elaborate on how each of the processes above is uniquely explained by the affect theory of social exchange, by the regulatory loop model, and by the complementary predictions made by both models.

Greater Employee Workplace Loneliness Related to Lower Employee Approachability

The affect theory of social exchange argues that depending on their expected outcomes in a possible exchange relationship, people make decisions about whether to exchange, with whom, and under what conditions (Lawler, 2001). As the regulatory loop model of loneliness (Cacioppo & Hawkley, 2009) highlights at the psychological level, employees experiencing greater work loneliness will likely evaluate their previous social exchanges with coworkers as negative (“When we get together, I feel bad”); therefore, lonelier employees will tend to withdraw from existing relationship opportunities. In addition, lonelier employees will expect the worst in the future, causing them to continue to withdraw—a tendency exacerbated by deficits in their social skills caused by the loneliness itself (Bell, 1985; Russell et al., 1980). For example, lonelier people have been found to have more problems in taking part in groups, being friendly, introducing themselves, and making friends with others (Horowitz & French, 1979). This is despite the fact that lonelier people do *not* have inferior social skills to begin with (Cacioppo & Hawkley, 2005). Rather, as they become lonelier, their preoccupation with their own feelings can lead to deficits in empathy for others (Jones et al., 1982), impeding their capacity to connect successfully and to be perceived as affiliatively approachable (Bell, 1985; Mehrabian & Ksionzky, 1974). For example, lonelier people have been found to respond more slowly to conversation partners, ask fewer questions, and focus more on themselves compared to less lonely people (Jones et al., 1982).

Because of the importance of affiliation as a major resource exchanged in social relationships (Foa & Foa, 1974), people are quite accurate in perceiving, recording, and recalling other people’s affiliative patterns in their social environment (Freeman, 1992). For example, people continually evaluate the level of affiliation they maintain with others in their social interactions by paying close attention to the verbal and nonverbal cues they receive (Miles, 2009). Therefore, our model predicts that when lonelier employees show a lack of affiliative behaviors, their coworkers take notice. Specifically, they

perceive lonelier employees as less affiliatively approachable—less available for close interpersonal work bonds, personal communion with others, and harmonious relationships.

Hypothesis 1. Employees who experience higher levels of workplace loneliness will be less affiliatively approachable toward their coworkers (employee approachability).

Greater Workplace Loneliness and Reduced Affective Commitment to the Organization

Affective commitment refers to an employee’s affiliation with, emotional attachment to, identification with, and involvement in his or her organization through feelings (such as belongingness, affection, and warmth) that lead to a rewarding work experience (Meyer & Allen, 1997). We predict that employees who experience loneliness in their work groups will reduce their affective commitment to the organization for both psychological and interpersonal reasons.

As predicted by the regulatory loop model of loneliness, the social hypervigilance of lonelier people (Cacioppo & Hawkley, 2009) leads to their affective and attitudinal withdrawal from the groups of which they are a part. The attributional processes described by the affect theory of social exchange explain how this group-level reduction in affective commitment leads to a reduction in affective commitment to the organization as a whole. Specifically, people generalize from their smaller dyadic or group-level exchanges to the broader group (Lawler, 2001; Lawler & Yoon, 1996). Because the feelings that arise from social exchanges trigger cognitive efforts to understand the sources or causes of these feelings, people tend to interpret and explain these feelings with reference to the larger social units in which they are embedded, such as an organization (Lawler, 2006). As a result of being lonely in their work group, lonelier employees assume that the probability of a positive exchange with others across the organization is also lower, and will project the responsibility for their current loneliness onto the broader organization. This attribution leads them to be less willing to invest themselves emotionally, and thus to lower their affective commitment to the organization as a whole (Lawler, 2001).

Hypothesis 2. Employees who experience higher levels of workplace loneliness will be less affectively committed to their organization.

Greater Workplace Loneliness and Reduced Employee Performance: The Mediating Role of Employee Approachability and Employee Affective Commitment to the Organization

We predict that lower employee approachability will negatively relate to the employee's job performance. A growing stream of research has shown that employee job performance is significantly tied to an employee's ability to build and maintain a relational support system and interpersonal networks (Chiaburu & Harrison, 2008; Grant & Parker, 2009; Kahn, 2007). The regulatory loop model of loneliness predicts that lonelier employees are less approachable; the affect theory of social exchange predicts that coworkers will notice this lowered level of approachability as a deficit in the exchange relationship, and that they will withdraw in response (Lawler et al., 2014). Indeed, lonely behavior evokes negative social responses in others (Perlman & Peplau, 1981) and less interest in future interactions from others (Bell, 1985), who view lonelier people as harder to get to know. This reciprocal process impairs the normal development of social relationships (Solano, Batten, & Parish, 1982). Yet the exchange of interpersonal resources in work teams (Seers, 1989) has been found to positively influence performance outcomes by enabling employees to receive more guidance and emotional support (Liden, Wayne, & Sparrowe, 2000), greater help with the work itself (Kamdar & Van Dyne, 2007), engagement in better communication, coordination, and balance of team member contributions (Hoegl & Gemuenden, 2001), greater usage of teammates' resources and task information (Farh, Lanaj, & Ilies, 2017), and better opportunities to develop creative ideas (Grant & Berry, 2011). Therefore, we predict that lonelier employees' lower approachability reduces the ability of these employees to receive relational and task resources from their coworkers, thus harming their job performance.

Hypothesis 3. Employees who are lonelier at work will have poorer job performance, as partially mediated by their lower approachability towards their coworkers.

We also hypothesize that lonelier employees will be less likely to perform effectively because of their reduced affective commitment to the organization. As suggested by the regulatory loop model of loneliness (Cacioppo & Hawkley, 2009), the cycle of negative social interactions experienced by lonelier employees will fuel their sense that their work environment is not meeting their relational needs. This

appraisal, according to the affect theory of social exchange (Lawler et al., 2008), will lead lonelier employees to attribute their negative feelings to their overall organization; thus, the impaired social exchange relationship between an employee and his or her organization relates to a withdrawal of support and effort from the employee (Van Dyne, Graham, & Dienesch, 1994). Employees with less affective commitment to the organization have been shown to undertake fewer extra-role duties and to have greater absenteeism and turnover (Hackett, Bycio, & Hausdorf, 1994; Meyer, Stanley, Herscovitch, & Topolnytsky, 2002). Especially important for our prediction, they have also been found to put in less effort and to perform at lower levels (Meyer, Paunonen, Gellatly, Goffin, & Jackson, 1989). Indeed, in a meta-analytic review of the influence of commitment on work outcomes, Meyer et al. (2002) determined that of all types of commitment, affective commitment to the organization had the most consistent and significant relationship with employees' job performance.

Hypothesis 4. Employees who experience higher levels of workplace loneliness will have poorer job performance, as partially mediated by their lower levels of affective commitment to the organization.

The Importance of the Broader Affective Affiliative Context as a Moderator of the Workplace Loneliness–Affiliation Relationship

A basic premise of the affect theory of social exchange is that the interpersonal context and social norms in which the relationship is embedded are important to how people evaluate their exchange relationships and subsequent affiliative responses (Lawler et al., 2008). Complementing this view at the psychological level, the regulatory loop model of loneliness (Cacioppo & Hawkley, 2009) suggests that lonelier people frequently appraise their environment for potential social threats (Cacioppo & Hawkley, 2009; Cacioppo et al., 2016; Jones, 1982; Weiss, 1973) and appraise other people's potential for making the needed relationships available (Cacioppo et al., 2006; Heinrich & Gullone, 2006; Russell et al., 1980). Therefore, both theories would predict that the affiliative context of the lonely employees is an important factor in explaining how affiliative they will ultimately feel. Supporting this, in one of the few examinations of loneliness at work, Wright (2015) directly theorized that the organizational context of lonelier employees would

influence their subsequent work responses. Drawing on these ideas, we examine the employee's affiliative context, which we operationalize as the emotional culture of the work group and the degree of loneliness of other coworkers in the employee's work group.

Work group emotional culture as a moderator of the employee workplace loneliness–affiliation relationship. We focus on the role of emotional culture as a moderator of workplace loneliness and affiliative attitudes and behaviors—specifically the emotional culture of companionate love and the emotional culture of anger. Because both companionate love and anger are other-focused and affiliation-oriented, both these social emotions are relevant to loneliness and its affiliative outcomes (Barsade & O'Neill, 2014; Smith & Lazarus, 1993).

Emotional culture of companionate love. Barsade and O'Neill (2014) defined an emotional culture of companionate love as:

the behavioral norms, artifacts, and underlying values and assumptions reflecting the actual expression or suppression of affection, caring, compassion, and tenderness, and the degree of perceived appropriateness of these emotions, transmitted through feeling and normative mechanisms within a social unit. (558)

A stronger emotional culture of companionate love encourages harmonious relationships, a sense of community, and greater affiliative behaviors (Barsade & O'Neill, 2014), which should increase organizational members' capacity to respond to each other's relational needs. The fact that workplace loneliness can exist even in a strong emotional culture of companionate love shows that such a culture is not a perfect antidote to loneliness. However, the values, norms, and caring behaviors in a strong versus weak emotional culture of companionate love would offer the expectation of a greater level of compassion and tenderness being expressed by employees, thus mitigating, rather than strengthening, the negative cycle predicted by the regulatory model of loneliness. There is recent empirical support for this buffering influence of an emotional culture of companionate love. In a study examining firefighters coping with intense work–family conflict (a different type of emotional vulnerability), a stronger emotional culture of companionate love buffered against the ill effects of firefighters suppressing their emotions about this conflict and subsequent health problems (O'Neill & Rothbard, 2017). In addition, the

normative mechanisms of an emotional culture of companionate love could encourage lonelier employees to appear approachable to better fit into the culture.

We also predict that because employees in a stronger emotional culture of companionate love believe that their colleagues are trying harder to connect (Barsade & O'Neill, 2014), lonelier employees will have fewer negative attributions about their work group. Under these circumstances, the affect theory of social exchange (Lawler, Thye, & Yoon, 2008) suggests a weaker relationship between greater workplace loneliness and employees' lowered affective commitment to the organization as a whole. We predict the opposite for a weaker emotional culture of companionate love—a culture characterized by indifference and callousness among employees (Barsade & O'Neill, 2014): because of the heightened self-protective tendencies and vigilance evoked by a weaker emotional culture of companionate love, there will be a stronger negative relationship between greater workplace loneliness and affiliative outcomes.

Hypothesis 5. The emotional culture of companionate love in an employee's work group will moderate the negative relationship between employee workplace loneliness and (a) employee approachability and (b) employee affective commitment to the organization. Specifically, a stronger emotional culture of companionate love will lessen the negative relationship between workplace loneliness and these affiliative outcomes, whereas a weaker culture of companionate love will increase the negative relationship between workplace loneliness and these affiliative outcomes.

Emotional culture of anger. The emotional culture of anger is transmitted in the same way as a culture of companionate love—through feeling and normative mechanisms within a social unit—but involves the expression of irritation, annoyance, anger, grumpiness, frustration, and hostility (adapted from Barsade & O'Neill, 2014; see Online Appendix C). In a stronger culture of anger—where expressing angry feelings is more acceptable than in a weaker culture of anger—the social vigilance (Jones, 1982), heavily self-protective attitudes, and a negative view of others (Heinrich & Gullone, 2006) that are so problematic for lonelier employees will likely increase. We also predict such a culture to heighten employees' sensitivity to rejection (Cutrona, 1982), self-consciousness (Jones, 1982), expectations that others will evaluate them

negatively (Jones & Hebb, 2003), and a view of others as less trustworthy (Rotenberg, 1994). All of this will increase the negative cycle present in the regulatory model of loneliness (Cacioppo & Hawkley, 2009), leading to lower approachability. In line with the affect theory of social exchange, we predict that these heightened feelings of a lack of affiliation and the attributions that go with these feelings will cause employees to feel lower affective commitment to the organization as a whole. We predict that an emotional culture of anger will increase the negative relationship between greater workplace loneliness and lower affiliative outcomes, and that a weaker emotional culture of anger will reduce the relationship between those variables.

Hypothesis 6. The emotional culture of anger in an employee's work group will moderate the negative relationship between employee workplace loneliness and (a) employee approachability and (b) employee affective commitment to the organization. Specifically, a stronger emotional culture of anger will increase the negative relationship between workplace loneliness and these affiliative outcomes, whereas a weaker culture of anger will reduce the negative relationship between workplace loneliness and these affiliative outcomes.

Coworkers' loneliness as a moderator of the employee workplace loneliness–affiliation relationship. Another important part of employees' affiliative workplace context is the aggregate loneliness level of their coworkers. What effect will being surrounded by lonelier coworkers have on lonelier employees? Although one might expect lonelier people to have a stronger tendency to approach others to fulfill their relational needs, the empirical evidence for the regulatory loop model suggests the opposite: that because lonelier people tend to behave in less trusting and less positively reinforcing ways (Rotenberg, 1994), they have a harder time providing the closeness that interaction partners crave. Indeed, two or more people who all feel lonely have been found to fail at producing mutually satisfying interactions (Jerome, 1983; Weiss, 1973). Furthermore, as predicted by the affect theory of social exchange, because of the greater need to understand and attribute these aversive feelings, employees surrounded by lonely coworkers receiving less affiliation will show less affective commitment to the organization as a whole. As a result, for employees not getting their affiliative needs met because they are surrounded

by lonelier coworkers—coworkers who are also likely to be less responsive to these relational needs because of their own loneliness—the negative relationship is predicted to be even stronger between greater workplace loneliness and lower affiliative outcomes. We expect the opposite if an employee's coworkers are not as lonely, since these coworkers will be better able to meet the affiliative needs of lonely employees (Cacioppo & Hawkley, 2009).

Hypothesis 7. The workplace loneliness level of the other coworkers in an employee's work group will moderate the negative relationship between employee workplace loneliness and (a) employee approachability and (b) employee affective commitment to the organization. Specifically, higher levels of coworker loneliness will increase the negative relationship between workplace loneliness and these affiliative outcomes, and lower levels of coworker loneliness will lessen the negative relationship between workplace loneliness and these affiliative outcomes.

METHOD

We conducted a field study using a multirater, multilevel, time-lagged research design based on multiple sources of data collected from employees, their coworkers, and supervisors in a for-profit private company (Private Company) and a city government of a West Coast U.S. metropolis of approximately 120,000 people (Public Municipality). At Time 1, participants completed measures of self-reported workplace loneliness, all control variables, and emotional culture. Six weeks later, at Time 2, supervisors rated employees' performance and employees reported their affective commitment to the organization. In addition, employees responded to a coworker survey to rate each of the other members of their work group with regard to their approachability, from a work group list we provided based on organizational records.

Sample

We studied a total of 672 employees across 143 work groups, and their 114 supervisors. This sample consisted of the Public Municipality ($n = 477$ employees across 99 work groups, and their 81 supervisors) and the Private Company ($n = 195$ employees across 44 work groups, and their 33 supervisors). The occupational diversity within the Public Municipality—we surveyed 88 different

positions as varied as clerks, truck drivers, managers, engineers, police officers, and many others—contributes to the generalizability of our results. The private for-profit company is a service and manufacturing outsourcer with over 41 different positions, including project managers, accounting specialists, supervisors, administrative assistants, and material handlers.³ Across the entire sample, 54% of participants were male and 41% female (5% did not specify).⁴ The average age of the respondents was 43.32 years ($SD = 10.44$), ranging from 18 to 71 years. A total of 16.9% of participants reported that their highest level of education was graduating from high school; 44.2% had some college or an Associate (AA) degree; 30.2% had completed a bachelor's degree; and 8.7% had completed a graduate degree. The average length of employees' organizational tenure was 8.12 years ($SD = 7.21$).

All full-time employees in each organization who met the definition of being part of a work group were invited to participate in the study. A work group (such as a shift, department, or work unit) was defined as a group of three or more employees who work together, interact with each other on a daily basis, and have a shared immediate supervisor. At Time 1, surveys were sent to 673 employees in the Public Municipality and 293 employees in the Private Company; 477 (response rate = 71%) employees in the Public Municipality and 195 (response rate = 67%) employees in the Private Company completed the Time 1 survey. Six weeks later, at Time 2, of the employees who completed the Time 1 surveys, 391 employees in the Public Municipality and 167 employees in the Private Company completed the Time 2 survey, yielding

a Time 2 response rate of 82% and 86%, respectively.⁵ All participants gave informed consent to the study and to matching their surveys from Time 1 to Time 2, which we did via e-mail addresses for online surveys, and via names for paper-pencil surveys. To collect performance data at Time 2, we distributed supervisor surveys to the supervisors of all employees who were invited to participate at Time 1. In the Public Municipality, 81 supervisors completed 555 out of the 673 job performance ratings (82%); in the Private Company, 33 supervisors completed 223 out of 293 surveys (76%). Among the employees who completed both Time 1 and Time 2 surveys, we received completed supervisor job performance ratings for 342 out of 391 (87%) employees in the Public Municipality and 139 out of 167 employees (83%) in the Private Company. These high response rates for employers and supervisors likely stem from the support of the organizations in survey administration, in raising employee interest, and in allowing employees to complete the survey on work time.

Measures

For every variable in the section below, unless noted otherwise, employees were asked to rate the degree to which they agreed that each of the statement items reflected their feelings about their experience in their job and organization (on a five-point scale, 1 = "strongly disagree" through 5 = "strongly agree"). All measures are available in their entirety in Online Appendix A.

Employee workplace loneliness measure. We measured employees' workplace loneliness using a version of the 20-item UCLA Loneliness Scale (Russell et al., 1980), the most widely used loneliness measure in the psychological literature. Because

³ To test for a possible response bias between the two organizations, we compared these organizations with respect to their employees' responses to the independent, mediating, dependent, and control variables in our study. There were significant differences between the two organizations with respect to the education level of employees ($t = 6.58, df = 595, p < .01$), gender ($t = 4.87, df = 625, p < .01$), tenure ($t = 7.45, df = 623, p < .01$), trait negative affectivity ($t = -2.93, df = 637, p < .01$), and employee approachability ($t = 3.66, df = 610, p < .01$). To account for these differences, we controlled for them, as well as for the organization type across all of our analyses.

⁴ Respondents who did not specify gender were not included in analyses with gender as a control; however, when we conducted all the analyses with those participants, the pattern and significance of results were the same.

⁵ To test for a response bias between those who responded only at Time 1 and those who responded at Times 1 and 2, we compared the respondents' demographic characteristics, including their education level, tenure in the organization, overall job experience, and age. We found no significant difference between the two groups with respect to their education level ($t = 1.19, df = 595, n.s.$), tenure in the organization ($t = -0.06, df = 623, n.s.$), and overall job experience ($t = 1.83, df = 620, n.s.$). There was a significant difference between the two groups with respect to their age ($t = 2.26, df = 625, p < .05$): those who participated only in the Time 1 survey were younger (mean age = 40.8 years) than those who participated in Time 1 and Time 2 surveys (mean age = 43.3 years). Thus, we controlled for age across all of our analyses.

loneliness can vary across domains (Schmidt & Sermat, 1983), and is traditionally measured differently across domains (DiTommaso & Spinner, 1993), to measure workplace loneliness we adapted this most frequently used scale to fit the work setting: for example, we changed “I feel left out” to “I feel left out in this organization.” Other items in our version of the scale included “I lack companionship at my work,” “There is no one I can turn to in this organization,” and “I am no longer close to anyone in this organization.” By asking respondents to evaluate how they feel about their job and organization, this scale takes a sentiment approach to loneliness. Higher ratings on the scale indicated greater workplace loneliness. The mean for this self-report measure of workplace loneliness was 2.23 ($SD = 0.64$), with a Cronbach’s α of 0.94.

Employee job performance measures. To measure job performance, we asked supervisors to rate each employee on his or her degree of effective individual task performance and team member role performance (employee teamwork behaviors necessary for the good of the work group). We measured individual task performance with the following three items on the 1–5 scale described above: “This employee satisfactorily completes assigned duties,” “This employee is a good individual contributor,” and “This employee is an effective performer.” To measure the team member role performance, we used Welbourne, Johnson, and Erez’s (1998) four-item scale. This scale measured employee effectiveness in items such as: “Working as part of a team or work group.” We averaged these two scales together, and the overall job performance mean was 4.08 ($SD = 0.70$), Cronbach’s $\alpha = 0.93$.

Affiliation mediator measures. Work group members rated each other’s *approachability* based on a four-item scale adapted from Wiemann’s (1977) affiliation measure, with the following items: This coworker “can be easily approached by other employees when they need help with their work-related problems,” “can be easily approached by other employees when they need help with their personal problems,” “is a likeable person,” and “is distant in his or her personal relations with other employees” (reverse-coded). For each employee, we calculated approachability by taking the average of all the ratings the employee received from their other work group members. The mean approachability rating was 3.77 ($SD = 0.43$), Cronbach’s $\alpha = .83$. Before aggregating coworkers’ ratings for this measure, we assessed within-group homogeneity within coworker ratings using three frequently recommended indices: within-group interrater agreement index

(r_{wg}), interclass correlation coefficient (ICC[1] and ICC[2]), and average deviation (AD). The means were 0.81 (for r_{wg}), 0.57 (ICC[1]), 0.86 (ICC[2]), and 0.20 (AD). Because the means for all the indices were within the range of generally acceptable norms (LeBreton & Senter, 2008), there was support for aggregating each employees’ approachability as rated by other coworkers to the work group level.

We used Allen and Meyer’s (1990) six-item scale to measure *employee self-reported affective commitment to the organization*. This scale includes such items as “I really feel as if this organization’s problems are my own” and “This organization has a great deal of personal meaning for me.” The mean for the scale was 3.50 ($SD = 0.75$), Cronbach’s $\alpha = .81$. Considering the potential overlap between items measuring affective commitment and workplace loneliness, we assessed the validity of these two separate constructs by conducting a confirmatory factor analysis. The fit indices, including comparative fit index (CFI), normed fit index (NFI), and incremental fit index (IFI), showed that the two-factor model was a good fit with the data ($\chi^2 = 1768.75$, $df = 298$, CFI = .96, NFI = 0.95, IFI = 0.96). All indicators in the model exhibited significant relationships ($p < .01$) with their intended latent variables in the predicted direction, providing support for construct validity (Anderson & Gerbing, 1988). In addition, a two-factor model with workplace loneliness and affective commitment as separate factors had a better fit than a one-factor model where all items were loaded onto a single latent variable ($\chi^2 = 2319.82$, $df = 299$, CFI = .95, NFI = 0.94, IFI = 0.95, $\Delta\chi^2 = 551.07$, $\Delta df = 1$, $p < .01$), offering support that affective commitment and workplace loneliness are two distinct constructs.

Affiliation moderator measures—*affective affiliation context*. We used scales from Barsade and O’Neill (2014) to measure the *emotional culture* of companionate love and the emotional culture of anger in an employee’s work group. Employees rated the degree to which *other* work group members expressed companionate love and anger at work by responding to a five-point scale, ranging between 1 = “never” and 5 = “very often.” The emotional culture of companionate love culture scale consisted of four items (affection, caring, compassion, and tenderness) with a mean of 2.91 ($SD = .56$) and a Cronbach’s α of 0.84. The emotional culture of anger scale included six items (such as anger, frustration, hostility, and irritation) with a mean of 2.82 ($SD = .43$) and a Cronbach’s α of 0.88. The r_{wg} , ICC[1], ICC[2], and AD indices, in respective order, were 0.73, 0.26, 0.62, and 0.58 for an emotional culture of companionate love, and 0.76, 0.31, 0.67, and 0.56 for an emotional culture of anger.

These indices support aggregating the two emotional culture variables to the work group level.

To measure the workplace *loneliness of each employee's coworkers* within his or her work group, we used the employee workplace loneliness measure described above. For each employee, we created a coworker loneliness score that reflected the aggregation of each employee's coworkers' self-reports of workplace loneliness across the work group (excluding the focal employee). The mean for this measure was 2.23 ($SD = .38$). The r_{wg} , ICC[1], ICC[2], and AD indices were 0.72, 0.37, 0.75, and 0.53, which offer support for aggregating coworker loneliness to the work group level.

Control Variables. The following control variables were included in all analyses, and the means and standard deviations of all the variables can be seen in Table 1.

With regard to the demographic variables reported earlier, we controlled for both *age* and *gender*, since they have been shown to relate to loneliness (Schmitt & Kurdek, 1985), and the degree to which others perceive a person as being approachable (Kite, Deaux, & Miele, 1991). In addition, we controlled for employee *education*, since that could be positively correlated with employee affiliative behaviors and performance (Ng & Feldman, 2008).

We controlled for *organizational tenure*, since working longer in an organization might cause or indicate stronger affiliation with that organization (Meyer et al., 2002).

Because of differences between the two organizations, we included *organization type* as a control variable in all analyses (Public Municipality = 0, Private Company = 1).

For *personality*, we focused on agreeableness, extraversion, trait negative affectivity and trait positive affectivity as these personality traits have been found to be related to loneliness (Cacioppo et al., 2006; Teppers, Klimstra, Van Damme, Luyckx, Vanhalst, & Goossens, 2013). Controlling for negative affectivity also helps to determine whether workplace loneliness has useful predictive value beyond the negative outcomes of generalized negative affect. We measured agreeableness and extraversion with four-item scales developed by Donnellan, Oswald, Baird, and Lucas (2006). Cronbach's α scores were 0.78 and 0.77, respectively. We measured trait negative affectivity (Trait NA) and trait positive affectivity (Trait PA) using the PANAS scale (Watson, Clark, & Tellegen, 1988), rated from 1–5 (1 = "very slightly" through 5 = "extremely"). Trait NA and Trait PA consisted of 10 items each, with a Cronbach's α of 0.88 and 0.87, respectively.

Loneliness is a context-specific emotion that varies across different life domains (Schmidt & Sermat, 1983). Given the empirical evidence for work–life spillover (Rothbard, 2001), loneliness experienced outside of work may be related to our hypothesized relationships. Therefore, we controlled for employees' *private-life loneliness* in their family, romantic, and social-life domains. We used five-point scales developed by DiTommaso and Spinner (1993) for each of these domains. The Cronbach's α for the family life (three items), romantic life (two items), and social life (four items) loneliness scales were 0.87, 0.94, and 0.96, respectively.

Analytic Method

Because our data involved a multilevel structure with individual employees nested within work groups, each of which had one supervisor rating all employees, we used mixed-effects models (e.g., hierarchical linear modeling [HLM] [Raudenbush & Bryk, 2002]) and multilevel structural equation modeling (MSEM) with a latent variable measurement model (Preacher, Zyphur, & Zhang, 2010) to account for potential non-independence of individuals in the same work group being rated by the same supervisor. In each HLM analysis predicting our outcome variables (level 1) we included the work group (level 2) as a random effect to control for additional sources of group-level variance. When testing our moderation hypotheses, following Kreft, de Leew, and Aiken (1995), we grand-mean centered all interaction terms. We used MSEM when testing our mediation hypotheses; and used non-parametric multilevel bootstrapping analysis (Bollen & Stine, 1990) to examine the indirect effect of workplace loneliness on performance through the mediating effects of employee approachability (Hypothesis 3) and employee affective commitment (Hypothesis 4). For all models, we grand-mean centered noncategorical variables (Hofmann & Gavin, 1998) and produced robust standard errors, offering greater robustness for certain types of misspecification. We also checked these noncategorical variables for normality in light of the previously recommended thresholds and guidelines (Piovesana & Senior, 2018). Some of our variables showed high positive or negative asymmetry; specifically, Trait NA, family-life loneliness, romantic-life loneliness, and social-life loneliness had skewness scores above 1.0, and job performance showed a skewness score of -0.99 . To normalize their distributions, we log-transformed these variables. Given the centrality of the workplace loneliness variable in our model, and its moderately high positive asymmetry

TABLE 1
Means, Standard Deviations, and Zero-Order Correlations of Study Variables (n = 672)

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Age	43.32	10.4																		
2. Education ^a	2.29	0.85	-.03																	
3. Male (1 = Female, 2 = Male)	1.57	0.49	.01	.04																
4. Org. Tenure (years)	8.12	7.21	.41**	.05	.10*															
5. Private Company ^b	0.32	0.46	-.05**	-.27**	-.19**	-.29**														
6. Agreeableness	3.79	0.63	.12*	.15**	-.27**	-.01	.02													
7. Extraversion	3.10	0.80	-.15**	.05	-.03	-.10*	.03	.21**												
8. Negative Affectivity	1.55	0.53	-.10*	-.17**	.05	-.02	.12*	-.14**	-.10*											
9. Positive Affectivity	3.78	0.57	-.05	.14**	-.04	-.04	.01	.29**	.37**	-.24**										
10. Family-Life Loneliness	1.40	0.66	-.02	-.07	.03	.03	.02	-.14**	-.09*	.21**	-.25**									
11. Romantic-Life Loneliness	1.89	1.23	.01	-.06	-.08	.06	.01	-.01	-.08*	.12**	-.21**	.33**								
12. Social-Life Loneliness	1.78	0.88	.06	-.02	.03	.06	.05	-.20**	-.31**	.21**	-.31**	.38**	.24**							
13. Workplace Loneliness	2.23	0.64	-.01	-.08	.08	-.03	-.01	-.35**	-.31**	.27**	-.37**	.20**	.13**	.28**						
14. Employee Approachability	3.77	0.43	.05	.12*	-.03	.03	-.14**	.18**	.10*	-.14**	.15**	-.17**	-.09*	-.12**	-.31**					
15. Affective Commitment	3.50	0.75	.16**	.10*	-.02	.13	-.05	.29**	.20**	-.23**	.33**	-.15**	-.14**	-.14**	-.66**	.32**				
16. Job Performance	4.08	0.70	-.05	.16**	-.12**	.06	-.05	.13**	.01	-.11**	.18**	-.11*	-.12**	-.04	-.28**	.26**	.33**			
17. Culture of Love	2.91	0.56	.06	.04	-.41**	-.05	.40**	.29**	.06	-.04	.17**	-.08	-.05	-.06	-.31**	.30**	.28**	.17**		
18. Culture of Anger	2.82	0.43	-.07	-.13**	.08*	-.01	.03	-.10*	.06	.12**	-.07	.02	-.01	.02	.16**	-.17**	-.16**	-.14**	-.26**	
19. Coworker Loneliness	2.23	0.38	-.08	-.07	.15**	-.05	-.01	-.12**	.01	.06	-.10*	-.02	.02	-.01	.14**	-.21**	-.18**	-.20**	-.51**	.28**

^a 1 = High School, 2 = College, 3 = Bachelor's Degree, 4 = Graduate Degree.

^b 0 = Public Municipality, 1 = Private Company.

* $p < .05$

** $p < .01$

(skewness score of 0.73) we also log transformed this variable. We conducted all analyses with and without control variables, and with and without any transformations, and the pattern and significance of results were the same as those reported here (results available from the first author).

RESULTS

The means, standard deviations, and correlations among all variables included in the study are presented in Table 1. Demographic variables were not found to be correlated to either workplace loneliness or loneliness in private-life domains. The workplace loneliness measure had significant zero-order correlations with affective commitment, employee approachability, and supervisor-rated job performance, offering preliminary evidence that workplace loneliness is related to how employees think, behave, and perform at work.

Test of Main Effect Hypotheses: Does Workplace Loneliness Relate to Employee Approachability and Employee Affective Commitment to the Organization?

To test the first hypothesis, we conducted an HLM analysis to examine the relationship between self-reported workplace loneliness and employee approachability; the results appear in Table 2. As seen in Column I, controlling for the demographic, trait personality, and private-life loneliness variables, workplace loneliness was significantly negatively related to employee approachability ($\gamma = -.62, p < .01$), supporting Hypothesis 1.

Our second hypothesis predicts a negative relationship between workplace loneliness and employee affective commitment to the organization. As seen in Table 2, Column II, controlling for the demographics, trait personality, and private-life loneliness variables, workplace loneliness significantly negatively predicted employee affective commitment to the organization ($\gamma = -3.76, p < .01$), providing support for Hypothesis 2.

Test of Mediation Hypotheses: Does Affiliation Mediate the Negative Relationship Between Workplace Loneliness and Job Performance?

To test the mediation effect of employee approachability and employee affective commitment predicted in the Hypotheses 3 and 4, we followed Preacher, Zyphur, and Zhang's (2010) procedure

using 1–1–1 multilevel mediation analysis as the predictors. Outcomes and mediators were all measured at level 1 (employee level), with a latent variable to account for the clustering of employees within work groups. The results of the mediation analysis can be seen in Table 3. Workplace loneliness was significantly negatively related to supervisor-rated employee performance ($\gamma = -70.38, p < .01$) (see Column I), offering support for our prediction that loneliness negatively relates to performance. As we predict in Hypotheses 3 and 4, when employee approachability ($\gamma = 13.95, p < .01$) and employee affective commitment to the organization ($\gamma = 7.19, p < .05$) were entered into the equation (see Column II), both were significant and there was a decrease in the significance of workplace loneliness ($\gamma = -39.30, p < .05$), providing support for a partial mediation. To directly test the indirect effect of loneliness variable through our mediators, we used a bootstrapping analysis (Preacher & Hayes, 2008) by generating 1,000 bootstrap samples and computing 95% biased-corrected confidence intervals (CI). We conducted this analysis for each mediator separately, as estimating confidence intervals for indirect effects in models including both mediators was not computationally possible. In each analysis testing the indirect effect of a given mediator, we included the other mediator as a control variable. Similar to the results above, our results indicated that the indirect effect of workplace loneliness on performance via employee approachability toward coworkers was -5.81 (CI = $[-12.34, -0.48]$) and via employee affective commitment to the organization was -24.73 (CI = $[-43.49, -8.43]$). In both cases, the indirect effect CI excluded zero, indicating significant mediation.

Test of Moderation Hypotheses: Does Affective Affiliative Context Moderate the Relationship Between Workplace Loneliness and Employee Approachability and Employee Affective Commitment to the Organization?

Hypothesis 5 predicts that the emotional culture of companionate love in an employee's work group will moderate the negative relationship between workplace loneliness and employee approachability (Hypothesis 5a) and employee affective commitment to the organization (Hypothesis 5b). Table 4 presents the results of HLM analyses with a cross-level interaction testing these hypotheses. With regard to employee approachability (see Column II), there is no significant interaction between workplace loneliness and an emotional culture of companionate

TABLE 2
Hierarchical Linear Modeling Analyses Testing the Relationships between Employee Workplace Loneliness, and Employee Approachability and Employee Affective Commitment to the Organization

	Employee Approachability	Employee Affective Commitment to the Organization
	I (n = 533)	II (n = 566)
Control Variables		
Age	-.001	.008**
Education	-.002	.032
Male	-.017	.039
Organizational Tenure	-.026	.086
Private Company	-.174**	-.035
Agreeableness	.018	.044
Extraversion	-.007	-.044
Trait Negative Affectivity	-.212	-.138
Trait Positive Affectivity	-.011	.170**
Family-Life Loneliness	-.195	-.063
Romantic-Life Loneliness	-.032	-.170
Social-Life Loneliness	.108	.287*
Predictor Variable		
Workplace Loneliness	-.62**	-3.76**
Pseudo-R ²	.16	.41

Note: Unstandardized coefficients.

* $p < .05$

** $p < .01$.

love, offering no support for Hypothesis 5a. With regard to employee affective commitment, there is a significant interaction between an emotional culture of companionate love and workplace loneliness on affective commitment ($\gamma = 0.80, p < .01$, Table 4, Column IV), providing support for Hypothesis 5b. To interpret this significant interaction, per Aiken and West (1991), we interpreted the form of the significant interaction by plotting and computing slopes at high (one standard deviation above the mean) and low (one standard deviation below the mean) values of the moderating variable. The results, illustrated in Figure 2, indicate that the predicted negative relationship between workplace loneliness and affective commitment is less negative for employees in work groups with stronger cultures of companionate love ($\gamma = -2.34, p < .01$) than for employees in work groups with weaker cultures of companionate love ($\gamma = -4.62, p < .01$).

Hypothesis 6 predicts that the emotional culture of anger in an employee's work group moderates the negative relationship between workplace loneliness and employee approachability (Hypothesis 6a) and employee affective commitment to the organization (Hypothesis 6b). For the model predicting employee approachability (see Table 4, Column VI) there was no significant interaction between workplace loneliness and emotional culture of anger, and thus no support for Hypothesis 6a. There was a negative and significant interaction between workplace loneliness and an

emotional culture of anger predicting employee affective commitment ($\gamma = -1.62, p < .01$) (see Table 4, Column VIII). The relationship supports Hypothesis 6b, and the simple slope analysis results (see Figure 3) indicate that the negative association between workplace loneliness and affective commitment was more negative for employees in work groups with stronger emotional cultures of anger ($\gamma = -7.18, p < .01$) than for those in work groups with weaker anger cultures ($\gamma = -2.05, p < .01$).

Hypothesis 7 predicts that workplace loneliness of coworkers in an employee's work group moderates the relationship between an employee's workplace loneliness and employee approachability toward coworkers (Hypothesis 7a) and employee affective commitment (Hypothesis 7b). In the model predicting employee approachability (see Table 4, Column X), there was no significant interaction between an employee's workplace loneliness and the loneliness of an employee's coworkers in his or her work group, offering no support for Hypothesis 7a. With regard to employee affective commitment to the organization, there was a significant negative interaction between an employee's workplace loneliness and the loneliness of coworkers in the employee's work group ($\gamma = -1.70, p < .01$, Column XII). The simple slope analysis results (see Figure 4) indicate that the predicted negative relationship between self-reported workplace loneliness and

TABLE 3
Hierarchical Linear Modeling Analyses Testing Mediation Hypotheses Predicting the Relationship between Workplace Loneliness and Job Performance, Mediated by Employee Approachability and Employee Affective Commitment to the Organization

	Job Performance—Supervisor Ratings (<i>n</i> = 477)	
	I	II
Control Variables		
Age	-0.37*	-0.59**
Education	2.68	3.14
Male	-3.81	-5.69
Organizational Tenure	5.62	6.99
Private Company	-1.86	1.29
Agreeableness	3.09	4.09
Extraversion	-6.54**	-6.95**
Trait Negative Affectivity	-9.69	-0.29
Trait Positive Affectivity	4.25	6.15
Family-Life Loneliness	0.84	3.65
Romantic-Life Loneliness	-8.71	-4.74
Social-Life Loneliness	9.17	16.38
Predictor Variable		
Workplace Loneliness	-70.38**	-39.30*
Mediators		
Employee Approachability		13.95**
Affective Commitment		7.19*

Note: Unstandardized coefficients.

* $p < .05$

** $p < .01$.

affective commitment was more negative for employees working in work groups where coworkers had higher levels of workplace loneliness ($\gamma = -5.51, p < .01$) as compared to those who were in work groups with coworkers with lower levels of workplace loneliness ($\gamma = -2.26, p < .01$), supporting Hypothesis 7b.

Test of Full Moderated Mediation Model

Last, as a final summary analysis, we examined the full moderated mediation, and whether the indirect effect of workplace loneliness on job performance via employee approachability and employee affective commitment varies as a function of the affective affiliative context as defined by the combination of the three moderators: (1) emotional culture of companionate love, (2) emotional culture of anger, and (3) work group coworker loneliness. Specifically, we examined and compared the magnitudes of the conditional indirect effects of workplace loneliness on performance through employee approachability toward coworkers and employee affective

commitment across work group contexts. We analyzed whether these indirect effects were stronger in “low affiliation” contexts (i.e., weaker emotional culture of companionate love, stronger emotional culture of anger, and greater coworker loneliness), as compared to “high affiliation” contexts (i.e., stronger emotional culture of companionate love, weaker emotional culture of anger, and less coworker loneliness). For each of these moderating variables we determined the higher and lower categories to be one standard deviation above the mean and one standard deviation below the mean level of this cumulative affiliative context-moderating variable, respectively.

We tested our hypothesized relationships by fitting a multilevel structural equation model, where we simultaneously entered both mediators and the three moderators. This allowed us to test for moderated mediation (i.e., conditional indirect effects) with moderators at level 2, and predictors, mediators, and outcomes at level 1, following the method suggested by Preacher, Rucker, and Hayes (2007), allowing for analyzing moderated mediation in conjunction with indirect effects. The results showed that in work groups characterized by “low affiliation,” the indirect effect of workplace loneliness on performance (conditional indirect effect = $-.38.5$; 95% CI = $[-67.58, -9.41]$; $p < .05$) was more negative as compared to that in work groups characterized by “high affiliation” (conditional indirect effect = -18.26 ; 95% CI = $[-34.29, -2.24]$; $p < .05$). The difference between these two conditional indirect effects (difference = 20.23) was statistically significant ($z = 2.19, p < .05$). These results support the full moderated mediation model.

DISCUSSION

Loneliness research has left no doubt that loneliness is a painful and pernicious emotion, and our study offers evidence that its negative outcomes also extend into people’s work lives. We develop and test a workplace model of loneliness, showing support for our hypotheses that greater employee workplace loneliness is related to lower job performance, and that this loneliness–performance relationship is mediated by less approachability and lowered affective commitment on the part of lonelier employees.

The results are more qualified for our hypothesized moderators. We found full support for the hypothesized interaction between workplace loneliness and all aspects of the affective affiliative context (an emotional culture of anger, an emotional

TABLE 4
Hierarchical Linear Modeling Analyses Testing the Moderation of Affective Affiliative Context Variables and Employee Workplace Loneliness on Employee Approachability and Employee Affective Commitment to the Organization

	Moderation Analysis for Culture of Companionate Love				Moderation Analysis for Culture of Anger				Moderation Analysis for Coworker Loneliness			
	Employee Approachability (n = 533)		Affective Commitment (n = 566)		Employee Approachability (n = 533)		Affective Commitment (n = 566)		Employee Approachability (n = 533)		Affective Commitment (n = 566)	
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Control Variables												
Age	-.001	-.001	.007**	.008**	-.001	-.001	.007**	.008**	-.001	-.001	.007*	.007*
Education	-.009	-.009	.029	.034	-.008	-.006	.031	.037	-.008	-.008	.031	.044
Male (1 = Female, 2 = Male)	.010	.009	.085	.088	-.017	-.022	.039	.041	-.013	-.013	.063	.076
Organizational Tenure	-.034	-.029	.075	.087	-.024	-.017	.094	.11	-.028	-.027	.091	.10
Private Company	-.30**	-.29**	-.081	-.073	-.17*	-.16*	-.025	-.018	-.18**	-.18**	-.022	-.004
Agreeableness	.009	.009	.021	.026	.018	.017	.036	.036	.016	.016	.042	.047
Extraversion	-.006	-.006	-.037	-.034	-.007	-.007	-.036	-.039	-.007	-.006	-.036	-.033
Trait Negative Affectivity	-.25*	-.25*	-.19	-.19	-.23*	-.24*	-.14	-.16	-.24*	-.24*	-.20	-.17
Trait Positive Affectivity	-.006	-.007	.16**	.15*	-.006	-.003	.16**	.18**	-.006	-.006	.16**	.16**
Family-Life Loneliness	-.19	-.18	-.056	.006	-.19	-.188	-.076	-.038	-.20	-.20	-.11	-.030
Romantic-Life Loneliness	-.019	-.019	-.16	-.16	-.027	-.032	-.18	-.18	-.027	-.027	-.16	-.16
Social-Life Loneliness	.079	.070	.27*	.23	.099	.101	.30*	.27*	.091	.090	.29*	.23
Predictor Variable												
Workplace Loneliness (WL)	-.60**	-.60**	-.3.61**	-.3.61**	-.64**	-.64**	-.3.69**	-.3.67**	-.55**	-.55**	-.3.41**	-.3.46**
Moderators												
Culture of Love	.29**	.29**	.14**	.13**	-.15*	-.15*	-.093	-.11	-.30**	-.30**	-.23*	-.18*
Culture of Anger												
Coworker Loneliness												
Interactions:												
WL × Culture of Love		.30		.80**								
WL × Culture of Anger					-.60			-.1.62**				
WL × Coworker Loneliness		.23	.44	.43	.23	.23	.43	.43	.24	.24	.45	.45
Pseudo R ²	.23	.23	.44	.43	.23	.23	.43	.43	.24	.24	.45	.45

Note: Unstandardized regression coefficients.

* p < .05

** p < .01

FIGURE 2
Moderated Relationship between Workplace Loneliness and an Emotional Culture of Companionate Love on Employee Affective Commitment

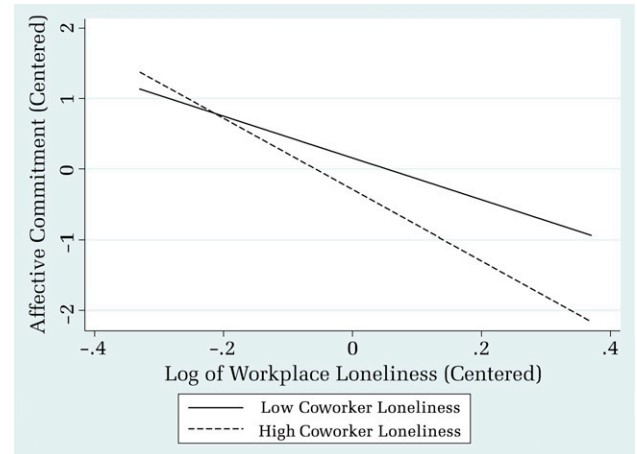


culture of companionate love, and coworker loneliness) as it relates to employee affective commitment to the organization. However, we found no significant effects of the interaction between workplace loneliness and any aspect of the affective affiliative context on employee approachability. A possible explanation for these results is the many obstacles lonelier employees face in skillfully engaging in compelling affiliative behaviors (Cacioppo & Hawkley, 2005); these hurdles may make it

FIGURE 3
Moderated Relationship between Workplace Loneliness and an Emotional Culture of Anger on Employee Affective Commitment



FIGURE 4
Moderated Relationship between Workplace Loneliness and Coworkers' Loneliness on Employee Affective Commitment



difficult for lonelier employees to appear approachable, despite their intentions to do so. However, given the importance of approachability in garnering the help that improves job performance, future research should examine other moderators of employee approachability. Last, we found support for our overall mediated moderation model.

Our results provide support for the two theoretical frameworks we integrated. Both models predict a withdrawal at work on the part of lonelier employees that negatively relates to job performance. The regulatory loop model focuses on the psychological perspective of lonelier employees' affiliative withdrawal, while the affect theory of social exchange explains the interpersonal and contextual aspects of this phenomenon. Thus, in addition to drawing on insights gained from each theory's unique contributions, we build on the strength of using these two theories in tandem to fully understand the relationship between workplace loneliness and job performance.

Future Research Directions and Managerial Implications: Reducing Workplace Loneliness

Our results, coupled with the work of others in this domain (Heinrich & Gullone, 2006; Weiss, 1973), strongly suggest that loneliness is not just an individual phenomenon but a social phenomenon that we show here relates to job performance. A practical implication of our results for managers is to consider loneliness an organizational problem that needs to be tackled to help employees and improve job performance.

This recommendation raises interesting questions for future research: How can organizations help employees alleviate their feelings of workplace loneliness? How can employees alleviate their own loneliness? How often and how fast does employee workplace loneliness change? Examining possible antecedents of workplace loneliness, including whether different types of cognitive attributions lead to differing levels and types of loneliness, might suggest ways to prevent it in the first place. For example, interesting recent work examined whether it is “lonely at the top,” with initial lab and field evidence indicating that this truism is false (Waytz, Chou, Magee, & Galinsky, 2015; Wright, 2012).

So, what should managers do to combat loneliness at work? If organizations can provide timely and effective support for lonelier employees, they can help break the negative cycle of workplace loneliness. To do so, organizations can apply loneliness intervention programs that have been shown to combat loneliness in other life spheres. These interventions have included social support, opportunities for social interactions, and programs meant to change the maladaptive social cognitions to which lonelier people are prone. Interestingly, a meta-analysis of these common intervention strategies to reduce loneliness (Masi et al., 2011) found that the most effective interventions were those targeting maladaptive social cognitions, such as lonelier people’s negatively biased perceptions of how they are perceived or how trustworthy others are. For example, lonelier people have been shown to benefit significantly from intervention programs that focus on clarifying participants’ needs in friendship, analyzing their current social network, setting friendship goals, and developing strategies to achieve these goals (Stevens, 2001). Importantly, because loneliness inhibits the motivation and skills of lonelier people to reach out (Cacioppo & Hawkey, 2005; Spitzberg & Hurt, 1989), any intervention requires considerable effort and follow up—it is not enough to just bring lonelier people together with others (Jerome, 1983). However, it is also important to keep in mind that, due to structural constraints, workplace interpersonal relations and context are often nondiscretionary; thus, it may make sense for employees to disaffiliate if their coworkers are truly not a good fit in terms of meeting their needs (Hess, 2006). In this case, leaving the group or organization and finding more suitable socio-emotional workplace surroundings may sometimes be the most viable solution for an individual employee’s workplace loneliness (although it can still be a damaging

outcome to an organization that would prefer the employee not leave).

Study Limitations, Contributions, and Conclusion

The results of our study should be interpreted in light of its limitations. Although our theoretical model and the time-lagged design suggest the causality implicit in our model, we cannot confirm causality. There is a possibility, for example, that poorer performance leads employees to be isolated from their coworkers, leading to greater loneliness, although we would argue that the preponderance of past theory and empirical work operates in the other direction. Additionally, as in other affective and relational phenomena, a causal reciprocal cycle might be at work (Hareli & Rafaeli, 2008), whereby loneliness harms performance and poor performance increases loneliness.

Additionally, while managerial performance ratings are a common performance metric used in organizations, it would be useful to analyze further the loneliness–performance relationship by using objective measures, such as sales volume or output. Last, our study analyzed workplace loneliness only within the United States. Because employees in different cultures can differ in the ways they experience and express their emotions (Matsumoto, 1989), examining workplace loneliness cross-culturally seems likely to yield additional insights.

Its limitations notwithstanding, our study contributes to a variety of research domains. First, we contribute to our understanding of the relationship between affect and organizational performance. Since affect has become recognized as significant to understanding organizational life (Barsade & Gibson, 2007), a growing body of research has examined the influence of generalized positive and negative affect on workplace performance (Elfenbein, 2007). However, when it comes to understanding the influence of discrete, or specific, types of affect, organizational behavior is still in its early stages (Barsade & Gibson, 2007). By examining workplace loneliness, we contribute to understanding workplace affect in a more nuanced way.

Second, these findings support a relational perspective in understanding the workplace in that the social context of work significantly shapes employees’ behaviors (Barsade & O’Neill, 2014; Dutton & Heaphy, 2003; Grant & Parker, 2009). Past research has had a strong focus on the outcomes of high-quality relationships (Dutton & Heaphy, 2003), and considered these relationships as a motivational

factor (Grant & Parker, 2009) that increases prosocial behaviors, perspective taking, and creativity (Grant & Berry, 2011). Our study also looks at outcomes of relationships, but takes the opposite approach by focusing on the outcomes of a perceived lack of meaningful relationships.

Third, looking outside of our field, we contribute to sociological research by offering new insights for the affect theory of social exchange (Lawler, 2001). Specifically, our results suggest that workplace loneliness can create an affective filter for employees in social exchanges by negatively influencing their perceptions of coworkers in these exchanges. Our study also contributes to the field of psychology. For decades, myriad psychological researchers have studied loneliness in a variety of life contexts (Cacioppo & Patrick, 2008), yet have paid scant attention to loneliness within work organizations. For example, though loneliness was considered sufficiently important to earn its own special issue in *Perspectives on Psychological Science* (Sbarra, 2015), no article in that issue gave mention to workplace loneliness. Given our results, understanding the nature and outcomes of workplace loneliness is useful for social scientists across fields.

In conclusion, our study shows that the workplace, where people spend so much of their time, is not immune from the negative outcomes of loneliness. We find that loneliness hurts not only the lonelier employees but also their coworkers and their organizations. In an era sometimes called by media “the age of loneliness” (Monbiot, 2014), a more complete understanding of workplace loneliness will not only help organizations and the people in them, but perhaps help create a healthier society as well.

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Hakan Ozcelik (ozcelikh@csus.edu) is a Professor of Management at the California State University, Sacramento. He received his PhD from the University of British Columbia. He studies emotions in organizational life, focusing on topics such as discrete emotions, surface acting, leadership, emotional climate, decision making, cross-cultural communication, organizational neuroscience, and utilizing film-making to analyze workplace emotions. He also leads an interdisciplinary platform to explore organizational wisdom.

Sigal G. Barsade (barsade@wharton.upenn.edu) is the Joseph Frank Bernstein Professor of Management at the Wharton School of Business, University of Pennsylvania. She studies the influence of work emotions on organizational outcomes generally, and on performance, creativity, decision making, and negotiations specifically; emotional contagion; emotional intelligence; affective diversity; and implicit emotions in organizations.



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