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Risking One's Life to Save One's Livelihood: Precarious Work, Presenteeism, and Worry About Disease Exposure During the COVID-19 Pandemic

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The present study advances research on the negative consequences of precarious work experiences (PWE), which include perceptions of threats to one's job and financial security as well as a sense of powerlessness and inability to exercise rights in the workplace. Using the COVID-19 pandemic as a backdrop, we examine how PWE relate to sickness presenteeism and worry about work-related COVID-19 exposure. In a 12-week, four-wave study of workers working fully in-person, perceptions of powerlessness and job insecurity were associated with presenteeism (e.g., general presenteeism as well as attending work with known or possible COVID-19 infection) and concerns about disease exposure at work. Whereas powerlessness primarily operated at the between-person level of analysis, job insecurity's effects emerged at both levels of analysis. A sense of powerlessness at work also predicted sending children to school/daycare sick. In sum, the findings suggest that precarity related to being able to keep one's job and a sense of powerlessness at work contribute to concerns about the risk of COVID-19 exposure at work and, simultaneously, behaviors that may contribute to the health risks faced by others. This research provides added support to the argument that precarious work should be addressed in order to improve both worker well-being and public health.

Keywords: COVID-19 pandemic, job insecurity, work precarity, presenteeism, powerlessness

The 21st-century work environment has given rise to highly demanding work contexts, veneration of the bottom line, and growing experiences of precarious work (Bal & Dóci, 2018; Kalleberg, 2012). Precarity is a multidimensional construct involving job insecurity, wage insufficiency, powerlessness to mistreatment at work, and an inability to exercise rights (Vives et al., 2010). In essence, precarious work captures the varied ways by which people can experience uncertainty and instability "*of* work", "*at* work", and "*from* work" (Allan et al., 2021, p. 5). Over a decade ago, Kalleberg (2012, p. 428) surmised that "precarious employment systems are not merely temporary features of the business cycle but represent structural transformations such that bad jobs are no longer vestigial but a central component of U.S. employment." In many ways, the COVID-19 pandemic has accelerated this trend and left many workers feeling insecure, unstable, financially strapped, and unsafe in their work (e.g., Schneider & Harknett, 2020).

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Accordingly, there have been calls across multiple disciplines to understand the consequences associated with precarious work. For example, the American Public Health Association (2022) recently characterized precarious work as an antithesis to decent work and a threat to health. Sociologists and labor relations scholars have called for examination of power dynamics, worker exploitation, and institutional logics associated with precarious employment relationships (e.g., Kalleberg & Vallas, 2018). Within the realm of the organizational sciences, there have been calls to develop a psychological perspective on precarious work (Allan et al., 2021). Such a view recognizes the importance of individuals' lived experiences, including their perceptions of the threats and constraints that they face related to work (Blustein et al., 2020). In this vein, research on economic stressors emphasizes the importance of individuals' subjective perceptions in predicting behavioral and well-being consequences (Probst et al., 2017). A psychological perspective also recognizes that people's experiences and perceptions of vulnerabilities may fluctuate, reflecting both chronically experienced and acute variations in threats.

The current research builds on the psychological perspective of precarious work to examine subjectively perceived precarious work experiences (PWE) among *fully in-person* workers in the United States during the initial waves of the COVID-19 pandemic. Our research focuses on two outcomes that together illustrate the harms of precarity during the pandemic, as well as reflect outcomes of general interest to occupational health professionals—sickness presenteeism and worry about work-related COVID-19 exposure. Conceptually, we leverage the nascent self-endangering work behaviors literature (e.g., Knecht et al., 2017), as well as arguments about job preservation efforts (e.g., Shoss, Su, et al., 2023), to build upon conservation of resources theory's (Hobfoll, 1989) arguments about how individuals respond to resource threats. In doing so, we advance a perspective that because workers experiencing precarity struggle to protect themselves, they are more likely to engage in presenteeism and to be put in positions that force them to experience greater worry about disease exposure on the job. Stated otherwise, those who feel powerless to avoid mistreatment at work, insecure, unable to exercise rights, or unable to meet financial needs feel that they have no choice but to prioritize job preservation, financial stability, and protecting themselves against futher mistreatment. This occurs at the potential cost of their own and others' health, as indicated by presenteeism and greater worry about COVID-19 exposure at work.

This research addresses calls to expand the study of work precarity beyond the more traditionally studied threats of job insecurity and economic insufficiency (Allan et al., 2021; Restubog et al., 2023). Although one form of precarity, job insecurity, has been linked meta-analytically to greater presenteeism (Miraglia & Johns, 2016), there are mixed predictions of how precarious work would relate to attendance behavior. For example, Allan et al.'s (2021) conceptual model of work precarity includes absenteeism—but not presenteeism—as an outcome. Given that absenteeism is often considered a substitute for presenteeism (Pohling et al., 2016), the model is unclear regarding the anticipated implications for presenteeism. Questions also exist about attendance behaviors in macroeconomic downturns (Miraglia & Johns, 2021) and among those on the margins of organizations (Y. Wang, Ma, et al., 2023). By examining job insecurity alongside other elements of precarious work (e.g., powerlessness toward mistreatment at work, wage insufficiency, inability to exercise rights), we adopt a multidimensional conceptualization of precarity and examine how these aspects independently associate with presenteeism and worry about workplace COVID-19 exposure. We also expand the psychological conceptualization of precarity by investigating both short-term fluctuations (e.g., relative increases in elements of precarity) and more chronic perceptions of PWE during the COVID-19 crisis, which yields insight into the extent to which our outcomes are tied to individuals' absolute levels of precarity and/or to short-term relative peaks and troughs in perceptions of precarious work.

Our research also advances the literature on presenteeism and work-related hazard exposures. First, we broaden the presenteeism literature to consider variables that reflect the relational/power structures in which work is performed (Ruhle et al., 2020). Second, whereas several recent discussions in the presenteeism literature have characterized these behaviors as a way of going above and beyond for the organization or coworkers or trying to maintain high-performance goals (e.g., M. Wang, Lu, & Lu, 2023; although see Lohaus & Habermann, 2019 for greater attention to job insecurity and downsizing), we propose that workers in vulnerable situations feel that they have no choice other than to engage in presenteeism. That is, when workers experience precarity, presenteeism serves as a form of protection against work threats that occurs at the potential cost of one's health and the health of others. Similarly, because workers experiencing precarity feel unable to avoid or speak up against unsafe working conditions, they are also more likely to worry about occupational health risks (in this case, exposure to COVID-19) on the job. Although several studies have examined the relationship between objective job features associated with precarity (e.g., contract type) and occupational exposures and hazards, this research has not yet incorporated psychological experiences of precariousness, which can help to highlight how psychosocial working conditions can serve to threaten health. Considered together, our findings help to address Thanem and Elraz's (2022, p. 577) concern that researchers have "paid relatively little attention to the capitalist labour relations which underpin the unhealthy conditions of contemporary working life" (see also Bapuji et al., 2020, p. 577). Moreover, they paint a grim picture of precarity during the COVID-19 crisis, suggesting that workers with greater PWE are more likely to (a) experience greater worry about the health risks they face on the job and (b) engage in presenteeism behaviors that can pose health risks to others.

PWE

Precarious work has been described in several different ways across sociology, public health, economics, psychology (vocational/counseling psychology, I/O psychology), and management disciplines (e.g., Allan et al., 2021; Benach et al., 2014; Vives et al., 2010; Wilson & Ebert, 2013). Some conceptualizations define precarious work in terms of the structural elements of the workplace, with a focus on characteristics of the macroeconomy or on work or jobs that promote instability, uncertainty, and diminished worker power (e.g., Kalleberg, 2012; Katz & Krueger, 2019). As Blustein et al. (2020, p. 2) note, the term precarious work frequently "refers to work that is temporary, insecure, or part-time, often poorly paid, typically without benefits, and with minimal social or legal protections." Other research focuses on the experiences of certain groups of workers who experience weakened power in the labor market (e.g., immigrants) and are often vulnerable to workplace abuses and unsafe working environments (Blustein et al., 2002;

Restubog et al., 2021). A third approach considers precariousness as a particular set of working experiences, which may vary over time (Allan et al., 2021). For example, within the applied psychology literature, precarious work has typically been captured by the stressors of perceived job and financial insecurity, which reflect people's concerns about the stability and continuance of their current employment and their ability to meet financial needs (Probst et al., 2017).

Recently, Allan et al. (2021; see also Blustein et al., 2019) advocated for a psychological approach to precarious work that examines people's felt experiences of work-related instability and powerlessness. Toward this aim, they offered a tripartite conceptualization of what they label "work precarity." In this conceptualization, "precarity of work" involves insecurity about the future continuity, stability, and nature of one's job. "Precarity at work" concerns a powerlessness to affect working conditions related to health and safety. Finally, "precarity from work" concerns the inability or instability of work to meet people's basic needs, such as and especially those related to income, sustenance, and housing. Although these have in common the element of precarity (i.e., uncertainty and threat), these experiences are thought to be distinct. For example, one can be insecure about the future of one's job (e.g., a high-level executive at the end of a contract) but not experience powerlessness or an inability to exercise rights (e.g., Blustein et al., 2023).

We adopt Allan et al.'s (2021, p. 5; also Vives et al., 2010) psychological discussion of work precarity here to examine four subjectively experienced (i.e., perceived) elements of precarious work: (a) job insecurity, (b) powerlessness to mistreatment, (c) inability to exercise rights, and (d) wage insufficiency. Job insecurity reflects the precariousness "of work" and captures concerns about threats of job loss (Shoss, 2017). Powerlessness to mistreatment and perceived inability to exercise rights capture two dimensions of precariousness "at work," which Vives et al. (2010) argue are separate dimensions. According to Vives et al. (2010), the former refers to a feeling of being defenseless against unfair treatment from supervisors, including a lack of power to advocate for better working conditions or to avoid unsafe environments at work. The latter reflects a perception of obstacles in exercising rights such as requesting time off for personal or family reasons. Finally, wage insufficiency captures workers' perceptions that their wages are inadequate for daily needs and leaves little buffer available for an emergency—corresponding to precarity experienced "from work" (Vives et al., 2010).

Together, the constructs of job insecurity, wage insufficiency, powerlessness, and inability to exercise rights capture structural, financial, and social vulnerabilities inherent in the concept of precarious work. We adopt the term PWE to capture that elements of work are subjectively experienced and that people's experiences of precarity can change over time in response to dynamic contextual and individual circumstances. Because the underlying logic linking each variable to our outcomes is similar, we refer to them under the PWE label below. However, we examine them separately in the analyses to provide empirical insights into the unique contribution of each manifestation of PWE.

Theoretical Background

Conservation of resources (COR) theory explains how people attempt to cope with adversity and build and protect important psychological, physical, financial, and social resources (Hobfoll, 1989). According to dictionary definitions, the term precarious is used to describe circumstances that are "characterized by a lack of security or stability that threatens with danger" and are "dependent on chance circumstances, unknown conditions, or uncertain developments" (Merriam-Webster, n.d., para. 1). Indeed, across disciplines, precarious work is conceptualized around workers lacking power, stability, and/or certainty (Allan et al., 2021; Blustein et al., 2002, 2020; Vives et al., 2010). In essence, precarious working experiences capture experiences in which people perceive threats to their resources. These threats relate to people's abilities to maintain their current employment and its associated material and immaterial benefits (job insecurity), to meet the financial demands of daily living (wage insufficiency), to protect themselves against harassment and mistreatment in the workplace (powerlessness), and to respond to family and personal needs (inability to exercise rights; Blustein et al., 2022; Vives et al., 2010). Not only do PWE reflect the perception of threat, but they also constitute circumstances under which individuals already experience limited resources. For example, job security is considered to be a resource that provides the safety and stability for individuals to pursue growth goals at work (Demerouti et al., 2001). Similarly, sufficient finances are characterized as a resource that enables individuals to gain a variety of other social, symbolic, and material resources (Hobfoll, 1989; Sinclair & Cheung, 2016).

From a COR perspective, perceptions of threatened resources and diminished resource pools engender stress and motivate individuals to try to protect against further loss (Hobfoll et al., 2018). In fact, Hobfoll et al. (2018, p. 107) argued that "the motivation to build a resource gain cycle will increase when losses occur and will have higher payoff under high stress conditions"—Corollary 3 of the theory. As a result, when faced with diminished resource pools and further threats to one's resources, an individual will pursue all potential strategies, even those with a "poor chance of success" (Hobfoll, 1989, p. 519). Applied to PWE, this theorizing suggests that individuals would pursue any strategies they might see as available to them to try to avoid job loss, retaliation, further financial deprivation, and so forth. Yet, these strategies might be limited or undesirable in nature, which explains why those with few and threatened resources tend to find themselves in loss cycles that they are desperate to avoid (Hobfoll, 1989).

Although COR theory does not explain exactly how individuals might try to protect against threats related to work, two recent advances have provided some useful insights. The self-endangering work behaviors framework (Dettmers et al., 2016; Knecht et al., 2017) argues that against the backdrop of an increasingly uncertain and unequal world of work, workers experience pressure to sacrifice their long-term health and well-being to attain more immediate work goals—particularly, the higher order goals of job security, financial rewards, and positive regard from others (Knecht et al., 2017). Thus, workers engage in a wide variety of potentially self-endangering work behaviors out of concerns about competition and maintaining one's status in the workplace, a perceived inability to say no, and worries that health-protective behaviors (e.g., sickness absenteeism) will only create more stressful working conditions or guilt down the road (Brosi & Gerpott, 2023; Eder & Meyer, 2022; Ramsay et al., 2000; although Eder & Meyer point out that workers may self-endanger for more altruistic and team-based motives as well). In other words, workers engage in coping strategies that are potentially

adaptive to achieve these work-related goals but are "dysfunctional with regard to health and long-term ability to work" (Dettmers et al., 2016, p. 37).

The job preservation perspective on job insecurity (e.g., Shoss, 2017) has similarly argued that individuals will be motivated to mitigate the threat of job loss by engaging in or avoiding behaviors that can help secure their positions or at least avoid enhancing the threat. Drawing from COR theory, Shoss, Su, et al. (2023) argued that individuals may engage in protective strategies, such as avoiding absence, in order to avoid deepening threats to their jobs. These arguments align well with research suggesting that feelings of precarity create fear and a sense that individuals need to do anything possible to mitigate threats and avoid negative outcomes, even if doing so comes at a cost to their own health and well-being (Bazzoli & Probst, 2023; Pollert & Charlwood, 2009; Restubog et al., 2021). For example, Bazzoli and Probst (2023, p. 12) summarized qualitative research findings that "some [vulnerable] employees were willing to take more dangerous jobs to try [sic] make themselves less replaceable and therefore gain some power in bargaining for job security."

Here, we integrate and extend these lines of argument to propose that precarious working experiences reflect a state of threat wherein individuals are highly motivated to act in ways that will avoid exacerbating or help reduce these threats. In essence, because perceptions of precarity signal limited resources and the threat of losing more resources, workers both enact investment strategies to try to prevent further resource loss and, at the same time, experience worry about their inability to cope with or avoid other threats, such as disease exposure at work. That is, the self-endangering work behaviors framework and nascent research on job preservation suggest presenteeism may be one resource-investment strategy workers employ to avoid drawing negative attention to themselves or appearing uncommitted in the workplace. Similarly, precarious workers may signal their commitment to work by taking on more dangerous work and/or avoiding speaking out about unsafe working conditions. The combination of behavioral and emotional outcomes highlights how PWE leads workers to engage in presenteeism not out of disregard for the behavior's health consequences but in spite of acute concerns about health. Although all the workers in our study experienced some risks because of their roles as essential workers during the pandemic, we predicted that those with PWE are more likely to attend work while ill or potentially contagious, send sick children to daycare or school, and experience greater worry about the types of situations they might face on the job that put themselves at risk for disease exposure. We detail these predictions in the sections below.

PWE and Sickness Presenteeism

Sickness presenteeism has been labeled as a "controversial act" (Miraglia & Johns, 2016, p. 261) and a crisis for workplaces and public health in general (Widera et al., 2010). When individuals work while ill, they can endanger the health of themselves and others due to the risk of worsening their own symptoms, illness, or long-term health, as well as due to the risk of infectious disease transmission throughout the workplace or community (Johnson et al., 2021; Probst et al., 2021). As described by Baeriswyl et al. (2017, p. 55), within the self-endangering work behaviors framework, "sickness presenteeism is characterized by a maximization of effort (Semmer et al., 2010) directed toward overcoming work-related demands."

When an employee is ill, they engage in decision-making that will shape their behavioral response (Lohaus & Habermann, 2021), with potential reactions to illness including recovering at home or engaging in sickness presenteeism by attending work while ill (Brosi & Gerpott, 2023). The presenteeism literature suggests that a worker's decision to go to work sick is rooted in the meaning that the worker ascribes to sickness absence and their perceived pressure to go to work, including anticipated outcomes (Johns, 2011). In the case of PWE, the primary meaning ascribed to absence is a worker's fear about potential threats to their job and finances, retaliation from more powerful others, or obstacles in the way of taking time off (Caverley et al., 2007; Hansen & Andersen, 2008). In other words, from the theoretical perspective articulated earlier, and based on COR theory, workers perceiving themselves to be in precarious positions are likely to view absenteeism as a behavior that would further threaten their resources; in contrast, they are likely to view presenteeism as a way to prevent exacerbating threats (Lu et al., 2013) and perhaps even to present themselves as a dedicated worker (Lohaus et al., 2022) in an effort to reduce threats.

Indeed, Dello Russo et al. (2013, p. 209) noted that absence is a "mildly deviant" behavior. Those who view their job position as already insecure and insufficient, and themselves at risk for retaliation or mistreatment at work are unlikely to risk engaging in such a (very observable) behavior that could be seen as deviant by their employer or supervisor (e.g., Shoss, Su, et al., 2023). An employee might perceive their options to respond to illness to be limited, or they might feel that the threat associated with missing work is too high. In other words, those lacking job security, sufficient wages, a sense of power, and/or the ability to exercise rights are likely to view missing work as a luxury they do not have.

Although little research has explored the relationship between multidimensional precarious work and presenteeism, research has linked job insecurity to presenteeism and job and financial insecurity to poorer adherence to pandemic safety guidelines (Blake et al., 2010; Miraglia & Johns, 2016; Probst et al., 2020). Moreover, research finds that employees who engage in presenteeism anticipate that doing so will enable them to complete their tasks and meet their deadlines, promote the security of their jobs, stay in good standing with their manager, and promote their image as reliable and professional (Lohaus et al., 2022). Although research focused on both positive and negative effects of presenteeism, in the case of PWE, we suspect that the primary motivation is to avoid further threats to resources. In this vein, interviews by The Shift Project (Schneider & Harknett, 2020) revealed harrowing stories of threats workers experienced while forced to come in while ill, including the story of a boss threatening a seriously ill employee with multiple days of suspension and refusing to give this person the day off to go to a hospital. Research from before the pandemic has found that workers experiencing unpredictability in their work have had to leave children unattended or in unsafe caregiving situations in order to attend work (Harknett et al., 2022; S. H. Murray, 2023). Thus, in line with the logic that sickness presenteeism is seen by workers as a strategy to avoid further resource loss associated with missing work, we expect that PWE are positively related to presenteeism.

The context of a global pandemic promotes a more nuanced perspective on presenteeism behaviors. First, there is a need to understand when workers attend work while generally ill (which we

label general presenteeism) and/or with a potential or confirmed case of COVID-19 or following COVID-19 exposure (which we label COVID presenteeism). Both operationalizations are included in this study to account for the different public health threats posed by general presenteeism, which may include noninfectious ailments (e.g., migraines, allergies), and COVID presenteeism. Further, we include COVID-19 exposure as the incubation period for COVID-19 allowed a person to be contagious 48 hr prior to experiencing symptoms, particularly for early variants (Harvard Health Publishing, 2022). Individuals were encouraged to take precautions, such as staying home from work, if they were experiencing symptoms or had a possible or confirmed case of COVID-19.

We operationalize presenteeism in these ways in order to (a) better reflect the meaning of presenteeism in the specific context in which our research was conducted and (b) account for the long incubation period of the COVID-19 virus, which raised concerns for asymptomatic transmission. Thus, our research captures that a participant could have attended work while symptomatic and not feeling well. A participant also could have attended work while feeling well after being in close contact with someone diagnosed with COVID-19, risking the possibility of asymptomatic transmission. Both were behaviors of interest for public health at the time of this data collection and using the general and COVID-19-specific operationalizations of presenteeism allowed us to observe both behaviors. It is also worth noting that the presenteeism literature outside of organizational psychology (e.g., in public health) frequently makes a distinction between contagious illness presenteeism and generally going to work when one feels unwell, such as when one is afflicted by back pain or other noncontagious symptoms of poorer health; incorporating the nature of the ailment can provide a deeper understanding of the presenteeism phenomenon (e.g., Pichler & Ziebarth, 2017; Ruhle et al., 2020). Although both types of presenteeism are important for the health and well-being of the individual employee, the implications for public health are different. Therefore, these distinctions also serve to link the organizational psychology and public health literatures.

Workers' decisions to personally attend work while ill are not the only work-related decisions that have implications for the public. Many families are dependent on school and/or daycare to attend work, and the loss of a childcare option often requires reorganization of a parent's work plans (S. H. Murray, 2023). If a parent feels that they have to attend work for fear of negative personal and job repercussions, they may choose to send a sick child to school and/or daycare (which we label children's sickness presence). Although past research has defined presenteeism as "going to work or school while ill," our conceptualization of parents sending dependent minors to school or daycare while ill represents an extension of the presenteeism construct (Webster et al., 2019, p. 2; see also Ruhle et al., 2020). Importantly, this behavior has potentially cascading implications across communities, as schools and daycares represent environments that could permit child-to-child exposure or child-to-teacher exposure. In our estimation, it would be those parents who felt more precarious in their work who would feel more desperate for their children to go to school. Thus, we examine several conceptualizations of presenteeism that capture presenteeism as a risk factor for disease spread (e.g., while feeling ill, after illness exposure, children's sickness presence) to better understand presenteeism and its implications during this time period.

Models of presenteeism portray this behavior as a choice between health and performance (Karanika-Murray & Biron, 2020; Lu et al., 2013). Building on the integrated COR theory, self-endangering work behavior, and self-preservation perspective articulated above, we view presenteeism as a strategic behavior that aims at mitigating current threats. For workers who experience feelings of precarity, the long-term, uncertain threats to their and others' health from presenteeism (Ruhle et al., 2020) may be outweighed by the immediate feeling of needing to protect themselves against the job loss, financial loss, or mistreatment at work that might happen if they were to be miss work. In essence, presenteeism reflects an intertemporal trade-off (avoiding further threat vs. protecting one's and others' health) that workers experiencing various forms of precarity may feel they have to make to keep current threats from PWE in check.

Hypothesis 1: (a) Job insecurity, (b) powerlessness, (c) insufficient wages, and (d) inability to exercise rights are associated with greater incidence of general presenteeism.

Hypothesis 2: (a) Job insecurity, (b) powerlessness, (c) insufficient wages, and (d) inability to exercise rights are associated with greater incidence of COVID-19 presenteeism.

Hypothesis 3: (a) Job insecurity, (b) powerlessness, (c) insufficient wages, and (d) inability to exercise rights are associated with greater incidence of children's sickness presence among those workers with caregiving responsibilities for children.

PWE and Worry About Work-Related COVID-19 Exposure

Worry about work-related COVID-19 exposure captures the disproportionate risks that individuals may experience as a result of their work environments during the pandemic (LeNoble et al., 2023). Based on the rationale articulated above, we argue that perceptions of PWE make individuals more susceptible to these risks, and to worrying about them. This is because PWE leave workers with limited capacity to protect themselves and demand better working conditions due to the fear of potential job/income loss or mistreatment by those with more power in the workplace (Benach et al., 2014; Blustein et al., 2020; Campbell & Price, 2016; Kalleberg, 2009). Researchers have argued that awareness of their vulnerability contributes to a lack of agency experienced by those most vulnerable (Restubog et al., 2021). Following our theoretical framework articulated above, workers in precarious positions may ultimately feel that they have no choice but to risk COVID-19 exposure in order to protect against the more immediate threats posed by PWE.

As noted above, workers experiencing precarity may feel that they cannot say no to tasks that might increase their potential disease exposure without risking retaliation and further resource loss, or they may even take on these roles in order to demonstrate their commitment to work to try to reduce existing threats. This is consistent with COR theory's notion that individuals have to invest resources to address "dwindling resources," even if that investment may breed other threats (Hobfoll et al., 2018, p. 113; Halbesleben et al., 2014). As Bandura (2006) cogently pointed out, those who perceive their environment as unstable and threatening, and

themselves as vulnerable, often feel that they are unable to cope in this environment, generating worry. Therefore, through a COR theory and self-endangering work behavior lens, individuals must make choices regarding resource investment that might ultimately result in sacrificing one competing interest for another (Halbesleben et al., 2014). In line with this rationale, we anticipated that PWE would similarly make individuals particularly susceptible to, and therefore worried about, potential exposure to COVID-19 at work.

Such predictions are in line with past research that has examined precarity and work-related health hazards using objective job characteristics or demographic factors. For example, research conducted prepandemic linked precarious work conditions to greater exposure to workplace chemical, physical, and biological hazards (Benach et al., 2014). Those in more precarious conditions have been found to be more aware of these risks and less likely to "exercise their right to refuse unsafe work for fear of endangering their position" (Baugher & Roberts, 1999, p. 536; see also Restubog et al., 2021). Research has also linked worry about workplace hazards to objectively informal and unprotected working arrangements (e.g., Baugher & Roberts, 1999). We extend this work by examining the impacts of subjectively perceived elements of precarious work, which captures how individuals view and interpret their experiences in the workplace with regard to threats.

Hypothesis 4: (a) Job insecurity, (b) powerlessness, (c) insufficient wages, and (d) inability to exercise rights are positively associated with worry about COVID-19 exposure at work.

Examining Within- and Between-Person Effects

Research on PWE largely has used cross-sectional designs to characterize working arrangements (Blustein et al., 2020). Although there is value in these approaches, overreliance on between-person methodology means that shorter term fluctuations experienced by individuals over time are not well understood (Rivkin et al., 2022). The COVID-19 pandemic represents an ever-changing environment, wherein perceptions of precarity may reasonably be anticipated to fluctuate (Allan et al., 2021). Therefore, the pandemic provides an important opportunity to examine outcomes associated with acute fluctuations (e.g., within person) and chronic differences (between person) in forms of precarity, reflecting the idea that people's psychological appraisals of the threats they face have both elements of stability and change as individuals seek to make sense of and respond to their environments in self-protective manners. At the same time, it offers an opportunity to examine how presenteeism and worry about work-related disease exposure may fluctuate within persons.

From a psychological standpoint, researchers have argued that people are sensitive to both static (i.e., average) conditions as well as fluctuations (i.e., increases or decreases relative to average) in these experiences (e.g., Bohle et al., 2022). Conceptually, between-person effects can be thought of as capturing more chronic precarity, whereas within-person effects capture more acute experiences. Chronic precarity corresponds with the "good jobs" versus "bad jobs" conceptualization of precarity that focuses on certain jobs or certain worker populations as experiencing poorer occupational quality (e.g., Kalleberg, 2012). Acute precarity, in contrast, captures that workplace dynamics—and one's perceptions of work-related threats—may shift over time, especially in dynamic crisis situations such as the COVID-19 pandemic. Therefore, fluctuations in precarity signal particular heightening or salience of a threat or, alternatively, the relative easing of a threat relative to one's average or usual experience. As previously noted, the literatures on precarity, presenteeism, and workplace hazards have all tended to use between-person or single time point designs, which are unable to separate within- and between-person effects.

We examine the relationships of interest simultaneously at both levels. COR theory focuses on an individual's acquisition or loss (or threatened loss) of resources, suggesting that a potentially relevant comparison point is one's own previous resource pools as well as one's overall resources. Therefore, it is plausible that our hypothesized effects may emerge at both within- and between-person levels of analyses. Examining both between- and within-person effects provides the field with greater insight into how shorter term fluctuations (e.g., relative increases in precarity) or more chronic precariousness in employment relationships relate to presenteeism and worry about work-related COVID-19 exposure. In other words, are presenteeism and worry about work-related disease exposures more likely to be reactions to acutely heightened experiences of threat, or do they reflect ongoing, baseline strategies to try to counteract chronic threats? This perspective mirrors recent advances in the presenteeism literature (e.g., Rivkin et al., 2022), suggesting that presenteeism is likely to depend on "on the ground" circumstances. Similarly, because an individual's working conditions may be impacted not only by the relatively stable nature of their employment contract or job status but also by sudden economic downturns, industry trends, changes in workplace politics or relationships, and so forth, there is value in understanding how both relatively stable perceptions of PWE and variability in PWE relate to outcomes of interest.

Method

Participants and Procedure

Using the ROI Rocket Survey firm, we recruited a sample of 303 individuals working fully on-site during the study period (Fall 2020). As seen in Table 1, the largest percentage of respondents worked in health care, social assistance, public safety, and emergency response. Consistent with findings that women are disproportionately represented in essential work (Carli, 2020), our sample had a high proportion of women (75.1%). Participant ages ranged from 25 to 59, with a mean age of 43.71. More than one fifth (21.5%) of the sample had one child at home, and 22.1% had two or more children at home. Sixty-seven percent were hourly workers, and 87.3% were not represented by a union. Sixty-eight percent were employed by private-for-profit companies, 51% of the sample had worked with their current organization for more than 5 years, and respondents on average worked 38 hr per week during the study period. Nearly 42% of our sample were financially fragile (Lusardi et al., 2011) in that they indicated that they could not or probably could not come up with $2,000 in the case of an emergency.

Wave 1 of data collection took place between August 27 and September 4, 2020, and three subsequent waves of data were collected, each 3 weeks apart. On average, participants responded to three surveys (Wave 1 $N = 303$; Wave 2 $N = 231$; Wave 3 $N = 217$; Wave 4 $N = 223$). Attrition analyses revealed that insufficient wages, age, and days of general presenteeism were significantly

Table 1
Demographics of Total Sample (N = 303)

Characteristic	No. (%)[a]
Gender	
Male	75 (24.9%)
Female	226 (75.1%)
Race/ethnicity	
American Indian or Alaskan Native	5 (1.7%)
Asian/Pacific Islander	8 (2.7%)
Black/African American	18 (6.0%)
Caucasian/White	252 (83.7%)
Hispanic/Latino	15 (5.0%)
Other	3 (1.0%)
Industry[b]	
Health care, social assistance, public safety, and emergency response	88 (29.1%)
Manufacturing, construction, transportation, warehousing, and utilities	36 (11.9%)
Retail and wholesale trade	31 (10.3%)
Professional, scientific, information, or administrative services	29 (9.6%)
Food services, tourism, hospitality, and aviation	24 (8.0%)
Education	22 (7.3%)
Finance and insurance	15 (5.0%)
Other	57 (18.9%)

[a] As some participants failed to respond to certain items, not all totals sum to 303. Percentages reflect the number who responded to each item rather than the total sample. [b] See online appendix for further analyses by industry.

associated with greater number of waves completed ($b = -.13$, $SE = .06$, $p = .031$; $b = .02$, $SE = .01$, $p < .01$; $b = -.03$, $SE = .02$, $p = .049$).

Study Context

The initial sample ($N = 303$) included participants in 45 U.S. states and the District of Columbia. In the United States, individual state governments were largely responsible for COVID-19 containment and testing efforts, with little oversight or support from the federal government (Bergquist et al., 2020; Xu & Basu, 2020). Although COVID-19 responses varied, every U.S. state had declared a state of emergency by March 16, 2020, and the majority (i.e., 45 of 50 states) issued stay-at-home orders or recommendations between March and May (Bergquist et al., 2020; Moreland et al., 2020). Most states (i.e., 39 of 50) closed businesses deemed nonessential (e.g., museums, casinos) by the beginning of April (Bergquist et al., 2020). However, following widespread pressure to "reopen the economy," businesses and restaurants across states had generally reopened by the end of May, and only a handful of states closed nonessential businesses again when case counts increased in July (Bergquist et al., 2020).

By the time our data collection began in August 2020, lockdowns (i.e., stay-at-home orders) had largely expired or been rescinded (MultiState, 2020). Instead, the most common COVID-19 containment policies in place in the U.S. mandated mask-wearing in public spaces or restricted large gatherings of people (MultiState, 2020). The majority of our sample (85.81%) lived in a state with an active mask mandate as of August 2020 (MultiState, 2020). A minority (9.57%) of our sample lived in states with no statewide policy restricting mass gatherings (e.g., Kansas, Missouri), 20.46% lived in states restricting gatherings of over 100 or over 250 people (e.g., California, Virginia), 37.62% lived in states restricting gatherings of over 25 or 50 people (e.g., Florida, New York), and 17.82% lived in states restricting gatherings of more than 10 people (e.g., Texas, Ohio; MultiState, 2020). The remainder lived in states that recommended restricting mass gatherings without providing a specific numerical limit (MultiState, 2020). Thus, at the time of data collection, governmental policy may have differentially affected the personal lives of individuals in our sample but should have had little bearing on their decisions regarding attending work.

However, during this time, the U.S. Centers for Disease Control and Prevention (CDC) was advising all individuals who had a confirmed or possible case of COVID-19 or had had close contact with someone with a confirmed or possible case of COVID-19 to stay home to reduce virus spread. This was before the availability of vaccines or even widespread tests; thus, one of the few mitigation strategies available to the public was to avoid contact with sick individuals and to stay home when sick (Harvard Health Publishing, 2022).

Our full sample (100.00%) worked entirely outside of their homes, as opposed to remotely or in hybrid work arrangements. Nonetheless, organizational support for COVID-19-related absences varied across our sample. For example, 29.04% of participants reported that their organization had waived their attendance policy, while 52.48% reported that their organization had not waived the attendance policy, and 18.48% were unsure whether their attendance policy had been waived. Similarly, 30.36% reported that their organization had instituted new or additional paid sick leave as a result of the pandemic (57.75% no; 11.88% unsure). We controlled for organizational policy variations in the analyses.

Transparency Statement

Full survey items, analytical code, and output are provided in an online appendix at https://osf.io/rzj2c/?view_only=5e65e2079ec645fca0c3b51cca7b565f. Although the hypotheses were not officially preregistered, they were described in the proposal for funding. The project received approval from University of Central Florida's Institutional Review Board, protocol number 00001645, project title "COVID-19 Outbreak, Precarious Work, and Employee Well-Being and Safety (COPE-WELL)."

Measures

All measures were assessed on a 5-point (*strongly disagree–strongly agree*) Likert scale unless noted. Items were coded in the direction of the construct (see the OSF page at https://osf.io/rzj2c/?view_only=5e65e2079ec645fca0c3b51cca7b565f). Correlations are presented in Table 2.

Job Insecurity

Job insecurity was assessed using the four-item Job Insecurity Scale (Vander Elst et al., 2014). An example item is "I think I might lose my job in the near future" ($\alpha s = .91, .93, .91, .92$ for four waves, respectively; $\omega = .79, .82, .81, .79$).

Wage Insufficiency

Wage insufficiency was assessed using the two items capturing this dimension from Vives et al.'s (2015) Employment Precariousness

Table 2
Descriptive Statistics and Correlations

Variable	*M* (*B*)[a]	*SD* (*B*)	*SD* (*W*)[b]	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Inability to exercise rights	2.59	1.13	.57	—	.04	.09**	.03								.06			−.00	−.02	−.10
2. Wage insufficiency	2.49	1.16	.44	.32**	—	.08*	.07*								.12**			−.03	−.04	−.04
3. Job insecurity	1.97	.91	.40	.36**	.37**	—	.16**								.13**			.09**	.07*	.04
4. Powerlessness	2.02	.76	.33	.42**	.25**	.43**	—								.09**			.01	.10**	.07
5. Pay structure	.67	.47		.08	.24**	.04	.03	—												
6. Union member	.13	.33		.01	−.12*	−.01	.12*	−.11	—											
7. Neuroticism	2.50	.88		.08	.29**	.27**	.33**	.06	−.05	—										
8. Agreeableness	3.87	.87		−.06	−.01	−.08	−.11*	.07	−.02	−.20**	—									
9. Tenure[c]	13.33	7.96		−.10	−.22**	−.18**	−.08	−.09	.10	−.17**	−.03	—								
10. COVID-19 risk factors	.42	.79		.03	.10	.08	.20**	.11*	.03	.11	.09	−.04	—							
11. Number of children	1.75	1.04		−.01	.05	−.04	.06	−.10	.01	.06	−.04	−.02	.09	—						
12. Worry about work-related exposure	2.69	.82	.29	.29**	.29**	.35**	.45**	.09	.07	.31**	.08	−.06	.30**	.15**	—			−.01	−.00	.13*
13. Safe work policies	2.84	1.30		−.29**	−.22**	−.13*	−.18**	.08	.01	−.09	.05	.01	.01	−.09	−.15**	—				
14. Sick leave policies	.95	1.07		−.16**	−.20**	−.10	−.08	−.09	.08	−.16**	.05	.08	.03	.15*	−.04	.33**	—			
15. Presenteeism (general)	.25	.35	.27	.11*	.10	.13*	.27**	−.04	−.00	.22**	−.05	−.13*	.18**	.07	.32**	−.07	.07	—	.22**	.24**
16. Presenteeism (COVID)	.13	.26	.22	.07	.02	.13*	.30**	−.06	.03	.11	−.17**	−.08	.12*	.14*	.24**	−.09	.07	.37**	—	.18**
17. Children's sickness presence	.13	.28	.22	.06	−.02	.29**	.31**	−.13	−.07	.17*	−.22**	−.10	.13	.05	.34**	−.19*	−.03	.49**	.59**	—

[a] Between-persons (B) correlations *N*s range from 299 to 303, except correlations with children's sickness presence that range from 136 to 139. [b] Means of within-person (W) variables are 0. Within-person correlations *N* range from 916 to 918, except correlations with children's sickness presence that range from *N* = 372 to 377. Within-person correlations are presented above the diagonal. [c] Tenure was coded such that the first five options reflect less than 1 year.
* $p < .05$. ** $p < .01$.

Scale (EPRES) wage insufficiency scale. An example item is "My current salary allows me to cover my basic needs", reverse scored (α*s* = .85, .83, .79, .81; ω = .86, .83, .79, .82).

Powerlessness

Powerlessness was assessed using Vives et al.'s (2015) EPRES scale seven-item vulnerability scale. Participants were asked to indicate the frequency with which they are in vulnerable situations, including "you are defenseless toward unfair treatment by your supervisors" on a scale from *never* (1) to *always* (5) (α*s* = .79, .79, .80, .80; ω = .73, .73, .73, .70).

Inability to Exercise Rights

Inability to exercise rights was assessed using Vives et al.'s (2015) EPRES five-item inability to exercise rights scale. Participants were asked to indicate the frequency with which they can exercise rights such as "take sick leave when you need to," and "request a day off for family reasons when needed" on a scale from *never* (1) to *always* (5). (α*s* = .95, .95, .94, .95; ω = .94, .95, .94, .95).

Worry About COVID-19 Exposure

Originally used to measure nurses' perceptions of the work-related risk of Severe Acute Respiratory Syndrome exposure, we adapted Wu et al.'s (2009) nine-item scale for COVID-19 exposure. An example item is "I believe that my job is putting me at great risk for exposure to the coronavirus (COVID-19)" (α*s* = .87, .87, .88, .87; ω = .88, .89, .88, .87).

Presenteeism

We asked participants the item from Johns (2011), reading "How many days in the past 3 weeks (including today) did you go to work even though you were sick or not feeling well?" (*general presenteeism*). We also asked two *COVID-19-related presenteeism* questions: "Over the past 3 weeks (including today): How many days did you go to work even though you had a possible or confirmed case of COVID-19?" and "Over the past 3 weeks (including today): How many days did you go to work after someone you with whom you have had contact had a possible or confirmed or possible case of COVID-19?" We used this wording (possible or confirmed) because of the long delays in waiting for test results (over 3 days, and many reported lost tests during this period of time). We combined these two items into a single formative measure of COVID-related presenteeism. Participants responded in terms of number of days (0–21 days).

For participants reporting responsibilities for children under the age of 18, we asked:

> Did one or more of the children living in your home attend daycare or school even though they had any of the following symptoms? (0 days–21 days) Fever or chills, Cough, Shortness of breath or difficulty breathing, Fatigue, Muscle or body aches, Headache, New loss of taste or smell, Sore throat, Congestion or runny nose, Nausea or vomiting, Diarrhea. (*children's sickness presence*)

The stem was adapted from Johns (2011), and the symptom list came from the CDC (2019). We used symptoms for children (as opposed to asking about cases) as there was less information about COVID-19's manifestation in children and fewer testing sites available for children at the time of data collection. Further, as this list includes symptoms associated with other common viruses, this variable should be thought of as "children's general sickness presence."

Control Variables

We examined the robustness of our findings against several potential confounding variables and report models with and without controls.

First, we examined union membership, pay structure (hourly vs. salaried), and tenure because these are job elements that may reflect contract-based precarity; these were assessed at Time 1. Second, we controlled for two relevant personality traits—neuroticism and agreeableness—to control for an individual's general propensity for worry (neuroticism) and lack of comfort with conflict (agreeableness). These scales were measured at Time 1 with the mini-version of the International Personality Item Pool (Donnellan et al., 2006; α*s* = .81, .77). Third, we controlled for a person's COVID-19 risk factors as indicated by a checklist in the Time 1 survey that displayed risk factors identified by the CDC (CDC, n.d.).

We controlled for workplace policies for COVID-19 safety (e.g., established safe work practices for infection prevention; engineered the workplace for infection prevention) in the models predicting worry about work-related COVID-19 exposure. We controlled for policies for sick leave/absence in the models predicting presenteeism (e.g., provided additional or new paid sick leave options for some or all employees, waived attendance policy for some or all employees), given research suggesting that policy changes had increased access to paid sick leave and decreased presenteeism for employees (Callison & Pesko, 2022). These two variables were each measured by three yes-or-no questions indicating whether the organization had safe work or absence policies in place at each wave.

Finally, we controlled for the state-level new COVID-19 case rate. This captures a state's new cases as a percentage of the state's population and reflects the percentage of the state's population that tested positive for COVID-19 during the 3 weeks prior to each wave's data collection (see Min et al., 2021, for a similar approach). Case numbers were gathered from The New York Times COVID tracker (The New York Times, 2020), and state populations were based on Census data (United States Census Bureau, 2019).

Results

Confirmatory Factor Analysis

First, we sought to confirm the distinguishability of the PWE constructs using multilevel confirmatory factor analysis (CFA) in MPlus (Muthén & Muthén, 1998–2017). One-factor multilevel CFA model has one latent factor at within-person level and one latent factor at between-person with all items loading on the latent factor. Four-factor multilevel CFA model has four factors at both within-person and between-person levels with the items loading on their corresponding latent factor. We used Satorra and Bentler's (2001) scaled difference chi-square test to compare the nested models. The results revealed that a four-factor model fit better than a single-factor model ($\chi^2 = 429.49$, $df = 197$; comparative fit index, CFI = .98; root-mean-square error of approximation, RMSEA = .02, SRMR_within = .03, SRMR_between = .05; scaled $\Delta\chi^2 = 1587.06$, $p < .001$). Second, CFA of a five-factor model of the PWE

variables and worry about COVID-19 exposure likewise fit better than a single-factor model (χ^2 = 1018.12, *df* = 442; CFI = .92; RMSEA = .04; SRMR_within = .04, SRMR_between = .07; scaled $\Delta\chi^2$ = 1511.72, $p < .001$).

Descriptive Analyses

We report descriptive statistics in Tables 1 and 2 and variable intraclass correlations (ICCs) in Table 3. Overall, during the course of our 12-week study, 12.9% reported attending work with a confirmed or possible case of COVID-19 (13.9% if only examining those who responded to all four waves), 22.8% reported attending work after having contact with someone with a confirmed or possible case of COVID-19 (23.3% of complete cases), 25.2% of those with children reported sending their children to school/daycare with one or more COVID-19 symptoms (30.5% of complete cases), and 41.6% reported going to work while feeling ill in general (42.8% of complete cases). The ICC values indicated that between 19% and 31% of the variance in PWE occurred at the within-person level of analysis.

Hypotheses 1–3: Presenteeism Analyses

To examine the within- and between-person relationships between PWE and presenteeism, we calculated person means and created person-mean-centered versions of the PWE variables (Bliese et al., 2018). Because the presenteeism hypotheses focused on likelihood of presenteeism (as opposed to number of days engaging in presenteeism) and because of the relatively low base rate of presenteeism, we used mixed effects logistic regression through Stata's melogit (StataCorp, 2013) procedure to predict the odds of a person engaging in presenteeism at a given survey wave.[1] Both person means and within-person-centered versions of the variables were entered as predictors. We specified three levels of nesting, capturing that observations (Level 1) in our study were nested within persons (Level 2), and persons were nested within states (Level 3). We specified random intercepts but fixed the slope estimates in order to enable the models to converge. Results are presented in Table 4.

General Presenteeism

Between-person powerlessness was a significant predictor of general presenteeism (without controls, odds ratio = 2.58, *SE* = .68, $p < .01$; with controls, odds ratio = 1.85, *SE* = .48, $p = .018$). Within-person job insecurity significantly predicted general presenteeism (without controls, odds ratio = 1.72, *SE* = .43, $p = .03$; with controls, odds ratio = 1.68, *SE* = .42, $p = .04$). Additional significant predictors of general presenteeism were neuroticism and tenure (odds ratio = 1.84, *SE* = .37, $p < .01$; odds ratio = .95, *SE* = .02, $p = .01$). Thus, Hypotheses 1b and d were supported.

Table 3
Variable ICCs

Variable	ICC(1)
Inability to exercise rights	.69
Wage insufficiency	.81
Job insecurity	.75
Powerlessness	.75
Worry about work-related exposure	.83
General presenteeism	.58
COVID presenteeism	.53
Secondary presenteeism	.49

Note. ICC = intraclass correlation.

COVID Presenteeism

Between-person powerlessness predicted COVID presenteeism (without controls, odds ratio = 3.16, *SE* = .88, $p < .01$; with controls, odds ratio = 3.18, *SE* = .95, $p < .01$), and the within-person effect was marginally significant (see Table 3). The controls of agreeableness (odds ratio = .59, *SE* = .13, $p = .01$) and state COVID case rate (odds ratio = 4.76, *SE* = 3.27, $p = .023$) were also significant in the model that included controls. Thus, Hypothesis 2b was supported (see Table 4).

Children's Sickness Presence

To assess children's sickness presence, we limited the analysis to those responsible for one or more children under the age of 18 (n = 139). No predictors were significant in the models estimating children's sickness presence (full analyses available in online supplement material: https://osf.io/rzj2c/?view_only=5e65e2079ec645fca0c3b51cca7b565f). However, as a supplementary analysis, we ran a model predicting children's sickness presence from the raw PWE variables (not separated into their within and between components) and found powerlessness to be a significant predictor (odds ratio = 2.32, *SE* = .82, $p = .017$).

Hypothesis 4: Worry About Work-Related COVID-19 Exposure

For the models predicting worry about work-related COVID-19 exposure, we used Stata's xtmixed procedure. Both person means and the person-mean centered versions of the variables were entered as predictors. We specified three levels of nesting: observations (Level 1) nested within persons (Level 2) and persons nested within states (Level 3). We specified random intercepts across levels. Because doing so did not pose a problem for model estimation, we also allowed the Level 1 slope to vary randomly across persons (i.e., random slopes).

Table 5 reports the multilevel regression results. These results revealed significant between-person relationships between job insecurity and exposure worry (without controls, γ = .13, *SE* = .05, $p = .02$; with controls, γ = .13, *SE* = .05, $p < .01$) as well as of between-person powerlessness and exposure worry (without controls, γ = .36, *SE* = .06, $p < .01$; with controls, γ = .24, *SE* = .06, $p < .01$). At the within-level, job insecurity also significantly predicted worry about work-related exposure to COVID-19 (without controls, γ = .09, *SE* = .03, $p < .01$; with controls, γ = .07, *SE* = .03, $p = .02$). Thus, Hypotheses 4a and 4b were supported.

The significance of coefficients for between-person inability to exercise rights and wage insufficiency varied depending on whether controls were included in the model (wage insufficiency: without

[1] These findings were similar to result utilizing zero-inflated binomial models for number of days engaging in presenteeism but had the added advantage of not being influenced by more extreme values (e.g., people who indicated going to work ill for most of the 3-week period).

Table 4
Multilevel Negative Binomial Regression Results Predicting Presenteeism Variables

Variable	General presenteeism				General presenteeism				COVID presenteeism				COVID presenteeism			
	OR	*SE*	95% CI		*OR*	*SE*	95% CI		*OR*	*SE*	95% CI		*OR*	*SE*	95% CI	
Within person																
Inability to exercise rights	.98	.18	.68	1.40	1.00	.19	.70	1.44	.88	.20	.56	1.38	.88	.21	.55	1.40
Wage insufficiency	.87	.19	.56	1.35	.86	.19	.56	1.32	.76	.20	.45	1.29	.69	.19	.40	1.20
Job insecurity	1.72*	.43	1.05	2.82	1.68*	.42	1.02	2.75	1.53	.48	.83	2.81	1.54	.50	.82	2.91
Powerlessness	1.05	.32	.58	1.93	1.00	.31	.55	1.84	1.95†	.68	1.01	3.87	1.89†	.66	.95	3.76
Between person																
Inability to exercise rights	1.04	.17	.75	1.45	1.17	.19	.85	1.62	.95	.18	.66	1.37	.89	.17	.61	1.31
Wage insufficiency	1.22	.19	.90	1.65	1.07	.17	.79	1.46	.95	.16	.68	1.33	.99	.18	.69	1.42
Job insecurity	.99	.21	.66	1.50	.92	.18	.62	1.36	1.03	.23	.66	1.60	1.00	.23	.63	1.57
Powerlessness	2.58**	.68	1.53	4.32	1.85*	.48	1.11	3.08	3.16**	.88	1.83	5.47	3.18*	.95	1.77	5.71
Between-person controls																
Pay structure					.63	.21	.32	1.21					.89	.35	.41	1.92
Union member					1.03	.48	.41	2.57					.57	.32	.19	1.74
Neuroticism					1.84**	.37	1.25	2.72					.97	.22	.62	1.52
Agreeableness					.98	.18	.68	1.41					.59*	.13	.39	.90
Tenure					.95*	.02	.91	1.00					.97	.02	.93	1.02
COVID risk factors					1.38	.27	.94	2.03					1.13	.26	.72	1.78
Sick leave					1.16	.15	.89	1.50					1.27	.20	.93	1.73
COVID case rate					1.47	.88	.46	4.72					4.76*	3.27	1.24	18.26
Random effects																
State intercept	.09	.22	0	10.95	0	0	0	0	0	0	0	0	0	0	0	0
Person intercept	3.84	1.00	2.31	6.39	3.00	.83	1.75	5.16	3.19	1.07	1.65	6.16	2.74	.97	1.36	5.50

Note. *OR* = odds ratio; *SE* = standard error; CI = confidence interval.
† $p < .10$. * $p < .05$. ** $p < .01$.

controls, $\gamma = .10$, $SE = .04$, $p < .01$; with controls, $\gamma = .06$, $SE = .04$, $p = .11$; inability to exercise rights: without controls, $\gamma = .04$, $SE = .04$, $p = .31$; with controls, $\gamma = .09$, $SE = .04$, $p = .03$). It is also worth noting that several control variables significantly predicted worry about work-related COVID-19 exposure, including neuroticism ($\gamma = .18$, $SE = .05$, $p < .01$), agreeableness ($\gamma = .14$, $SE = .05$, $p < .01$), preexisting COVID-19 risk factors ($\gamma = .21$, $SE = .05$, $p < .01$), and state-level COVID-19 new case rate ($\gamma = .18$, $SE = .08$, $p = .03$).

Discussion

> The action in question: A person knowingly went to work while sick and later tested positive for the virus, Douglas County officials said last week. Two separate COVID-19 outbreaks have now been traced back to that person, officials said. … One of those outbreaks has resulted in seven deaths, and the other recent outbreak has placed over 300 people/families in quarantine. (Kaur, 2020)

News stories of individual "superspreaders" causing outbreaks by working while ill emphasize the risks associated with precarious work (e.g., Kaur, 2020). Our research echoes these stories and sheds light on the PWE that are associated with worry about work-related COVID-19 exposure and, simultaneously, behavior that increases the risk of exposure to others. Our findings in particular point to perceptions of powerlessness and job insecurity as consistent predictors of presenteeism and work-related COVID-19 exposure worry.

Consistent with the idea that PWE make health threats in the work environment more salient and trigger attempts to cope through potentially self-endangering work behaviors, we found that workers who experienced higher average levels of powerlessness to mistreatment at work had greater worry about work-related COVID-19 exposure. Worker powerlessness also played a role in predicting COVID-19 presenteeism, general presenteeism, and children's sickness presence. While powerlessness appeared to primarily operate at the between-person level of analysis, job insecurity operated at both the between- and within-person levels. Of all the precarity dimensions, powerlessness best captures a combination of lack of control, uncertainty, and fear about what will happen *at* work (Allan et al., 2021). Powerlessness seems to reflect a sustained threat that may make people concerned about what will happen to them at work when faced with acute decisions about attending work. In other words, those who feel they are powerless to mistreatment by others may avoid provoking poor treatment by avoiding behaviors that stand out (e.g., absence) and accepting tasks with greater risk of disease exposure. These findings suggest that what seems to matter most is people's general and more stable perceptions of powerlessness as opposed to acute fluctuations.

Workers' worry about COVID-19 exposure was also influenced by both between-person levels of job insecurity as well as within-person increases in job insecurity. This suggests that workers are responsive to both overall levels of job insecurity and fluctuations in threats. Proximal threats to jobs have been found to motivate people to take action to secure their jobs (Shoss, Su, et al., 2023). Our findings extend this work by suggesting that workers may engage in potentially health-threatening behaviors in this pursuit. The fact that job insecurity was the only precarious work variable to significantly relate to outcomes at the within-person level might reflect heightened vigilance to job threats, especially with the job loss events during the COVID-19 pandemic and ensuing organizational crises. Our findings are consistent with several recent job insecurity studies that likewise find that although the majority of variance in job insecurity is at the between-person level, within-person job

Table 5
Multilevel Regression Results for COVID-19 Work Exposure Worry

Variable	COVID-19 work exposure worry				COVID-19 work exposure worry			
	Coefficient	*SE*	95% CI		Coefficient	*SE*	95% CI	
Within person								
Inability to exercise rights	.02	.02	−.02	.06	.03	.02	−.01	.07
Wage insufficiency	.05	.03	−.01	.11	.05	.03	−.01	.11
Job insecurity	.09**	.03	.03	.15	.07*	.03	.01	.14
Powerlessness	.06	.05	−.03	.16	.08	.05	−.02	.17
Between person								
Inability to exercise rights	.04	.04	−.04	.12	.09*	.04	.01	.17
Wage insufficiency	.10**	.04	.03	.18	.06	.04	−.01	.14
Job insecurity	.13*	.05	.02	.23	.13**	.05	.03	.23
Powerlessness	.36**	.06	.24	.48	.24**	.06	.11	.36
Between-person controls								
Pay structure					.02	.08	−.14	.18
Union member					.14	.12	−.09	.37
Neuroticism					.18**	.05	.08	.27
Agreeableness					.14**	.05	.05	.22
Tenure					.01	.01	0	.02
COVID risk factors					.21**	.05	.11	.30
Safe work policies					.00	.01	−.02	.03
COVID case rate					.18*	.08	.02	.34
Random effects								
State level								
Intercept	0	0	0	0	0	0	0	0
Person level								
Wage insufficiency	.17	.06	.08	.33	.16	.05	.08	.31
Job insecurity	.10	.06	.03	.34	.10	.06	.03	.32
Powerlessness	.32	.08	.20	.51	.29	.08	.17	.49
Inability to exercise rights	0	0	0	0	0	0	0	0
Intercept	.67	.03	.61	.73	.62	.03	.56	.68
Residual	.31	.02	.28	.34	.31	.01	.29	.34

Note. *SE* = standard error; CI = confidence interval.
* $p < .05$. ** $p < .01$.

insecurity significantly predicts behavioral and well-being outcomes (e.g., Bernhard-Oettel et al., 2020). Interestingly, within-person job insecurity was associated with general presenteeism but not COVID presenteeism. Given that research has found that job-insecure employees aim to present themselves as "ideal" employees (e.g., Shoss, Su, et al., 2023), it is possible that individuals experiencing peaks in job insecurity are particularly hesitant to be absent for more general reasons (e.g., back pain) to avoid being seen as less capable or committed workers.

The inclusion of worry about COVID-19 exposure, multiple operationalizations of presenteeism (general and COVID-19) behaviors, as well as related behaviors with similar public health implications (children's sickness presence), presents a multifaceted view of precarious workers. Although engaging in presenteeism during a pandemic has the potential to put others at risk for disease exposure, our results do not suggest that individuals in precarious positions are insensitive to the risk. Rather, our results suggest that employees' work precarity makes them more concerned about the risk of COVID-19 exposure and, simultaneously, more likely to contribute to the risks faced by others. In short, our findings suggest that individuals with PWE may feel compelled to engage in behaviors that they know to be dangerous.

Our research also advances COR's ideas about how people try to counteract threats to their job, finances, power, and rights at work. Due to the importance of these resources, the theory suggests that individuals will be motivated to protect them and not invite further threat. Our reasoning, incorporating logic from the self-endangering work behaviors framework, and our findings suggest that this might come at the cost of well-being and longer term health. In light of declining worker protections and increasingly unstable conditions of work in the United States and elsewhere, future research should examine other sacrifices that workers experiencing precarity might make to try to reduce threats and associated long-term implications for individual, organizational, and community outcomes of interest.

In this vein, the present study also offers implications for the self-endangering work behavior framework. Whereas past research on self-endangering work behaviors has primarily focused on flexible, autonomous work that is characteristic of skilled professionals and knowledge workers, the present findings reinforce the idea that precarity can be an underlying driver of self-endangering work behavior (Dettmers et al., 2016). These findings suggest that the concept of self-endangering work behaviors could potentially be applied to individuals across different types of work, especially where precarity of work (i.e., job insecurity) and precarity at work (i.e., powerlessness) are concerned. Taken together, such findings echo qualitative research findings that workers may accept more dangerous tasks or otherwise sacrifice their long-term health in an attempt to gain greater security or avoid further mistreatment by powerful others

(Bazzoli & Probst, 2023; Zanhour & Sumpter, 2022). We encourage future research to identify different types of self-endangering work behaviors that would be applicable across different types of jobs as well as to in-person and non-in-person work.

This article answers calls for research on sickness presenteeism in organizational and educational settings that interface with the community, thus highlighting the role of the workplace in public health (Webster et al., 2019; see also Ruhle et al., 2020). That the predictors were somewhat different for general presenteeism than for COVID-19 presenteeism may mean that different presenteeism variables are driven by slightly different processes. We encourage future research to examine the decision-making processes underlying presenteeism related to infectious illnesses as compared to presenteeism related to noninfectious conditions. How individuals with chronic illnesses make decisions about attending work and the unique consequences of presenteeism for these individuals are also important direction.

Finally, this study addresses calls for a greater understanding of context in presenteeism research, particularly through greater attention to contemporary changes in the workplace that could influence employees' decisions regarding absenteeism or presenteeism (Ruhle et al., 2020). Specifically, we account for the broader societal context presented by the COVID-19 pandemic and the way in which it influenced workers' behaviors. Additionally, by integrating COR theory with the self-endangering work behaviors perspective, we acknowledge the ways in which political, economic, and social forces have shaped working conditions, and in turn shape worker outcomes.

Limitations and Future Research Directions

These findings should be interpreted in light of the study's limitations. Although participants were anonymous, respondents may have been hesitant to report presenteeism (L. Murray, 2021). To counteract this, we framed the response scale in terms of number of days, which makes a few days of presenteeism seem less severe. Although our research advances research on presenteeism by shortening the time window to a 3-week recall window, even shorter windows may give a more accurate picture, especially during a pandemic or cold/flu season. Presenteeism is a challenging outcome to assess given that the base rate is unclear, especially in dynamically unfolding health situations such as the pandemic. Moreover, the opportunity for presenteeism may not be equally distributed across people. For example, presenteeism may have been hindered or enabled by state and/or organization-specific policies and testing for workplaces, schools, and daycares. Additionally, risk for illness and exposure are not distributed equally across people. To assess this in our present study, we controlled for state COVID-19 new case rates as well as organizational sick leave and safe work policies. Notably, only the COVID-19 new case rate was significant. Such findings fit with our anecdotal observations that policies were not always enforced or evenly enforced in workplaces or schools/daycares; moreover, individuals could find ways of circumventing policies (e.g., through using fever-reducing medicines). It is important to note that given sample attrition, potential social desirability effects, and only a 12-week study duration, it is likely that the actual prevalence of presenteeism during the COVID-19 pandemic may be higher than what we observed in the present study.

Our design also does not allow for causal conclusions but rather inferences about how variables vary together across time. We utilized single-rater data in line with calls for a psychological perspective on work precarity (e.g., Allan et al., 2021). An English translation of the *Journal of Everyday Activity* website offers that a goal of "the psychological analysis of action is to show how actions are regulated by the organism's internal representation of the environment." Our use of self-ratings is consistent with this perspective. We acknowledge, however, that self-ratings are debated in the field. In light of this debate, we take greater confidence in the findings given that they remained similar when accounting for personality traits. Other ratings are not necessarily unbiased (e.g., Hoyt, 2000), and it is unclear the extent to which other ratings could assess perceptions of precarity, worry about COVID-19 exposure, or presenteeism. Additionally, those in precarious work situations may be reluctant to ask supervisors or peers to participate in research studies, leading to other sources of potential bias in those types of designs.

It was surprising that inability to exercise rights did not play a larger role in our findings. One reason for this may be due to the significant relationship between powerlessness and inability to exercise rights. Perhaps powerlessness contributes to people's views that they are unable to exercise rights or powerlessness is a more proximal source of uncertainty. It was likewise surprising that there were no significant effects of organizational policies for sick leave or workplace safety, which we examined as potential control variables. We suspect this may be because there is a difference between having a policy and following through on that policy. In this vein, policy failures may serve as reasons why people feel vulnerable. Future research would benefit from examining the connection between organizational policy and PWE. Additionally, future research could examine the similarities and differences among job insecurity, powerlessness, insufficient wages, and inability to exercise rights with more nuance. Although each was hypothesized to be related to presenteeism in this study, future research could examine the relative importance of each aspect of PWE or determine if some outcomes are particularly influenced by an aspect of PWE.

Future research should also examine how these effects play out in countries other than the United States. The United States has a prevalent norm of the "ideal worker" that positions work above all else (Dumas & Sanchez-Burks, 2015), even during the pandemic (Zanhour & Sumpter, 2022), and has generally poor worker protections (Leibenluft, 2020). In this context, those who feel they are in vulnerable positions and those worried about losing their jobs may be particularly likely to avoid absence and to take on potentially harmful work activities, regardless of the cost. However, the value placed on work, norms of ideal workers, and the legal/institutional structure around workers' rights vary widely across countries and deserve further exploration (Zlatopolsky, 2022).

Another worthwhile direction for future research concerns the relationship between health risk perceptions and safety behavior. Sinclair et al. (2021) drew from the safety literature to argue that perceptions of risk are necessary for safety-compliant behavior. That line of reasoning would suggest that worry about risk might predict lower presenteeism, assuming people viewed presenteeism as safety noncompliance during this time. However, we anticipated that those who perceive themselves to be in precarious positions feel that they have no choice other than to work in risky situations and to also go to work while sick, and thus worry and sickness presenteeism would

emerge as simultaneous outcomes. Future research could examine how workers with various PWE respond, or feel unable to respond, to risk perceptions and the implications for safety compliance.

Our study demonstrates the potential health-threatening consequences of precarious work as individuals risk their health for their livelihoods/dignity. It forms a foundation for future research to examine the consequences that workers face for making this trade-off. Additionally, considering growing research attention to outcomes of presenteeism (Patel et al., 2023), future research could examine the short- and long-term consequences of health-threatening behaviors in light of chronic or acute episodes of precariousness. Doing so will further enable the field of occupational health psychology to make significant contributions to discussions about workplace inequalities and power dynamics that shape health disparities and health outcomes.

We also encourage more research on children's sickness presence and how this is shaped by workplace factors, including PWE, as well as by school/daycare factors. Although we did not assess school/daycare policies or alternative childcare arrangements in the present study, future research might examine the extent to which these factors shape how PWE relate to sending children to school/daycare sick. Moreover, research might also evaluate the extent to which work loss from taking care of sick children makes workers worry about their status and vulnerability at work (e.g., Zanhour & Sumpter, 2022). In short, we encourage more research to understand the connections between work experiences, public health, community health, and family well-being (Shoss, 2021).

Practical Implications

Following periods of relief from the COVID-19 pandemic, skeptical readers may question the longstanding relevance of another COVID-19 study. However, this confidence in a return to a prepandemic state has proved to be short-lived as variants of COVID-19 interact with vaccine hesitancy and relaxed COVID-19 precautions (Powell, 2021). Further, the threat of attending work while ill was a public health imperative prior to the COVID-19 pandemic (Widera et al., 2010) and continues to necessitate new research to understand the predictors of this threat.

For individual companies, our findings point to the importance of monitoring and addressing work precarity, especially people's concerns about their perceived powerlessness to cope with mistreatment from the organization or the supervisor. Additionally, our findings suggest that public health professionals should collaborate with business to address work situations as a contributor to health threats, in line with the American Public Health Association's (2022) recent policy statement supporting decent work for all as a public health goal in the United States. Precarious working conditions may perpetuate health threats, further exacerbating inequality between those working in precarious work situations and those in more secure situations (Shoss, 2021).

In summary, our research demonstrates how PWE, particularly perceived powerlessness and job insecurity, relate to worry about disease exposure at work and, at the same time, behaviors that risk disease spread to others. This research adds to a growing body of literature pointing to important business and societal imperatives of addressing precarious work (Bapuji et al., 2020; NIOSH, 2020).

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