

Portland State University

PDXScholar

Business Faculty Publications and
Presentations

The School of Business

2022

Perceived Overqualification, Felt Organizational Obligation, and Extra-Role Behavior during the COVID-19 crisis: The Moderating Role of Self-Sacrificial Leadership

Chia-Huei Wu
University of Leeds

Hannah Weisman
Harvard Business School

Li-Kuo Sung
Peking University

Berrin Erdogan
Portland State University, berrine@pdx.edu

Follow this and additional works at: https://pdxscholar.library.pdx.edu/busadmin_fac

Talya N. Bauer
 *Portland State University, talyabauer@pdx.edu*

Let us know how access to this document benefits you.

Citation Details

Wu, Chia-Huei; Weisman, Hannah; Sung, Li-Kuo; Erdogan, Berrin; and Bauer, Talya N., "Perceived Overqualification, Felt Organizational Obligation, and Extra-Role Behavior during the COVID-19 crisis: The Moderating Role of Self-Sacrificial Leadership" (2022). *Business Faculty Publications and Presentations*. 246.

https://pdxscholar.library.pdx.edu/busadmin_fac/246

This Pre-Print is brought to you for free and open access. It has been accepted for inclusion in Business Faculty Publications and Presentations by an authorized administrator of PDXScholar. Please contact us if we can make this document more accessible: pdxscholar@pdx.edu.

**Perceived Overqualification, Felt Organizational Obligation, and Extra-Role Behavior
during the COVID-19 crisis: The Moderating Role of Self-Sacrificial Leadership**

Chia-Huei Wu

University of Leeds, UK
China Medical University, Taiwan

Hannah Weisman

Harvard Business School, US

Li-Kuo Sung*

Peking University HSBC Business School, China,

Berrin Erdogan

Portland State University, US
University of Exeter, UK

Talya N. Bauer

Portland State University, US

*Corresponding author

**Perceived Overqualification, Felt Organizational Obligation, and Extra-Role Behavior
during the COVID-19 crisis: The Moderating Role of Self-Sacrificial Leadership**

Abstract

Past research has found that employees who view themselves as overqualified for their jobs tend to hold negative job attitudes and be unwilling to go beyond the call of duty. In challenging situations such as during the COVID-19 crisis, when having “all hands-on deck” may be important to an organization’s survival, mitigating the negative tendencies of these employees becomes important. Adopting a sensemaking perspective on crisis management, we examine whether supervisors’ self-sacrificial leadership can mitigate these negative tendencies. First, we propose that employee perceived overqualification is associated with lower levels of felt obligation to the organization and thereby lower levels of extra-role behaviors (i.e., helping and proactivity). We next propose that supervisors’ self-sacrificial leadership during the COVID-19 crisis can evoke, especially when COVID-19 more strongly impacts the organization, a sense of collectivism toward the organization, which mitigates the negative association of perceived overqualification with felt obligation and thus extra-role behaviors. We tested our theorizing in samples from the UK ($n = 121$, Pilot Study) and US ($n = 382$, Main Study) in studies with a multi-wave, time-lagged design. Findings from both studies provide support for our theorizing. We discuss implications for research and practice concerning perceived overqualification during a crisis.

Keywords: perceived overqualification, COVID-19, self-sacrificial leadership, extra-role behavior, crisis

**Perceived Overqualification, Felt Organizational Obligation, and Extra-Role Behavior
during COVID-19 crisis: The Moderating Role of Self-Sacrificial Leadership**

Perceived overqualification refers to an employee's perception of having education, knowledge, experiences, and/or skills that exceed their job requirements (Erdogan et al., 2011; Maynard et al., 2006). Such perceptions are likely and prevalent among employees in many countries. For example, approximately 20% of employees in the G20 countries have qualifications beyond those required by their jobs (International Labour Office, 2018). Due to their surplus qualifications, overqualified employees are potentially a valuable source of human capital, and they may be uniquely positioned to offer contributions that improve organizational effectiveness and innovation (Erdogan et al., 2011). Unfortunately, overqualified employees tend to hold negative job attitudes and may not be willing to go above and beyond the call of duty. Meta-analytic results show that employees higher in perceived overqualification tend to have lower organizational commitment and job satisfaction and may not engage in extra-role behavior (i.e., citizenship or creative behaviors, Harari et al., 2017).

Addressing the overqualified workforce becomes particularly important in the context of COVID-19. During the unprecedented COVID-19 global crisis, which constitutes a "low-probability, high-impact event that threatens the viability of the organization" (Pearson & Clair, 1998, p. 60) and disrupts employees' activities and engagement (Morgeson et al., 2015), having "all hands on deck" may be important to an organization's survival. Since overqualified employees tend to hold negative job attitudes and not be willing to do extra work, they may be particularly costly to the organization during such a crisis. The question then becomes whether it is possible, and how, to mitigate the negative tendencies of overqualified employees during a crisis such as COVID-19. To date, studies of overqualification have not examined this important

question, instead focusing primarily on implications of perceived overqualification for employees' person-job misfit and felt deprivation during normal times (e.g., Lee et al., 2021; Luksyte et al., 2020). Findings from those studies may not necessarily be informative regarding how overqualified employees behave during an organizational crisis, a situation that heightens the importance of everyone pitching in to protect collective, organizational goals. Further, previous research has not explored how overqualified employees behave during a global crisis, that extends beyond the organization's boundaries, underscoring a need to study how overqualified employees might respond to COVID-19.

In this study we draw on a sensemaking perspective of crisis management (Maitlis & Sonenshein, 2010; Weick, 1988; Williams et al., 2017) and identify self-sacrificial leadership during COVID-19, especially for organizations significantly affected by the crisis, as key in mitigating overqualified employees' resistance to go above and beyond their formal duties. During the throes of a crisis, leadership plays a significant role in helping employees make sense of the situation (Williams et al., 2017). Supervisors' self-sacrificial behavior (i.e., to suspend personal interests and privileges for the good of the collective) (Choi & Yoon, 2005), in particular, can serve as a powerful and symbolic signal about how employees should approach the crisis (Choi & Mai-Dalton, 1999)—that is, with the good of the collective in mind. By motivating employees to devote themselves to pursue collective goals, self-sacrificial leadership can therefore mitigate the negative effects of perceived overqualification on employees' motivation to make extra-role contributions.

To examine this perspective, we assess employees' felt obligation toward the organization (i.e., hereafter felt obligation, a "prescriptive belief regarding whether one should care about the organization's well-being and should help the organization reach its goals") (Eisenberger et al.,

2001, p. 42) to capture employees' motivation in making contributions to the organization. We assess helping behavior and proactive behavior as indicators of employees' extra-role behavior (Van Dyne & Le Pine, 1998). In recognizing that COVID-19 has impacted organizations to varying degrees, and that self-sacrificial leadership may be more relevant to understanding employees' motivation and behavior during a greater crisis (Choi & Mai-Dalton, 1998, 1999), we further propose that when the organization is strongly affected by COVID-19, self-sacrificial leadership will be more likely to spur employees' sense of collectivism toward the organization and thus mitigate the negative implications of perceived overqualification on felt obligation and the two forms of extra-role behavior (see Figure 1 for our research model). We tested our theorizing in the COVID-19 crisis context in two samples: one from the United Kingdom (UK) and one from the United States (US). Both samples consisted of employees working in a variety of jobs and industries. The UK had 4.95 million and the US had 33.39 million COVID-19 cases as of July 7, 2020 when we prepared this report (World Health Organization, 2021).

Our study offers both theoretical and practical contributions. Theoretically, our study brings a new perspective to understand the impact of perceived overqualification on employees' work motivation and behavior. Research on overqualification has primarily adopted a person-environment fit perspective or a relative deprivation perspective (e.g., Luksyte et al., 2020) to understand the consequences of perceived overqualification for employees' work motivation and behaviors. Deviating from this approach, our study shows how a sensemaking perspective can also help to explain the motivation and behaviors of these employees, especially during a crisis. Our study specifically suggests that self-sacrificial leadership, leaders' behavior to protect the collective welfare, shapes employees' motivation and behavior during a crisis, by providing

social information (Salancik & Pfeffer, 1978) that employees use to make sense of the situation. In contrast to the literature's typical focus on how leaders' individualized support and empowerment can motivate overqualified employees (e.g., Alfes et al., 2016; Luksyte & Spitzmueller, 2016; Ma et al., 2020), our study suggests that leaders' behavior can motivate these employees through eliciting a collective spirit.

Practically, our study informs how organizations and managers can motivate overqualified employees to devote their capacity to contribute to the organization during a crisis. While previous research has examined the effects of perceived overqualification on employees experiencing change, such as when employees are new to an organization (Simon et al., 2019), among immigrants (Wassermann & Hoppe, 2019), or sent on overseas assignments (Bolino & Feldman, 2000), the effects of perceived overqualification during a major change or crisis that affects the focal organization and the broader economy are unknown. In this context, our examination of the COVID-19 pandemic suggests that supervisors' behavior can shape overqualified employees' attitudes and behaviors, highlighting another potential lever for organizations and managers to inspire contributions from these employees.

A Sensemaking Perspective of Crisis Management

Sensemaking is a dominant perspective to understand how employees respond to organizational crisis and how leaders and organizations engage in crisis management (Maitlis & Christianson, 2014; Maitlis & Sonenshein, 2010; Weick, 1988, 1995). Sensemaking refers to a socially constructed process through which employees attempt to understand, create order, and more generally "make sense" of unexpected or confusing events that occur (Maitlis, 2005; Maitlis & Christianson, 2014; Weick, 1988, 1995). In a sensemaking process, individuals firstly notice and extract cues in the situation and then interpret information which inform actions to

respond to the situation (see Sandberg & Tsoukas, 2015, for a review; Weick, 1995). When employees encounter events that violate expectations, they first seek a plausible explanation for “what’s going on here,” and subsequently, lacking a plausible account, a course of action that would create order in the environment (Weick et al., 2005, p. 412). Thus, the second key question involved in sensemaking is, “what do I do next?” (Weick et al., 2005, p. 412).

Crises, or unexpected rare events that usually bring significant consequences, place strong demands on sensemaking because individuals tend to connect cues and information to explain what is going on in uncertain situations (Weick, 1988). During the throes of a crisis, people tend to rely on information and cues in their immediate social context “as it binds people to actions that they must justify, it affects the saliency of information, and it provides the norms and expectations that constrain explanations” (Weick, 1995, p. 53). In an organizational crisis, leaders play a significant role in shaping the sensemaking process because they can directly influence the construction of meaning and give sense to other stakeholders (Christianson et al., 2009), such as using narratives and language to provide descriptions and explanations of the situation (Maitlis, 2005; Weick, 1995), or engaging in behaviors that serve as social information and guide employees’ interpretation of events (Maitlis & Christianson, 2014).

A sensemaking perspective is helpful for understanding the COVID-19 pandemic because it occurred unexpectedly and its impact is all encompassing and unprecedented around the world. Organizations are facing a crisis characterized by ambiguity of cause, effect, and means (Pearson & Clair, 1998). For employees, such a crisis may not only be surprising but personally threatening because the collapse of the organization could jeopardize their employment and associated latent benefits (e.g., time structure and social contact) (Jahoda, 1982), as well as their sense of self that is premised on an organizational membership (Maitlis & Sonenshein, 2010).

Due to the disruptive effects of COVID-19 on business activities locally and globally, employees may be concerned for the organization's survival and pay more attention to relevant cues that inform how they should act to contribute to the organization's welfare, seeking to make sense of the situation to guide their actions (Maitlis & Christianson, 2014). Supervisors are usually regarded by employees as occupying positions of authority, and thus their behaviors serve as cues for employees to make sense of the situation. During the COVID-19 crisis, supervisors' behaviors will thus significantly shape employees' sensemaking and, in turn, attitudes and behavior to promote the collective interests of the organization (Crayne & Medeiros, 2021, in COVID-19 context specifically; Maitlis & Christianson, 2014; Williams et al., 2017).

Perceived Overqualification and Felt Obligation

We expect that perceived overqualification has an overall negative association with felt obligation. First, employees with higher perceived overqualification tend to see themselves as mistreated by the organization, or that they "should have been given performance opportunities that match [their] qualifications" (Liu & Wang, 2012, p. 5). Second, they are likely to view themselves as being underpaid relative to what they could be making in more suitable jobs, making them feel that they are undervalued organizational members (Liu et al., 2015; Liu & Wang, 2012). Third, employees with higher perceived overqualification tend to feel angry toward the organization due to having "jobs that poorly match their qualifications and that deprive them of opportunities to appear fully competent and receive recognition for their under-realized skills" (Liu et al., 2015, p. 255). Due to these reasons, employees with higher perceived overqualification are less likely to feel that they owe the organization (Eisenberger et al., 2001) or that they should work together with organization toward achieving collective goals

(Tomasello, 2020). We thus expect a negative association between perceived overqualification and felt obligation.

We expect this negative association will hold during the COVID-19 crisis because, regardless of the situation, employees with higher perceived overqualification are more likely to feel undervalued and unfairly treated. While the COVID-19 pandemic could possibly bring opportunities for such employees to use their surplus capacities and demonstrate their value to help the organization, it does not mean that their surplus capacities will be recognized formally, for example, by being assigned to challenging tasks and getting rewards that match their qualifications. When organizations face threats to their survival, they tend to centralize authority and apply the rules of formalization and standardization to control and coordinate action (Staw et al., 1981). They also tend to tighten available budgets and focus on cost cutting in order to maximize the utility of available resources. Owing to such threat-rigidity tendencies at the organizational level (Staw et al., 1981), organizations are unlikely to recognize employees' surplus qualifications during a crisis by redesigning job duties and offering extra rewards to match the surplus qualifications. In sum, even in a crisis, employees higher in perceived overqualification are likely to have lower levels of felt obligation toward the organization.

H1: Perceived overqualification is negatively related to felt obligation.

Moderating Role of Self-Sacrificial Leadership and COVID-19 Impact via Collectivism

Based on a sensemaking perspective, we argue that when the organization is negatively and strongly affected by the COVID-19 pandemic, self-sacrificial leadership will activate employees' sense of collectivism toward the organization. Further, this sense of collectivism will attenuate the negative association between perceived overqualification and felt obligation.

Supervisors' self-sacrificial behavior (i.e., self-sacrificial leadership) during COVID-19 can heighten employees' collectivism toward the organization for two reasons. By demonstrating self-sacrificial behavior, supervisors signal to employees that they are willing to protect employees' benefits and welfare at personal cost, which can motivate employees to contribute to the organization in return. By showing self-sacrificial behavior, supervisors also "render the organization's goals, values, and needs (i.e., organizational identity) more salient to their subordinates" and inform that "the collective is worthy of one's dedicated efforts" (Li et al., 2016, p. 762). In line with this, self-sacrificial leadership can evoke followers' organizational identification (e.g., De Cremer & van Knippenberg, 2005; Li et al., 2016), making them see the organization as integral to their self-definitions (Ashforth & Mael, 1989), and fostering a sense of shared fate and personal responsibility for the organization's welfare.

The effect of self-sacrificial leadership on employees' collectivism toward the organization, however, will be contingent upon the extent to which the organization was affected by COVID-19. As self-sacrificial leadership can serve as "a symbolic and exemplary message about what people are supposed to do to overcome the situational difficulties," it "should be matched with unusual situations such as an organizational crisis" (Choi & Mai-Dalton, 1999, p. 404). In other words, self-sacrificial leadership is only relevant and informative in the context of crisis and uncertainty (Choi & Mai-Dalton, 1998, 1999). Halverson et al. (2004) has reported that leaders are perceived positively when exhibiting self-sacrificial behavior in times of crisis. As such, we expect that self-sacrificial leadership spurs a stronger sense of collectivism toward the organization when the organization is more strongly affected by COVID-19.

H2: Self-sacrificial leadership is positively related to a sense of collectivism toward the organization during the COVID-19 pandemic and this positive relationship is stronger when the COVID-19 impact on the organization is stronger.

A strong sense of collectivism toward the organization during the COVID-19 pandemic, in turn, can mitigate the negative link between perceived overqualification and felt obligation. When employees are more concerned with collective goals, they are more likely to focus on what and how they can contribute to collective actions, and less likely to focus on how they have been treated as an individual (Luksyte et al., 2020). To those higher in perceived overqualification, specifically, a sense of collectivism toward the organization helps mitigate negative attitudes and behaviors associated with their unfavorable job conditions because such employees can see and appreciate the collective's interests, and they are more willing to play their part to contribute to the collective welfare. A strong sense of collectivism also helps to counteract these employees' negative feelings of being disadvantaged by making it more likely that they view supervisors and colleagues as incurring personal costs to play their part, attenuating their feelings of inequity in social exchange (Adams, 1965) with the organization.

H3: A sense of collectivism toward the organization during the COVID-19 pandemic moderates the negative relationship between perceived overqualification and felt obligation. The negative relationship between perceived overqualification and felt obligation is weaker when sense of collectivism toward the organization is higher.

Felt Obligation and Extra-Role Behavior

Employees who have a stronger sense of felt obligation are more likely to exert effort and go above and beyond their assigned job duties for two main reasons. First, a stronger felt obligation confers personal responsibility and reflects an intrinsic reason for employees to go the

extra mile (Parker et al., 2010). Second, a stronger felt obligation may serve as prosocial motivation to help the organization. As prosocial motivation has been found to motivate and sustain employees' extra-role behavior to promote or protect the welfare of individuals, groups, and organizations (see Bolino & Grant, 2016, for a review); a stronger felt obligation may therefore motivate employees' actions to help the organization.

Following Rhoades and Eisenberger (2002) who distinguished between two types of extra-role behavior, including one geared toward helping co-workers and another geared toward helping the organization, we focus on interpersonal helping behavior (i.e., prosocial and altruistic behavior toward co-workers, Smith et al., 1983) and proactive behavior (i.e., self-initiated, future-oriented actions to change and improve the work environment, Wu et al., 2018). Both types of behavior are promotive extra-role behaviors that are aimed toward improving the work situation (Van Dyne & Le Pine, 1998). However, interpersonal helping behavior is affiliative (i.e., helps build and preserve relationships), while proactive behavior is change-oriented (i.e., challenges the status quo and seeks to bring about change). Empirically, previous research has demonstrated that employees' felt obligation toward the organization is positively related to their spontaneity (i.e., a construct capturing both their helping and proactive behavior) (Eisenberger et al., 2001), as well as helping and proactive behavior (Wu et al., 2016).

H4: Felt obligation toward the organization is positively related to a) helping behavior and b) proactive behavior.

The Overall Model and Our Studies

Our reasoning suggests that when organizations are seriously affected by the COVID-19 crisis, self-sacrificial leadership evokes employees' sense of collectivism toward the organization, as we proposed in H2. The sense of collectivism, in turn, weakens the mediating

mechanism of felt obligation on the association between perceived overqualification and the two types of extra-role behavior. To formally test the moderating effect of sense of collectivism on the mediating mechanism, we proposed:

H5: Collectivism toward the organization during the COVID-19 pandemic moderates the mediating effect of felt obligation on the relationship between perceived overqualification and a) helping behavior and b) proactive behavior. When collectivism toward the organization during the COVID-19 pandemic is higher, the mediating effect of felt obligation in predicting a) helping behavior and b) proactive behavior is weaker.

We conducted two studies. In a pilot study, we first examined whether self-sacrificial leadership and the COVID-19 impact on the organization have a joint effect in moderating the association between perceived overqualification and felt obligation and whether felt obligation in turn predicts helping behavior and proactive behavior. In the main study, we tested our hypotheses fully by including collectivism toward the organization during the COVID-19 pandemic. We examined the joint effect of self-sacrificial leadership and the COVID-19 impact on the organization on collectivism toward the organization and then the effect of collectivism toward the organization in moderating the association between perceived overqualification and felt obligation. We also examine whether felt obligation predicts helping behavior and proactive behavior while controlling for person-job fit and relative deprivation, two dominant perspectives that have been used to explain the impact of perceived overqualification on extra-role behavior (Luksyte et al., 2020).

Pilot Study

Method

Sample and procedure

We recruited participants from Prolific Academic, an online platform based in the UK designed specifically to recruit participants for academic research. This platform has been used in previous organizational behavior studies (e.g., Wu et al., 2018). In Spring 2018 (Time 1), we recruited a total of 524 participants based in the UK who had at least three years of work experience for a survey assessing their perceived overqualification and other work experiences for a scale validation project. Among those, 450 participants were retained after removing 74 participants who did not complete the survey or did not pass the attention check. We invited those 450 participants to complete a four-wave survey between June and July 2020 to collect data pertaining to our other key variables. The United Kingdom saw the first major wave of the COVID-19 pandemic wave since March 2020, leading to the first national lockdown spanning the period from March 23, 2020 to June 23, 2020. Our survey period overlapped with the late stage and initial easing of the national lockdown.

On June 11, 2020 (Time 2), we sent out an initial screening survey to participants, so that we could understand their work status and determine who was eligible for the study. We also used the survey to collect demographic and job information (e.g., job titles and industries) and asked participants to report the COVID-19 impact on their organizations. We received responses from 249 participants. Based on our research aims, we retained 138 participants who still had the same job and were not on the government furlough scheme (i.e., Coronavirus Job Retention Scheme). Thus, we ensured that participants were still in the same job that they were in when we measured their perceived overqualification in 2018. We also ensured that they were still working in the same organization during the national lockdown period. We invited those qualifying participants to complete a subsequent survey sent out on June 17, 2020 (Time 3), in which they reported their supervisors' self-sacrificial behavior, as they had observed it since the beginning

of the COVID-19 pandemic. We obtained responses from 129 participants. We then sent out a follow-up survey to the 129 participants on July 1, 2020 (Time 4) to measure their felt obligation toward the organization. We obtained responses from 124 participants. We sent out a final survey on July 14, 2020 (Time 5) to measure participants' helping and proactive behavior in the past month. We received responses from 121 participants in total who provided complete data on all variables, and this was the sample we used in our analyses.

The final sample included 50 men and 71 women, ranging from 25 to 63 years of age ($M = 42.07$, $SD = 9.17$). They performed different jobs in various industries¹, having diverse work backgrounds. Tenure in their respective organizations ranged from 2 to 33 years ($M = 11.5$, $SD = 6.44$). Most (72.2%) had organizational tenure of more than five years. A total of 49 participants (4.05%) had managerial responsibility. Most (74.4%) had a bachelor's degree or higher level of education. In terms of ethnicity, most of the participants (87.6%) were white.

Measures

All measures used were established scales and evaluated on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) unless otherwise specified.

¹ Participants were from 22 industries. We classified the 22 industries into seven categories, including professional and business services ($n = 19$; 15.7%), public administration and volunteer work ($n = 22$; 18.2%), education, science, creative arts ($n = 20$; 16.5%), health and care services ($n = 20$; 16.5%), leisure, hospitality and retail ($n = 14$; 11.6%), information technology ($n = 10$; 11.6%), and others (e.g., manufacturing, utilities, environment and construction) ($n = 16$; 13.2%). Based on the seven categories, we found industry differences in the impact of COVID-19 on the organization ($F(6, 114) = 2.81$, $p < .05$). Results of the Tukey tests revealed that participants in health and care services reported the highest impact of COVID-19 on the organization ($M = 4.15$), and this impact was significantly higher than that reported by participants in professional and business services ($M = 3.16$, $p < .05$) and public administration and volunteer work ($M = 3.14$, $p < .05$). To acknowledge these differences, we included a dummy variable (health and care services = 1; others = 0) as a control variable in our analysis.

Perceived overqualification. We used the nine-item scale by Maynard et al. (2006) to assess perceived overqualification. Sample items are “My job requires less education than I have” and “I have a lot of knowledge that I do not need in order to do my job” ($\alpha = .93$).

Self-sacrificial leadership. We used six items to measure supervisors’ self-sacrificial behavior during the COVID-19 outbreak. We included three items by De Cremer et al. (2009) that measure supervisors’ self-sacrificial behavior for organizations. The items were, “In pursuing the company’s objectives, my supervisor engages in activities involving considerable self-sacrifice,” “My supervisor takes high personal risk for the sake of the company,” and “My supervisor is somebody who shows a lot of self-sacrifice.” To capture supervisors’ self-sacrificial behavior when performing their work during the COVID-19 pandemic specifically, we included three additional items, including “My supervisor put her/his health at risk for her/his work,” “My supervisor sacrificed personal comfort for her/his work,” and “My supervisor did work at a personal cost.” These six items loaded onto one factor in exploratory factor analysis ($\alpha = .94$).

The impact of COVID-19 on organization. As organizations vary in how they were affected by the COVID-19 pandemic, we asked participants to answer the question “Due to the current crisis, how strong do you perceive the impact of COVID-19 on your organization?” using a scale from 1 (*not at all*) to 5 (*a great deal*).

Felt obligation toward the organization. Eisenberger et al. (2001) has seven items measuring this concept, which includes six positively worded items and one reversed item. We used all six positively worded items and replaced the reversed item with “I owed it to the employer to do what I could to ensure that work tasks were excellently completed” ($\alpha = .88$).

Proactive behavior. Three items assessing employees' proactive behavior from Wu et al. (2018) were used. These were, "I suggested ways to make my work unit more effective," "I developed new and improved methods to help my work unit perform better," and "I improved the way my work unit does things" The items were rated on a 5-point scale ranging from 1 (*not at all*) to 5 (*to a great extent*) ($\alpha = .94$).

Helping behavior. Three items from Smith et al. (1983) were used. These were, "I help others who have been absent," "I help others who have heavy workloads," and "I help others who have work-related problems" The items were rated on a 5-point scale ranging from 1 (*not at all*) to 5 (*to a great extent*) ($\alpha = .88$).

Control variables. We controlled for employees' age, gender, education, organizational tenure, job type and supervision role because of their potential effects on employee behavior (e.g., Ng & Feldman, 2008; Thompson et al., 2020). Age was self-reported in years. Gender was dummy-coded (male = 0 vs. female = 1). Education was coded as "1" for employees who finished high school or below, "2" for employees who held undergraduate or equivalent degrees, and "3" for employees who held postgraduate degrees or above. Organizational tenure was self-reported in years. Job type was dummy-coded (part-time job = 1; full-time job = 0). Supervision role was dummy-coded (yes = 1; no = 0). We have also included a dummy variable (health and care services = 1; others = 0) to control for differences between employees who work in health and care services versus other industries.

Measurement analysis

We performed a five-factor model using confirmatory factor analysis to investigate discriminant validity of our variables. In the model, we included latent factors for perceived overqualification, self-sacrificial leadership, felt obligation, helping behavior and proactive

behavior. All factors were indicated by items for the construct. As we measured them using a Likert-type scale, we treated responses on all items as ordinal, categorical data (Muthén & Kaplan, 1985), an approach also used in prior studies (e.g., Wu et al., 2018). We thus used the WLSMV (Weighted Least Squares Means and Variance Adjusted) estimator in Mplus (Muthén & Muthén, 2017) to analyze polychoric correlations among used items. The five-factor model showed good fit to the data (WLSMV- $\chi^2 = 546.59$; $df = 340$; Root Mean Square Error of Approximation [RMSEA] = .07, 90% confidence interval [CI] = [.06, .08]; comparative fit index [CFI] = .973; Tucker Lewis index [TLI] = .970). Except for the correlation between the two behaviors ($r = .63$), correlations among the latent factors ranged from -.27 to .33. We then performed a four-factor model by merging items for the two behaviors to indicate the same factor whereas the other three constructs were indicated by their own items. Although this four-factor model fit the data well (WLSMV- $\chi^2 = 591.40$; $df = 344$; RMSEA = .08, 90% CI = [.07, .09]; CFI = .968; TLI = .965), the five-factor model is better in terms of the results of model comparison ($\Delta\chi^2$ for the WLSMV estimator = 22.88, $df = 4$, $p = .00$), and values of fit indices.

Results

Table 1 presents the descriptive statistics and correlations among variables. We performed a series of regression analyses to test our hypotheses. Perceived overqualification, supervisors' self-sacrificial behavior and the impact of COVID-19 on the organization were mean centered before examining their interaction effects on felt obligation toward the organization. Results are reported in Table 2.

We first performed Model 1-1 using control variables and perceived overqualification to predict felt obligation. We found that perceived overqualification was negatively related to felt obligation ($B = -.20$, $SE = .07$, $p < .01$), supporting H1.

In Model 1-2, we additionally included self-sacrificial leadership and the impact of COVID-19 on the organization. We found that self-sacrificial leadership was positively related to felt obligation ($B = .19, SE = .07, p < .01$), and the impact of COVID-19 on the organization was not. In Model 1-3, we additionally included three two-way interaction effects between perceived overqualification, self-sacrificial leadership and the impact of COVID-19 on the organization. This model was used as a baseline model to examine whether the three-way interaction effect among the three variables would explain additional variance in felt obligation. In Model 1-4, we finally included the three-way interaction term among the three variables. We found that Model 1-4 explained more variance in felt obligation than that explained by Model 1-3 ($\Delta R^2 = .058, p < .05$) and that the three-way interaction effect was significant ($B = .18, SE = .06, p < .01$).

We then tested the conditional two-way interaction effect between perceived overqualification and self-sacrificial leadership at different levels of impact of COVID-19 on the organization. Because the impact of COVID-19 on the organization was a single item assessed with a 5-point scale, we examined the conditional two-way interaction effect between perceived overqualification and self-sacrificial leadership at different levels of the impact of COVID-19 on the organization. The results show that the interaction effect between perceived overqualification and self-sacrificial leadership is significant when the score of the impact of COVID-19 on the organization is 4 (conditional interaction effect = $.17, SE = .06, p < .01$) or 5 (conditional interaction effect = $.36, SE = .09, p < .01$).

Figure 2 presents the interaction plot to depict the three-way interaction effect by showing the simple slope effects of perceived overqualification at low (M-SD) versus high (M+SD) self-sacrificial leadership and at low (score 2) versus high (score 4) impact of COVID-

19 on the organization. We used score 2 and 4 to depict low and high impact of COVID-19 on the organization because 76% of participants were covered in this range (Aiken et al., 2012). At score 2 of the impact of COVID-19 on the organization, when the impact of COVID-19 on the organization was low, we found perceived overqualification was negatively related to felt obligation at higher self-sacrificial leadership ($B = -.50, SE = .20, p < .01$), but was not related to felt obligation at lower self-sacrificial leadership ($B = -.11, SE = .16, p = .49$), which will be discussed later. These two simple slopes, however, were not significantly different (effect = $-.39, SE = .26, p = .13$). At the score 4 of the impact of COVID-19 on the organization, we found that perceived overqualification was not related to felt obligation at higher self-sacrificial leadership ($B = .00, SE = .10, p = .97$), but was negatively related to felt obligation at lower self-sacrificial leadership ($B = -.35, SE = .09, p < .01$). These two simple slopes were significantly different (effect = $.35, SE = .13, p < .01$). These results show that the self-sacrificial leadership can weaken the impact of perceived overqualification on felt obligation when the impact of COVID-19 on the organization is strong (at least a score of 4).

Next, we used all variables to predict helping behavior (Model 1-5) and proactive behavior (Model 1-6). We found that felt obligation was positively related to helping behavior ($B = .30, SE = .13, p < .05$) and proactive behavior ($B = .31, SE = .13, p < .05$), supporting Hypothesis 4a and 4b.

Finally, we estimated bootstrapped confidence intervals of moderated mediation effects of felt obligation by self-sacrificial leadership on helping behavior and proactive behavior at different levels of impact of COVID-19 on the organization. We built a path model in Mplus which integrates Model 1-4, 1-5 and 1-6 and estimated the model using a bootstrapping method with 5000 iterations. Results show that the moderated mediation effect was only significant for

helping behavior (conditional moderated mediation effect = .10, $SE = .06$, bootstrapped 95% CI = [.01, .25]) and proactive behavior (conditional moderated mediation effect = .12, $SE = .07$, bootstrapped 95% CI = [.03, .30]) when the impact of COVID-19 on the organization was at score 5. At the highest level of impact of COVID-19 on the organization, the indirect effect of perceived overqualification via felt obligation on helping behavior was not significant (conditional indirect effect = .01, $SE = .04$; bootstrapped 95% CI = [-.05, .12]) at high self-sacrificial leadership, and was negative and significant (conditional indirect effect = -.09, $SE = .05$; bootstrapped 95% CI = [-.23, -.01]) at low self-sacrificial leadership. Similarly, at the highest level of impact of COVID-19 on the organization, the indirect effect of perceived overqualification via felt obligation on proactive behavior was not significant (conditional indirect effect = .02, $SE = .04$; bootstrapped 95% CI = [-.05, .12]) at high self-sacrificial leadership, and was negatively significant (conditional indirect effect = -.11, $SE = .06$; bootstrapped 95% CI = [-.27, -.02]) at low self-sacrificial leadership. These findings show that when the COVID-19 impact on the organization is strong, higher self-sacrificial leadership can mitigate the mediation effect of felt obligation on the negative association between perceived overqualification and the two extra-role behaviors. We also performed all analyses again after removing insignificant predictors in each model and the effects reported above remained the same.

The pilot study, however, had several limitations. First, we measured perceived overqualification two years prior to the pandemic. Even though the participants remained in their positions, their perceptions may have changed after their completion of the overqualification survey and prior to the pandemic. This could be a reason why we found that perceived overqualification was not related to felt obligation when both self-sacrificial leadership and the

impact of COVID-19 on the organization were at lower levels. For those who have been in their positions for two years and did not experience the impact of COVID-19 on the organization and self-sacrificial leadership, they may become accustomed to the work situation or found ways to improve it, such that they did not have negative attitudes toward the organization. To address the concern over when perceived overqualification was measured, we measured perceived overqualification concurrently during the COVID-19 pandemic in the main study.

Second, while our results of the three-way interaction did show that self-sacrificial leadership can mitigate the link between perceived overqualification and felt obligation when the impact of COVID-19 on the organization was strong, we have not formally tested the underlying mechanism (i.e., the role of collectivism toward the organization during the COVID-19 pandemic) and the related hypotheses. We sought to test our research model fully in the main study.

Third, we did not control for other relevant factors when we examined the predictive effect of felt obligation on extra-role behavior. In the main study, we included person-job fit and relative deprivation as control variables for reasons that we highlighted earlier. We also additionally controlled for tenure with the current supervisor, as the duration of tenure could affect the influence of self-sacrificial leadership on employees. As employees may worry about job insecurity (i.e., one's "concern about the future permanence of the job") (van Vuuren & Klandermans, 1990, p. 133) during COVID-19 pandemic due to the disruption in business activities, which could motivate employees to engage in extra-role behavior for job preservation (Shoss, 2017), we thus also take job insecurity into account in the main study.

Fourth, we only measured the impact of COVID-19 on the organization using a single item and we measured it two weeks before the measure of self-sacrificial leadership. In the main

study, we used multiple items to improve the measurement scale, and we measured it at a later time point, separate from when we measured self-sacrificial leadership. Having a time lag between self-sacrificial leadership and the impact of COVID-19 on the organization helps us examine the effect of self-sacrificial leadership over the period during which we captured the impact of COVID-19, offering a more sensitive examination on the effect of self-sacrificial leadership.

Finally, in the pilot study we used two weeks as the time lag interval during the first lockdown period in the UK. Gollob and Reichardt (1987) argued “because different time lags have different effects...no one time lag by itself can give a complete understanding of a variable’s effects” (p. 82). Zapf et al. (1996) similarly recommended the use of distinct time where possible. Therefore, we sought opportunities to use different time lags. Meanwhile, we also seek to investigate if our proposed effect of self-sacrificial leadership in mitigating the impact of perceived overqualification can also be observed in the other country. As such, in the main study, we used a US sample and conducted a three-wave time-lag survey between December 2020 and June 2021. We had a five-month lag between Time 1 (early December 2020, when we measured perceived overqualification, self-sacrificial leadership and other variables for controls) and Time 2 (the end of April 2021, when we measured felt obligation and other variables for controls), and a one-month lag between Time 2 and Time 3 (early June, when we measured helping and proactive behavior). The US had the most severe wave of COVID-19 cases in December 2020. The number of cases declined and the curve started to flatten around March and April 2021, after which cases declined rapidly through early May (Centers for Disease Control and Prevention, 2021). Our three-wave survey in the main study maps onto the progression of the most severe wave of the COVID-19 pandemic in the US, such that the Time 1

survey (December 8, 2020) coincided with the peak of the wave (over 200,000 new cases per day), the Time 2 survey (April 30, 2021) occurred at a time when the number of new cases was declining and the US was beginning to flatten the curve (at about 50,000 to 70,000 new cases per day), and the Time 3 survey (June 2, 2021) mapped on to the end of the wave (when new cases were under 20,000 per day and continuing to fall). The survey design of the main study helps us examine our proposed research model during the COVID-19 pandemic in the US context.

Main Study

Method

Sample and procedure

We recruited participants from Amazon Mechanical Turk who were over 16 years old and had work experience spanning at least three years. On December 8, 2020 (Time 1), we recruited a total of 1,010 participants based in the US. Participants responded to items capturing demographic information and research variables at the same time. We screened out participants who, 1) did not work during the COVID-19 pandemic for various reasons (e.g., paid leave, furlough, layoff, $n = 196$), 2) had less than one year of job or work experience (i.e., started a new job during the COVID-19 pandemic, $n = 67$), 3) were CEO or owner ($n = 11$), or 4) did not pass the attention check ($n = 12$). Some participants had multiple reasons for exclusion. We had 749 participants. We then invited those participants to complete a second survey on April 30, 2021 (Time 2) and a third survey on June 2, 2021 (Time 3). We received responses from 582 participants at Time 2 and 540 at Time 3. We screened out participants based on their work status again in the second and third waves, applying the same criteria that we used in the first wave. We had 426 participants who provided complete data across all three waves. To further examine data quality, we used their reported organization tenure at Time 1 and Time 2 and

further removed 31 participants who reported a shorter organization tenure at Time 2 than they reported at Time 1. We also removed 13 participants who reported their tenure with the supervisor was fewer than five months. The final sample we used for analysis had 382 participants.

Similar to the pilot study, we measured variables at different times. At Time 1, we measured perceived overqualification, self-sacrificial leadership, and control variables (demographic variables and job insecurity). At Time 2, we measured the impact of COVID-19 on the organization, collectivism toward the organization (i.e., the two variables reflecting the mechanisms behind the moderating effect of self-sacrificial leadership), felt obligation, and tenure with the current supervisor as controls. We also measured two aspects of person-job fit (i.e., demands-abilities fit and needs-supplies fit) and relative deprivation at Time 2, which were used as control variables to predict the two behavioral outcomes measured at Time 3 (i.e., proactive and helping behavior).

The final sample included 219 men and 163 women, ranging from 27 to 72 years of age ($M = 43.67$, $SD = 9.97$). They performed different jobs in various industries, having diverse work backgrounds². Their tenure in their respective organizations ranged from 1 to 45 years ($M = 9.64$, $SD = 7.06$). Most (75%) had an organizational tenure of more than five years. A total of 169

² Participants in the main study were from 24 industries. We classified the 24 industries into eight categories, including professional and business services ($n = 58$; 15.2%), public administration and volunteer work ($n = 27$; 7.1%), education, science, creative arts ($n = 67$; 17.5%), health and care services ($n = 47$; 12.3%), leisure, hospitality and retail ($n = 41$; 10.7%), information technology ($n = 65$; 17.0%), manufacturing, utilities, environment and construction ($n = 39$; 10.2%) and transport, logistics and others ($n = 38$; 9.9%). Based on the eight categories, we found industry differences in perceived overqualification ($F(7, 374) = 2.59$, $p < .05$) and job insecurity ($F(7, 374) = 2.70$, $p < .05$). Results of the Tukey tests revealed that participants in health and care services reported the lowest perceived overqualification ($M = 2.60$), although their perceived overqualification was only significantly lower than that reported by participants in transport and logistics ($M = 3.34$, $p < .05$). Participants in health and care services also reported the lowest job insecurity, although their job insecurity was only significantly lower than that reported by participants in leisure, hospitality and retail. Similar to the pilot study, we thus included a dummy variable (health and care services = 1; others = 0) as a control variable in our analysis.

participants (42.8%) had supervisory responsibility. Most (84.3%) had a bachelor's degree or higher level of education. In terms of ethnicity, most of the participants (83.8%) were white. We compared participants in the final sample versus those who only participated in the first wave. The final participants were older (mean age in years = 43.67 vs. mean age in years = 41.72, $t(747) = 2.63, p < .01$), had longer tenure in their organizations (mean age in years = 9.65 vs. mean age in years = 8.07, $t(747) = 3.34, p < .01$) than those who only participated in the first wave. The two groups of participants did not have different distribution in gender ($\chi(1) = 1.16, p = .28$), education (in three levels; $\chi(2) = 3.71, p = .16$), supervisory responsibility ($\chi(1) = 0.62, p = .43$), and ethnicity (white versus non-white ($\chi(1) = 1.00, p = .32$)).

Measures

All measures used were evaluated on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*) unless otherwise specified.

Key research variables. We used the same items as those used in the pilot study to assess self-sacrificial leadership (Time 1) ($\alpha = .93$), felt obligation (Time 2) ($\alpha = .91$), helping behavior (Time 3) ($\alpha = .90$), and proactive behavior (Time 3) ($\alpha = .95$).

For perceived overqualification (Time 1), we used a four-item scale of perceived overqualification (Johnson & Johnson, 1996), which has been used in many studies (e.g., Deng et al., 2018; Erdogan & Bauer, 2009; Hu et al., 2015) ($\alpha = .83$). We assessed the impact of COVID-19 on the organization (Time 2) using an improved measure relative the pilot study, that explicitly focused on the “negative” impact of COVID-19 and included four items to improve reliability. We asked participants to respond to the following items on a scale from 1 (*not at all*) to 5 (*a great deal*): “Due to the current crisis, how strong do you perceive the negative impact of COVID-19 on 1) your organization, 2) the organization’s operations, 3) the organization’s

business activities, and 4) the organization's viability?" ($\alpha = .89$). We measured sense of collectivism toward the organization during the COVID-19 crisis using six items adapted from a scale for collectivism (Yoo et al., 2011) ($\alpha = .91$). We asked participants to rely on their feelings during the COVID-19 crisis to respond to items such as "The organization's welfare is more important than my rewards" and "I only pursue my goals after considering the welfare of the organization".

Control variables. As we did in the pilot study, we controlled for employees' age, gender, education, tenure, supervision role, and industry (health and care services vs. others), all measured at Time 1. We did not control for job type because all participants in our final sample had full-time jobs. To recognize that tenure with a supervisor might affect how employees react to a supervisor's behavior, we also included this as a control variable in the main study.

To examine the unique effect of felt obligation on the two behavioral outcomes at Time 1, we measured job insecurity at Time 1 using three items (e.g., "I worry about the future of my job") from Wu et al. (2020) ($\alpha = .78$). At Time 2, we also measured demands-abilities fit, needs-supplies fit, and relative deprivation, because they have been previously used to explain the effects of perceived overqualification on employees' behavior under two dominant perspectives, namely the person-environment fit perspective and the relative deprivation perspective, in the overqualification literature (e.g., Luksyte et al., 2020). We used three-item scales to measure demands-abilities fit ($\alpha = .95$) and needs-supplies fit ($\alpha = .94$) (Cable & Derue, 2002). After finding that the two fit measures were highly related ($r = .87$) in a confirmatory factor analysis (detail on this analysis provided in the next section), we used the six items altogether to measure person-job fit ($\alpha = .95$). Similar to Erdogan et al. (2018), we adapted a five-item scale of relative deprivation (Callan et al., 2011) to measure the feeling of relative deprivation in our research

context ($\alpha = .87$). Participants were asked to think about people who had similar qualifications (education, experience, skills) relative to their own and respond to items such as, “I feel deprived when I think about what I have compared to what other people like me have.”

Measurement Analysis

We performed a confirmatory factor analysis, specifying eleven factors. In the model, we had three factors at Time 1 (i.e., perceived overqualification, self-sacrificial leadership, job insecurity), six factors at Time 2 (i.e., the COVID-19 impact on the organization, felt obligation, collectivism toward the organization, demands-abilities fit, needs-supplies fit, and relative deprivation), and two factors at Time 3 (i.e., helping behavior and proactive behavior). All factors were indicated by items for the construct. The eleven-factor model showed good fit to the data (WLSMV- $\chi^2 = 2404.50$; $df = 979$; RMSEA = .06, 90% CI = [.06, .07]; CFI = .976; TLI = .973). However, we found that demands-abilities fit, and needs-supplies fit were highly related ($r = .87$). We thus performed a ten-factor model by merging items for both fit measures into one factor reflecting person-job fit. The ten-factor model showed good fit to the data (WLSMV- $\chi^2 = 2548.59$; $df = 989$; RMSEA = .06, 90% CI = [.06, .07]; CFI = .974; TLI = .971). Although the eleven-factor model has a lower chi-square value than the ten-factor model ($\Delta\chi^2$ for the WLSMV estimator = 115.81, $df = 10$, $p < .01$), it is not better than the ten-factor model regarding change in fit indices. We choose the ten-factor model because both demands-abilities fit and needs-supplies fit are dimensions of person-job fit. In addition, merging the two fit measures into a general measure of person-job fit helps avoid multicollinearity problem as we will not include demands-abilities fit and needs-supplies fit as two independent variables in the following regression analyses. Finally, the ten-factor model helps with model parsimony.

Results of the ten-factor model show that felt obligation had higher correlations with collectivism toward the organization ($r = .69$) and person-job fit ($r = .60$). To further examine their discriminant validity, we performed an eight-factor model in which we included items of these three concepts into one factor. The eight-factor model showed acceptable fit to the data (WLSMV- $\chi^2 = 4851.76$; $df = 1006$; RMSEA = .10, 90% CI = [.10, .10]; CFI = .935; TLI = .930) but was worse than the ten-factor model ($\Delta\chi^2$ for the WLSMV estimator = 626.71, $df = 17$, $p < .01$). We also performed a three-factor model in which items measured at the same time (i.e., Time 1, 2 or 3) were all influenced by the same factor. The three-factor model showed unacceptable fit to the data (WLSMV- $\chi^2 = 11073.21$; $df = 1031$; RMSEA = .16, 90% CI = [.16, .16]; CFI = .829; TLI = .821) and was worse than the ten-factor model ($\Delta\chi^2$ for the WLSMV estimator = 2475.67, $df = 42$, $p < .01$).

Results

Table 3 presents the descriptive statistics and correlations among variables. In Table 4, firstly, we found that perceived overqualification was negatively related to felt obligation ($B = -.21$, $SE = .04$, $p < .01$; Model 2-1), supporting H1. Self-sacrificial leadership positively predicted employees' sense of collectivism toward the organization ($B = .28$, $SE = .04$, $p < .01$; Model 2-2) and the COVID-19 impact on the organization strengthened this positive effect ($B = .09$, $SE = .04$, $p < .05$; Model 2-4). Results of a subsequent Johnson-Neyman analysis conducted in Mplus revealed that self-sacrificial leadership was positively related to collectivism toward the organization when the score of COVID-19 impact on the organization was higher than 1.30 on a five-point scale. We also used one SD above or below the mean to indicate higher or lower levels of perceived overqualification and collectivism toward the organization. We found that self-sacrificial leadership was positively related to collectivism toward the

organization when the COVID-19 impact on the organization was lower (simple slope effect = .19, $SE = .06$, $p < .01$), and the effect was stronger when the COVID-19 impact on the organization was higher (simple slope effect = .35, $SE = .06$, $p < .01$). These two simple slope effects were significantly different (effect = .16, $SE = .08$, $p < .05$). See Figure 3 for the interaction plot. These findings support Hypothesis 2.

More importantly, we found that collectivism toward the organization buffered the negative effect of perceived overqualification on felt obligation ($B = .08$, $SE = .03$, $p < .01$; Model 2-7). Results of a subsequent Johnson-Neyman analysis revealed that perceived overqualification was negatively related to felt obligation when collectivism toward the organization was below 3.05 on a five-point scale and became non-significant above that score. For illustration, we used one SD above or below the mean to indicate the higher or lower levels of perceived overqualification and collectivism toward the organization. We found that perceived overqualification was negatively related to felt obligation when collectivism toward the organization was lower (simple slope effect = -.17, $SE = .05$, $p < .01$), but was not significant when collectivism toward the organization was higher (simple slope effect = -.01, $SE = .04$, $p = .87$). These two simple slope effects were significantly different (effect = .16, $SE = .06$, $p < .01$). See Figure 4 for the interaction plot. These finding support Hypothesis 3.

We also found felt obligation positively predicted helping behavior ($B = .23$, $SE = .07$, $p < .01$; Model 2-8) and proactive behavior ($B = .29$, $SE = .08$, $p < .01$; Model 2-9), providing support for Hypothesis 4a and 4b.

Finally, we estimated bootstrapped confidence intervals of the conditional mediation effects of felt obligation at different levels of collectivism toward the organization. We built a path model in Mplus which integrates Model 2-7, 2-8 and 2-9 and estimated the model using a

bootstrapping method with 5,000 iterations. Results show that the mediation effect of felt obligation was significant for helping behavior (conditional mediation effect = $-.04$, $SE = .02$, bootstrapped 95% CI = $[-.07, -.01]$) and proactive behavior (conditional mediation effect = $-.05$, $SE = .02$, bootstrapped 95% CI = $[-.10, -.01]$) when collectivism toward the organization was at 1SD below the mean (1.90 on a five-point scale). Felt obligation was insignificant for helping behavior (conditional mediation effect = $-.00$, $SE = .01$, bootstrapped 95% CI = $[-.02, .02]$) and proactive behavior (conditional mediation effect = $-.00$, $SE = .01$, bootstrapped 95% CI = $[-.03, .02]$) when collectivism toward the organization was at 1SD above the mean (3.80 on a five-point scale). These findings supported Hypothesis 5a and 5b.

We also performed all analyses again after removing insignificant control variables in each model and found that the results reported above remained the same. Overall, the findings of the main study support our theorizing that when COVID-19 has a strong impact on the organization, self-sacrificial leadership can boost employees' collectivism toward the organization, which in turn, buffer the negative effects of perceived overqualification on felt obligation and thus on helping and proactive behavior.

Discussion

Across two studies, we found that employees perceiving higher overqualification tended to have lower felt obligation, and thus lower engagement in extra-role behavior (i.e., helping and proactive behavior). However, when supervisors showed greater self-sacrificial behavior, especially when the impact of COVID-19 on the organization is strong, the negative effects of perceived overqualification were mitigated and become insignificant due to employees' greater sense of collectivism toward the organization during the crisis.

Theoretically, our study offers a different angle to understand overqualified employees' motivation and behavior. Our findings suggest that during a crisis, such as when the organization was strongly affected by COVID-19, eliciting a collective spirit through self-sacrificial leadership can reduce the resistance of such employees to go above and beyond to contribute to the organization. So far, most studies have adopted a person-environment fit or a relative deprivation perspective to understand the negative outcomes of perceived overqualification (e.g., Luksyte et al., 2020) and paid less attention to how managers and organizations can motivate such employees to do their part to pursue the interests of the collective. We encourage future studies that extend our research by examining how collective-oriented practices and situations can shape overqualified employees' attitudes and behavior.

Our study also advances overqualification research from a leadership angle. To date, relatively few studies have examined how leaders can improve overqualified employees' work attitudes and extra-role behavior. These studies indicate that supervisors may do so by empowering such employees to shape their work activities (Ma et al., 2020), by offering such employees developmental idiosyncratic deals (Luksyte & Spitzmueller, 2016) or by forming higher-quality leader-member exchange relationships with such employees (Alfes et al., 2016). These findings suggest, in general, that employees who feel overqualified for their jobs are more likely to possess positive attitudes and engage in extra-role behavior when leaders provide them with support and opportunities to utilize surplus capacities (i.e., improve the work situation). In contrast to this focus on the role of leadership in improving the work situation, our study highlights the role of leadership in providing social information (Salancik & Pfeffer, 1978). Through self-sacrificial behavior, leaders help overqualified employees make sense of the crisis situation, and thus help to shape employees' attitudes and behavior. Accordingly, our study

brings a different angle to understanding when (i.e., during a crisis) and how (i.e., by providing the social information for sensemaking) leadership can play a role in determining overqualified employees' work attitudes and extra-role behavior.

Practically, our findings suggest a way to reduce overqualified employees' resistance to engaging in extra-role behavior during the COVID-19 crisis. While some prior studies identify managerial factors (Debus et al., 2020; Erdogan & Bauer, 2009; Luksyte & Spitzmueller, 2016) that alleviate the negative effects of perceived overqualification on employees' job attitudes and behavior, these studies were not conducted during a crisis. Our study thus has a direct implication for leadership through crisis—that is, by showing devotedness and by prioritizing the collective over personal interests, leaders can mitigate the negative tendencies of employees who may feel overqualified for their jobs. Moreover, our findings show that felt obligation, above and beyond person-job fit and relative deprivation, plays a significant role in driving employees' extra-role behavior during a crisis. Managers and organization can therefore motivate employees to help their co-workers and take initiative to contribute to their work units during a crisis, through seeking to strengthen employees' felt obligation to the organization.

Our study has several limitations. First, our study does not establish causality between research variables. The causality can be established by an experimental study in which crisis situations and self-sacrificial leadership are manipulated systematically. Second, our measures were all self-reported, due to constraints in collecting supervisor-report data during COVID-19 lockdown. We used online panel samples via Prolific Academic and Amazon Mechanical Turk in order to recruit participants who were working during the lockdown and from a wide range of industries. Collecting supervisor-report data is not feasible on these platforms because users are not permitted to collect any personally identifiable information, such as names and emails, which

is needed to invite supervisors and match data from both sides. To alleviate the impact of common method bias in using self-report data, we adopted a time-lagged design for both studies (Podsakoff et al., 2003). Results of CFA in both studies also alleviate the concern of common-method variances across variables. Further, the nature of our hypotheses make common method bias less of a concern, given that common method effects reduce the likelihood of detecting interaction effects (Siemsen et al., 2010). Meanwhile, although other-report measures are more desirable than self-report measures for behavior, results of meta-analytic studies have reported moderate correlation between self-report and other-report measures of organizational citizenship behavior (i.e., helping, Carpenter et al., 2014), especially when antithetical (e.g., reverse-coded) items were not used. Regarding proactive behavior, Griffin et al. (2007) demonstrated the validity of self-report proactive behavior when they developed the scale we used. Finally, the size of correlations between felt obligation toward the organization and the two self-report behaviors in our studies is within the range of those reported in previous studies using supervisor-report proactive and helping behavior (e.g., Thompson et al., 2020, Table 2; Wu et al., 2016, Table 3), which alleviates concerns of common method biases in predicting behaviors. In sum, while collecting other-rated data would have been more informative, we believe that common method bias does not represent a strong explanation for the results we observed. Finally, we only used samples in the UK and US, which share an individualistic culture. It is unclear whether the same effects would be observed in a different cultural setting, such as a collectivistic culture. As people in collectivistic cultures tend to focus on the collective goals and define themselves in relation to others (Chen et al., 1998; Markus & Kitayama, 1991), we speculate that in a collectivistic culture, self-sacrificial leadership could be more prevalent during the COVID-19 pandemic and serve the same function in reinforcing a sense of collectivism

toward the organization and thus mitigating the negative implications of perceived overqualification on employees' motivation and behavior.

To conclude, our study sought to understand whether there is a way to mitigate the negative effects of employees' perceived overqualification during COVID-19—a time of unprecedented global crisis when organizations require all hands-on deck. Because employees who feel overqualified for their jobs tend to possess negative job attitudes and may not be inclined to engage in extra-role behaviors, finding ways to mitigate the negative tendencies of these employees may be crucial for organizations to successfully navigate through crisis. Our study suggests one way to do so is through demonstrating self-sacrificial leadership, or practices that elicit a collective spirit. We encourage future research to examine other strategies for transforming the motivation and behavior of overqualified employees during a crisis.

Future studies are also encouraged to investigate how the behaviors of overqualified employees and their supervisors change over time during a crisis. From an event-based perspective, a crisis is a critical and novel event that can result in different behaviors and responses from those during non-crisis time and evokes sensemaking processes in individuals (Morgeson et al., 2015). To date, perceived overqualification has not been studied in times of crisis. More studies are needed to advance our understanding of how to manage overqualified employees and how to better utilize their surplus capacities in response to a crisis.

References

- Adams, J. S. (1965). Inequity in social exchange. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 2, pp. 267-299). Academic Press.
[doi.org/doi.org/10.1016/S0065-2601\(08\)60108-2](https://doi.org/10.1016/S0065-2601(08)60108-2)
- Aiken, L. S., West, S. G., Luhmann, M., Baraldi, A., & Coxe, S. J. (2012). Estimating and graphing interactions. In *APA handbook of research methods in psychology, Vol 3: Data analysis and research publication*. (pp. 101-129). American Psychological Association.
doi.org/10.1037/13621-005
- Alfes, K., Shantz, A., & van Baalen, S. (2016). Reducing perceptions of overqualification and its impact on job satisfaction: the dual roles of interpersonal relationships at work. *Human Resource Management Journal*, 26, 84-101. doi.org/10.1111/1748-8583.12094
- Ashforth, B. E., & Mael, F. (1989). Social identity theory and the organization. *Academy of Management Review*, 14, 20-39. doi.org/10.2307/258189
- Bolino, M. C., & Feldman, D. C. (2000). The antecedents and consequences of underemployment among expatriates. *Journal of Organizational Behavior*, 21, 889-911.
[10.1002/1099-1379\(200012\)21:8<889::AID-JOB60>3.0.CO;2-G](https://doi.org/10.1002/1099-1379(200012)21:8<889::AID-JOB60>3.0.CO;2-G)
- Bolino, M. C., & Grant, A. M. (2016). The bright side of being prosocial at work, and the dark side too: A review and agenda for research on other-oriented motives, behavior, and impact in organizations. *Academy of Management Annals*, 10, 599-670.
[10.5465/19416520.2016.1153260](https://doi.org/10.5465/19416520.2016.1153260)
- Cable, D. M., & Derue, D. S. (2002). The convergent and discriminant validity of subjective fit perceptions. *Journal of Applied Psychology*, 87, 875-884. [10.1037/0021-9010.87.5.875](https://doi.org/10.1037/0021-9010.87.5.875)

- Callan, M. J., Shead, N. W., & Olson, J. M. (2011). Personal relative deprivation, delay discounting, and gambling. *Journal of Personality and Social Psychology, 101*, 955-973. 10.1037/a0024778
- Carpenter, N. C., Berry, C. M., & Houston, L. (2014). A meta-analytic comparison of self-reported and other-reported organizational citizenship behavior. *Journal of Organizational Behavior, 35*, 547-574. 10.1002/job.1909
- Centers for Disease Control and Prevention. (2021). *Daily trends in number of Covid-19 cases in the United States reported to CDC*. [covid.cdc.gov/covid-data-tracker/#trends_dailytrendscases](https://www.covid.cdc.gov/covid-data-tracker/#trends_dailytrendscases)
- Chen, C. C., Chen, X.-P., & Meindl, J. R. (1998). How can cooperation be fostered? The cultural effects of individualism-collectivism. *Academy of Management Review, 23*, 285-304. 10.5465/amr.1998.533227
- Choi, Y., & Mai-Dalton, R. R. (1998). On the leadership function of self-sacrifice. *The Leadership Quarterly, 9*, 475-501. [doi.org/10.1016/S1048-9843\(98\)90012-1](https://doi.org/10.1016/S1048-9843(98)90012-1)
- Choi, Y., & Mai-Dalton, R. R. (1999). The model of followers' responses to self-sacrificial leadership: An empirical test. *The Leadership Quarterly, 10*, 397-421. [doi.org/10.1016/S1048-9843\(99\)00025-9](https://doi.org/10.1016/S1048-9843(99)00025-9)
- Choi, Y., & Yoon, J. (2005). Effects of leaders' self-sacrificial behavior and competency on followers' attribution of charismatic leadership among Americans and Koreans. *Current Research in Social Psychology, 11*, 51-69.
- Christianson, M. K., Farkas, M. T., Sutcliffe, K. M., & Weick, K. E. (2009). Learning through rare events: Significant interruptions at the Baltimore & Ohio Railroad Museum. *Organization science, 20*, 846-860. 10.1287/orsc.1080.0389

- Crayne, M. P., & Medeiros, K. E. (2021). Making sense of crisis: Charismatic, ideological, and pragmatic leadership in response to COVID-19. *American Psychologist*, 462–474.
10.1037/amp0000715
- De Cremer, D., Mayer, D. M., van Dijke, M., Schouten, B. C., & Bardes, M. (2009). When does self-sacrificial leadership motivate prosocial behavior? It depends on followers' prevention focus. *Journal of Applied Psychology*, 94, 887-899. 10.1037/a0014782
- De Cremer, D., & van Knippenberg, D. (2005). Cooperation as a function of leader self-sacrifice, trust, and identification. *Leadership & Organization Development Journal*, 26, 355-369.
10.1108/01437730510607853
- Debus, M. E., Gross, C., & Kleinmann, M. (2020). The power of doing: How job crafting transmits the beneficial impact of autonomy among overqualified employees. *Journal of Business and Psychology*, 35, 317-331. 10.1007/s10869-019-09625-y
- Deng, H., Guan, Y., Wu, C.-H., Erdogan, B., Bauer, T., & Yao, X. (2018). A relational model of overqualification: The role of interpersonal influence on overqualified employees' social acceptance and performance. *Journal of Management*, 44, 3288-3310.
10.1177/0149206316668237
- Eisenberger, R., Armeli, S., Rexwinkel, B., Lynch, P. D., & Rhoades, L. (2001). Reciprocation of perceived organizational support. *Journal of Applied Psychology*, 86, 42-51.
<http://dx.doi.org/10.1037/0021-9010.86.1.42>
- Erdogan, B., & Bauer, T. N. (2009). Perceived overqualification and its outcomes: The moderating role of empowerment. *Journal of Applied Psychology*, 94, 557-565.
doi.org/10.1037/a0013528

- Erdogan, B., Bauer, T. N., Peiró, J. M., & Truxillo, D. M. (2011). Overqualified employees: Making the best of a potentially bad situation for individuals and organizations. *Industrial and Organizational Psychology: Perspectives on Science and Practice*, 4, 215-232. doi.org/10.1111/j.1754-9434.2011.01330.x
- Erdogan, B., Tomás, I., Valls, V., & Gracia, F. J. (2018). Perceived overqualification, relative deprivation, and person-centric outcomes: The moderating role of career centrality. *Journal of Vocational Behavior*, 107, 233-245. doi.org/10.1016/j.jvb.2018.05.003
- Gollob, H. F., & Reichardt, C. S. (1987). Taking account of time lags in causal models. *Child Development*, 58, 80-92. doi.org/10.2307/1130293
- Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: Positive behavior in uncertain and interdependent contexts. *Academy of Management Journal*, 50, 327 - 347. <http://dx.doi.org/10.5465/AMJ.2007.24634438>
- Halverson, S. K., Holladay, C. L., Kazama, S. M., & Quiñones, M. A. (2004). Self-sacrificial behavior in crisis situations: The competing roles of behavioral and situational factors. *The Leadership Quarterly*, 15, 263-275. doi.org/10.1016/j.leaqua.2004.02.001
- Harari, M. B., Manapragada, A., & Viswesvaran, C. (2017). Who thinks they're a big fish in a small pond and why does it matter? A meta-analysis of perceived overqualification. *Journal of Vocational Behavior*, 102, 28-47. doi.org/10.1016/j.jvb.2017.06.002
- Hu, J., Erdogan, B., Bauer, T. N., Jiang, K., Liu, S., & Li, Y. (2015). There are lots of big fish in this pond: The role of peer overqualification on task significance, perceived fit, and performance for overqualified employees. *Journal of Applied Psychology*, 1228-1238. doi.org/10.1037/apl0000008

- International Labour Office. (2018). *Global skills trends, training needs and lifelong learning strategies for the future of work*. www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms_646038.pdf
- Jahoda, M. (1982). *Employment and unemployment: A social-psychological analysis*. Cambridge, MA Cambridge University Press.
- Johnson, G. J., & Johnson, W. R. (1996). Perceived overqualification and psychological well-being *Journal of Social Psychology, 136*, 435-445
doi.org/10.1080/00224545.1996.9714025
- Lee, A., Erdogan, B., Tian, A., Willis, S., & Cao, J. (2021). Perceived overqualification and task performance: Reconciling two opposing pathways. *Journal of Occupational and Organizational Psychology, 94*, 80-106. doi.org/10.1111/joop.12323
- Li, R., Zhang, Z.-Y., & Tian, X.-M. (2016). Can self-sacrificial leadership promote subordinate taking charge? The mediating role of organizational identification and the moderating role of risk aversion. *Journal of Organizational Behavior, 37*, 758-781. 10.1002/job.2068
- Liu, S., Luksyte, A., Zhou, L., Shi, J., & Wang, M. (2015). Overqualification and counterproductive work behaviors: Examining a moderated mediation model. *Journal of Organizational Behavior, 36*, 250-271. 10.1002/job.1979
- Liu, S., & Wang, M. (2012). Perceived overqualification: A review and recommendations for research and practice. In P. L. Perrewé, J. R. B. Halbesleben, & C. C. Rosen (Eds.), *The Role of Individual Differences in Occupational Stress and Well Being*. Emerald Group Publishing Limited.

- Luksyte, A., Bauer, T. N., Debus, M. E., Erdogan, B., & Wu, C.-H. (2020). Perceived overqualification and collectivism orientation: Implications for work and non-work outcomes. *Journal of Management*. 10.1177/0149206320948602
- Luksyte, A., & Spitzmueller, C. (2016). When are overqualified employees creative? It depends on contextual factors. *Journal of Organizational Behavior*, 37, 635–653.
doi.org/10.1002/job.2054
- Ma, C., Lin, X., Chen, Z. X., & Wei, W. (2020). Linking perceived overqualification with task performance and proactivity? An examination from self-concept-based perspective. *Journal of Business Research*, 118, 199-209. doi.org/10.1016/j.jbusres.2020.06.041
- Maitlis, S. (2005). The social processes of organizational sensemaking. *Academy of Management Journal*, 48, 21-49. 10.5465/AMJ.2005.15993111
- Maitlis, S., & Christianson, M. (2014). Sensemaking in organizations: Taking stock and moving forward. *Academy of Management Annals*, 8, 57-125. 10.5465/19416520.2014.873177
- Maitlis, S., & Sonenshein, S. (2010). Sensemaking in crisis and change: Inspiration and insights from Weick (1988). *Journal of Management Studies*, 47, 551-580.
doi.org/10.1111/j.1467-6486.2010.00908.x
- Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion and motivation. *Psychological Review*, 98, 224-253. doi.org/10.1037/0033-295X.98.2.224
- Maynard, D. C., Joseph, T. A., & Maynard, A. M. (2006). Underemployment, job attitudes, and turnover intentions. *Journal of Organizational Behavior*, 27, 509–536.
doi.org/10.1002/job.389

- Morgeson, F. P., Mitchell, T. R., & Liu., D. (2015). Event system theory: An event-oriented approach to the organizational sciences. *Academy of Management Review*, *40*, 515-537. <http://dx.doi.org/10.5465/amr.2012.0099>
- Muthén, B. O., & Kaplan, D. (1985). A comparison of some methodologies for the factor analysis of non-normal Likert variables. *British Journal of Mathematical and Statistical Psychology*, *38*, 171-189. doi.org/10.1111/j.2044-8317.1985.tb00832.x
- Muthén, L. K., & Muthén, B. O. (2017). *Mplus User's Guide*. Los Angeles, CA Muthén & Muthén.
- Ng, T. W. H., & Feldman, D. C. (2008). The relationship of age to ten dimensions of job performance. *Journal of Applied Psychology*, *93*, 392–423. doi.org/10.1037/0021-9010.93.2.392
- Parker, S. K., Bindl, U. K., & Strauss, K. (2010). Making things happen: A model of proactive motivation. *Journal of Management*, *36*, 827-856. doi.org/10.1177/0149206310363732
- Pearson, C. M., & Clair, J. A. (1998). Reframing Crisis Management. *The Academy of Management Review*, *23*, 59-76. [10.2307/259099](http://dx.doi.org/10.2307/259099)
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*, 879-903. <http://dx.doi.org/10.1037/0021-9010.88.5.879>
- Rhoades, L., & Eisenberger, R. (2002). Perceived organizational support: A review of the literature. *Journal of Applied Psychology*, *87*, 698-714. <http://dx.doi.org/10.1037/0021-9010.87.4.698>

- Salancik, G., & Pfeffer, J. (1978). A social information processing approach to job attitudes and task design. *Administrative Science Quarterly*, *23*, 224. doi.org/10.2307/2392563
- Sandberg, J., & Tsoukas, H. (2015). Making sense of the sensemaking perspective: Its constituents, limitations, and opportunities for further development. *Journal of Organizational Behavior*, *36*, S6-S32. doi.org/10.1002/job.1937
- Shoss, M. K. (2017). Job insecurity: An integrative review and agenda for future research. *Journal of Management*, *43*, 1911-1939. [10.1177/0149206317691574](https://doi.org/10.1177/0149206317691574)
- Siemens, E., Roth, A., & Oliveira, P. (2010). Common method bias in regression models with linear, quadratic, and interaction effects. *Organizational Research Methods*, *13*, 456-476. <https://doi.org/10.1177/1094428109351241>
- Simon, L. S., Bauer, T. N., Erdogan, B., & Shepherd, W. (2019). Built to last: Interactive effects of perceived overqualification and proactive personality on new employee adjustment. *Personnel psychology*, *72*, 213-240. [10.1111/peps.12297](https://doi.org/10.1111/peps.12297)
- Smith, C. A., Organ, D. W., & Near, J. P. (1983). Organizational citizenship behavior: Its nature and antecedents. *Journal of Applied Psychology*, *68*, 653-663. doi.org/10.1037/0021-9010.68.4.653
- Staw, B. M., Sandelands, L. E., & Dutton, J. E. (1981). Threat rigidity effects in organizational behavior: A multilevel analysis. *Administrative Science Quarterly*, *26*, 501-524. doi.org/10.2307/2392337
- Thompson, P. S., Bergeron, D. M., & Bolino, M. C. (2020). No obligation? How gender influences the relationship between perceived organizational support and organizational citizenship behavior. *Journal of Applied Psychology*, *105*, 1338-1350. [10.1037/apl0000481](https://doi.org/10.1037/apl0000481)

- Tomasello, M. (2020). The moral psychology of obligation. *Behavioral and Brain Sciences*, *43*, e56, Article e56. 10.1017/S0140525X19001742
- Van Dyne, L., & Le Pine, J. A. (1998). Helping and voice extra-role behaviors: Evidence of construct and predictive validity. *Academy of Management Journal*, *41*, 108-119. 10.2307/256902
- van Vuuren, C. V., & Klandermans, P. G. (1990). Individual reactions to job insecurity: An integrated model. In P. J. D. Drenth, J. A. Sergeant, & R. J. Takens (Eds.), *European Perspectives in Psychology* (Vol. 3, pp. 133-146). John Wiley & Sons.
- Wassermann, M., & Hoppe, A. (2019). Perceived overqualification and psychological well-being among immigrants: The moderating role of personal resources. *Journal of Personnel Psychology*, *18*, 34-45. 10.1027/1866-5888/a000219
- Weick, K. E. (1988). Enacted sensemaking in crisis situations. *Journal of Management Studies*, *25*, 305-317. doi.org/10.1111/j.1467-6486.1988.tb00039.x
- Weick, K. E. (1995). *Sensemaking in organizations*. Thousand Oaks, CA Sage.
- Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005). Organizing and the process of sensemaking. *Organization Science*, *16*, 409-421. 10.1287/orsc.1050.0133
- Williams, T. A., Gruber, D. A., Sutcliffe, K. M., Shepherd, D. A., & Zhao, E. Y. (2017). Organizational response to adversity: Fusing crisis management and resilience research streams. *Academy of Management Annals*, *11*, 733-769. 10.5465/annals.2015.0134
- World Health Organization. (2021). *WHO Coronavirus Disease (COVID-19) Dashboard*. Retrieved 07, July from covid19.who.int/

Wu, C.-H., Liu, J., Kwan, H. K., & Lee, C. (2016). Why and when workplace ostracism inhibits organizational citizenship behaviors: An organizational identification perspective.

Journal of Applied Psychology, 101, 362–378. <http://dx.doi.org/10.1037/apl0000063>

Wu, C.-H., Parker, S. K., Wu, L.-Z., & Lee, C. (2018). When and why people engage in different forms of proactive behavior: Interactive effects of self-construals and work characteristics. *Academy of Management Journal, 61*, 293-323.

doi.org/10.5465/amj.2013.1064

Wu, C.-H., Wang, Y., Parker, S. K., & Griffin, M. A. (2020). Effects of chronic job insecurity on Big Five personality change. *Journal of Applied Psychology, 105*, 1308-1326.

10.1037/apl0000488

Yoo, B., Donthu, N., & Lenartowicz, T. (2011). Measuring Hofstede's five dimensions of cultural values at the individual level: Development and validation of CVSCALE.

Journal of International Consumer Marketing, 23, 193-210.

DOI:10.1080/08961530.2011.578059

Zapf, D., Dormann, C., & Frese, M. (1996). Longitudinal studies in organizational stress research: A review of the literature with reference to methodological issues. *Journal of Occupational Health Psychology, 1*, 145-169. 10.1037//1076-8998.1.2.145

Table 1*Correlations among Variables in the pilot study (n = 121)*

Study Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Perceived overqualification (T1)	3.28	0.98	(.93)												
2. Age (T2)	42.07	9.17	-.07	-											
3. Gender (female =1; male = 0) (T2)	0.59	0.49	.04	-.06	-										
4. Education ^a (T2)	1.98	0.70	.02	-.16	.04	-									
5. Tenure (years) (T2)	11.50	6.44	.00	.43**	.01	-.20*	-								
6. Job type (part-time = 1; full-time = 0) (T2)	0.07	0.26	.04	-.02	.11	.10	-.04	-							
7. Supervision role (yes = 1; no =0) (T2)	0.60	0.49	-.11	.16	-.01	.16	.13	-.15	-						
8. Industry (health and care = 1; others =0)	0.17	0.37	-.15	-.07	.28**	-.02	.01	.30**	-.04	-					
9. COVID-19 impact on the organization (T2)	3.55	1.06	-.01	-.08	.20*	.28**	.05	.06	.08	.26**	-				
10. Self-sacrificial leadership (T3)	2.71	1.01	.00	-.25**	-.02	-.15	-.04	.05	-.05	.12	.04	(.94)			
11. Felt obligation toward the organization (T4)	3.79	0.80	-.23**	.17	-.06	-.13	.03	.11	-.02	-.07	.02	.19*	(.88)		
12. Proactive behavior (T5)	2.86	1.12	-.04	-.05	-.10	.11	.02	-.09	.27**	-.04	.29**	.25**	.25**	(.94)	
13. Helping behavior (T5)	3.06	1.08	-.02	-.12	.11	.06	-.02	.01	.08	.15	.26**	.30**	.21*	.56**	(.88)

Note. Cronbach's alpha coefficients are on the diagonal.

T1: February - March, 2018; T2: June 11, 2020; T3: June 17, 2020; T4: July 1, 2020; T5: July 14, 2020

a: For education, "1" = high school or below, "2" = undergraduate or equivalent degrees and "3" = postgraduate degrees or above.

* $p < .05$, ** $p < .01$.

Table 2*Results of Regression Analyses in the pilot study (n = 121)*

Model	Model 1-1		Model 1-2		Model 1-3		Model 1-4		Model 1-5		Model 1-6	
Independent/Dependent variables	Felt obligation (T4)		Felt obligation (T4)		Felt obligation (T4)		Felt obligation (T4)		Helping behavior (T5)		Proactive behavior (T5)	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Intercept	3.63	.43	3.36	.45	3.47	.45	3.46	.44	1.91	.74	1.66	.73
Age (T2)	.01	.01	.02*	.01	.02	.01	.02*	.01	-.01	.01	-.01	.01
Gender (female = 1; male = 0) (T2)	-.01	.15	-.01	.15	-.05	.15	-.04	.14	.14	.20	-.26	.19
Education (T2)	-.13	.11	-.11	.11	-.13	.11	-.16	.11	.08	.15	.09	.15
Tenure (T2)	-.01	.01	-.01	.01	.00	.01	-.01	.01	.00	.02	.00	.02
Job type (part-time = 1; full-time = 0) (T2)	.52	.29	.50	.28	.50	.28	.59*	.27	-.26	.38	-.33	.38
Supervision role (yes = 1; no = 0) (T2)	-.04	.15	-.06	.15	-.05	.15	.04	.14	.20	.20	.58**	.19
Industry (health and care = 1; others = 0)	-.31	.21	-.42*	.21	-.35	.22	-.36	.21	.28	.29	-.17	.28
Perceived overqualification (POQ; T1)	-.20**	.07	-.21**	.07	-.19**	.07	-.21**	.07	.05	.10	.04	.10
COVID-19 impact on the organization (IMP; T2)			.08	.07	.07	.07	.09	.07	.26*	.10	.24*	.10
Self-sacrificial leadership (SSL; T3)			.19**	.07	.18*	.07	.15*	.07	.19*	.10	.29**	.10
POQ × SSL					.15*	.07	.05	.08				
POQ × IMP					.02	.07	.07	.07				
IMP × SSL					-.07	.06	-.05	.06				
POQ × SSL × IMP							.18**	.06				
Felt obligation (T4)									.30*	.13	.31*	.13
<i>F</i>		2.02*		2.55**		2.43**		3.04**		2.62**		3.98**
<i>R</i> ²		.13		.19		.23		.29		.21		.29
ΔR^2				.06*		.04		.06**				

Note. * $p < .05$, ** $p < .01$.

Table 3*Correlations among Variables in the main study (n = 382)*

Study Variable	M	SD	1	2	3	4	5	6	7	8	9	10
1. Age (T1)	43.67	9.97										
2. Gender (female =1; male = 0) (T1)	0.43	0.50	.17**									
3. Education ^a (T1)	2.07	0.62	-.10	-.03								
4. Organizational tenure (years) (T1)	9.65	7.06	.45**	.08	-.09							
5. Supervision role (yes = 1; no =0) (T1)	0.43	0.50	.16**	.01	.05	.15**						
6. Industry (health and care = 1; others =0) (T1)	0.12	0.33	-.01	.05	-.05	.02	-.04					
7. Job insecurity (T1)	1.98	0.85	-.10	-.03	.00	-.14**	-.05	-.13*	(.78)			
8. Supervision tenure (years) (T2)	5.85	4.67	.31**	.10*	-.14**	.50**	.17**	.01	-.09			
9. Perceived overqualification (T1)	2.96	1.03	.00	.01	-.01	-.08	-.02	-.13*	.25**	-.08	(.83)	
10. Self-sacrificial leadership (T1)	2.52	1.03	-.07	.04	-.06	-.02	.14**	.01	-.06	.05	-.15**	(.93)
11. COVID-19 impact on the organization (T2)	2.60	0.90	.00	.00	.10*	.02	.14**	.02	.19**	.02	.03	.04
12. Collectivism toward the organization (T2)	2.85	0.95	.14**	.06	-.01	.16**	.16**	.11*	-.24**	.22**	-.28**	.32**
13. Felt obligation toward the organization (T2)	3.91	0.88	.26**	.14**	-.04	.16**	.11*	.09	-.19**	.18**	-.27**	.25**
14. Needs-supplies fit (T2)	3.69	1.10	.06	.03	.04	.07	.05	.07	-.37**	.05	-.48**	.24**
15. Demands-abilities fit (T2)	3.91	1.02	.07	.05	.02	.15**	.06	.13*	-.32**	.13*	-.57**	.20**
16. Person-job fit (T2)	3.80	1.01	.07	.04	.03	.12*	.06	.10*	-.37**	.09	-.55**	.23**
17. Relative deprivation (T2)	2.40	0.93	-.17**	.00	-.03	-.12*	-.11*	-.08	.38**	-.04	.31**	-.10*
18. Helping behavior (T3)	3.41	0.93	.17**	.14**	-.01	.16**	.23**	.06	-.14**	.15**	-.11*	.21**
19. Proactive behavior (T3)	2.76	1.12	.08	.01	.12*	.08	.32**	-.03	-.10*	.03	-.11*	.17**

Note. Cronbach's alpha coefficients are on the diagonal within parentheses.

a: For education, "1" = high school or below, "2" = undergraduate or equivalent degrees and "3" = postgraduate degrees or above.

T1: December 8 - 14, 2020; T2: April 30 - May 7, 2021; T3: June 2 - 10, 2021

* $p < .05$, ** $p < .01$.

Table 3 (cont.)*Correlations among Variables in the main study (n = 382)*

Study Variable	Correlations								
	11	12	13	14	15	16	17	18	19
11. COVID-19 impact on the organization (T2)	(.89)								
12. Collectivism toward the organization (T2)	.06	(.91)							
13. Felt obligation toward the organization (T2)	.04	.64**	(.90)						
14. Needs-supplies fit (T2)	-.02	.55**	.49**	(.94)					
15. Demands-abilities fit (T2)	.04	.48**	.48**	.79**	(.95)				
16. Person-job fit (T2)	.01	.55**	.51**	.95**	.94**	(.87)			
17. Relative deprivation (T2)	.05	-.24**	-.26**	-.45**	-.40**	-.45**	(.95)		
18. Helping behavior (T3)	.12*	.40**	.42**	.30**	.33**	.33**	-.20**	(.90)	
19. Proactive behavior (T3)	.16**	.34**	.36**	.29**	.27**	.29**	-.27**	.53**	(.95)

Note. Cronbach's alpha coefficients are on the diagonal within parentheses.

T2: April 30 - May 7, 2021; T3: June 2 - 10, 2021

* $p < .05$, ** $p < .01$.

Table 4

Results of Regression Analyses in the main study (n = 382)

Model	Model 2-1		Model 2-2		Model 2-3		Model 2-4		Model 2-5		Model 2-6		Model 2-7	
Independent/Dependent variables	Felt obligation (T2)		Collectivism toward the organization (T2)		Collectivism toward the organization (T2)		Collectivism toward the organization (T2)		Felt obligation (T2)		Felt obligation (T2)		Felt obligation (T2)	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Intercept	3.10	.28	2.46	.29	2.53	.29	2.54	.29	3.02	.27	3.23	.23	3.27	.23
Age (T1)	.02	.00	.01	.01	.01	.01	.01	.01	.02	.00	.02	.00	.02	.00
Gender (female =1; male = 0) (T1)	.16	.09	.01	.09	.01	.09	.00	.09	.14	.08	.12	.07	.10	.07
Education ^a (T1)	-.01	.07	.06	.07	.05	.07	.05	.07	.01	.07	-.02	.06	-.02	.06
Organizational tenure (years) (T1)	.00	.01	.00	.01	.00	.01	.00	.01	.00	.01	.00	.01	.00	.01
Supervision role (yes = 1; no =0) (T1)	.11	.09	.12	.09	.10	.09	.11	.09	.03	.09	-.02	.07	-.02	.07
Industry (health and care = 1; others =0) (T1)	.12	.13	.25	.13	.23	.13	.23	.13	.12	.13	.03	.10	.06	.10
Job insecurity (T1)	-.09	.05	-.20**	.05	-.22**	.05	-.22**	.05	-.10	.05	-.01	.04	-.01	.04
Supervision tenure (years) (T2)	.02	.01	.03**	.01	.03**	.01	.03**	.01	.01	.01	.00	.01	.00	.01
Self-sacrificial leadership (SSL; T1)			.28**	.04	.27**	.04	.27**	.04	.19**	.04	.06	.04	.06	.03
COVID-19 impact on the organization (IMP; T2)					.08	.05	.07	.05	.05	.05	.01	.04	.02	.04
SSL × IMP							.09*	.04						
Perceived overqualification (POQ; T1)	-.21**	.04							-.18**	.04	-.09**	.04	-.09*	.03
Collectivism toward the organization (CO; T2)											.53**	.04	.51**	.04
POQ × CO													.08*	.03
<i>F</i>	8.57**		10.81**		10.00**		9.53**		9.55**		26.67**		25.48**	
<i>R</i> ²	.17		.21		.21		.22		.22		.46		.47	
ΔR^2					.005		.01*				.24**		.01*	

Note. * $p < .05$, ** $p < .01$.

a: For education, “1” = high school or below, “2” = undergraduate or equivalent degrees and “3” = postgraduate degrees or above.

Table 5*Results of Regression Analyses in the main study in predicting behavioral outcomes (n = 382)*

Model	Model 2-8		Model 2-9	
	Helping behavior (T3)		Proactive behavior (T3)	
Independent/Dependent variables	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Intercept	1.83	.45	1.41	.54
Age	.00	.01	-.01	.01
Gender (female =1; male = 0) (T1)	.16	.09	-.04	.10
Education ^a (T1)	-.01	.07	.16	.08
Organizational tenure (years) (T1)	.01	.01	.00	.01
Supervision role (yes = 1; no =0) (T1)	.27**	.09	.56**	.11
Industry (health and care = 1; others =0) (T1)	.03	.13	-.18	.15
Job insecurity (T1)	-.02	.06	.03	.07
Supervision tenure (years) (T2)	.00	.01	-.02	.01
Perceived overqualification (T1)	.08	.05	.08	.06
Self-sacrificial leadership (T1)	.06	.04	.03	.05
COVID-19 impact on the organization (T2)	.08	.05	.12*	.06
Collectivism toward the organization (CO; T2)	.13*	.06	.12	.08
Person-job fit (T2) ^a	.14*	.06	.10	.07
Relative deprivation (T2)	-.04	.05	-.19**	.06
Felt obligation toward the organization (T2)	.23**	.07	.29**	.08
<i>F</i>	9.13**		9.60**	
<i>R</i> ²	.27		.28	

Note. * $p < .05$, ** $p < .01$.

^a When we included both needs-supplies fit and demands-abilities fit, but not overall person-job fit, in the equation, we still found that felt obligation toward the organization positively predicted helping and proactive behavior.

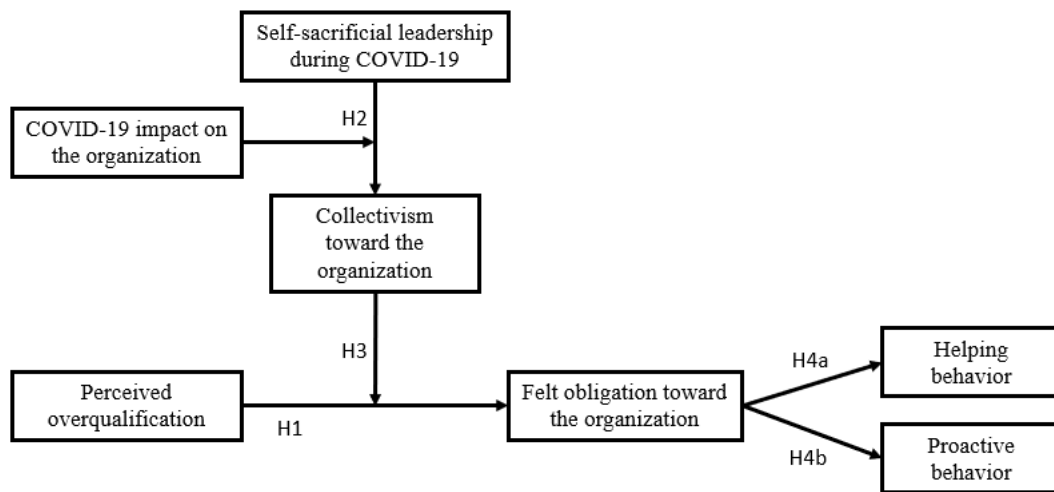
Figure 1*The Research Model.*

Figure 2

The Interaction plot in predicting felt obligation toward the organization in the pilot study

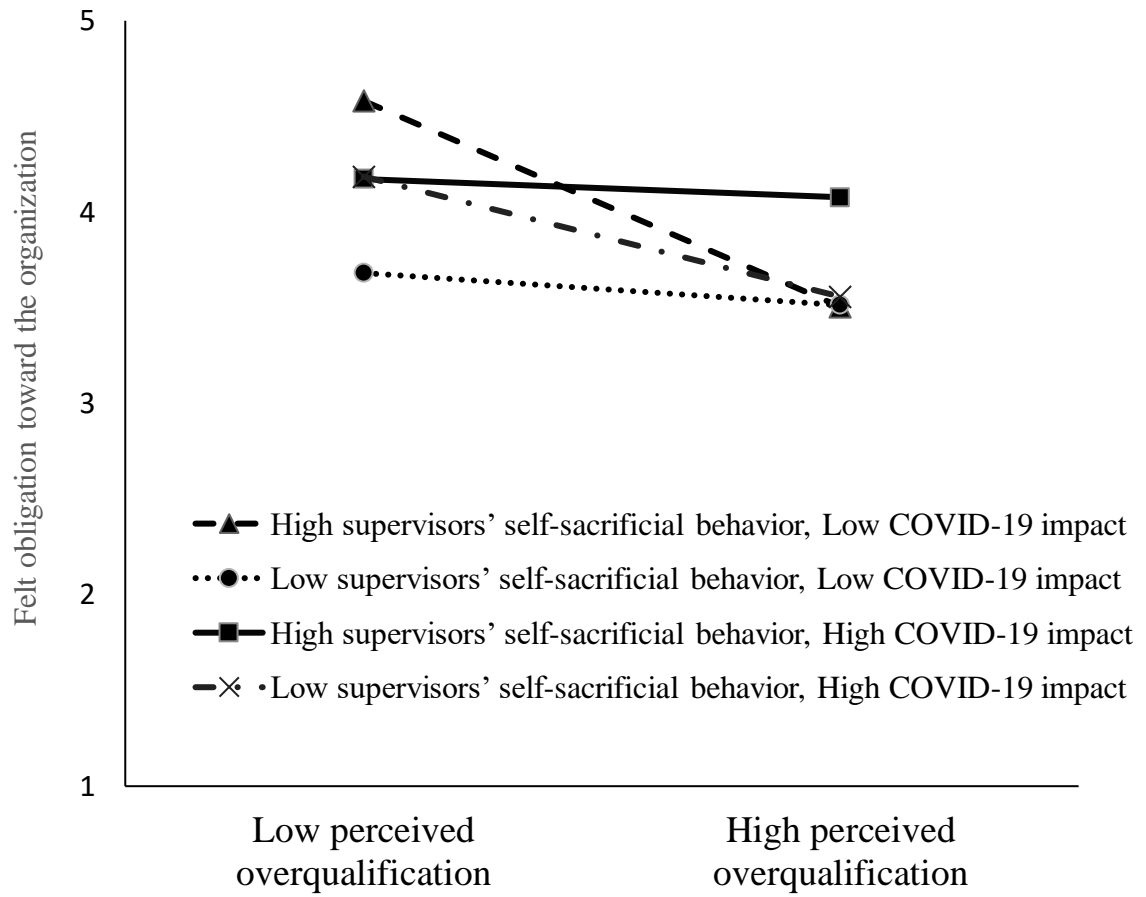


Figure 3

The Interaction effect of supervisors' self-sacrificial behavior and the COVID-19 impact on the organization in predicting collectivism toward the organization in the main study

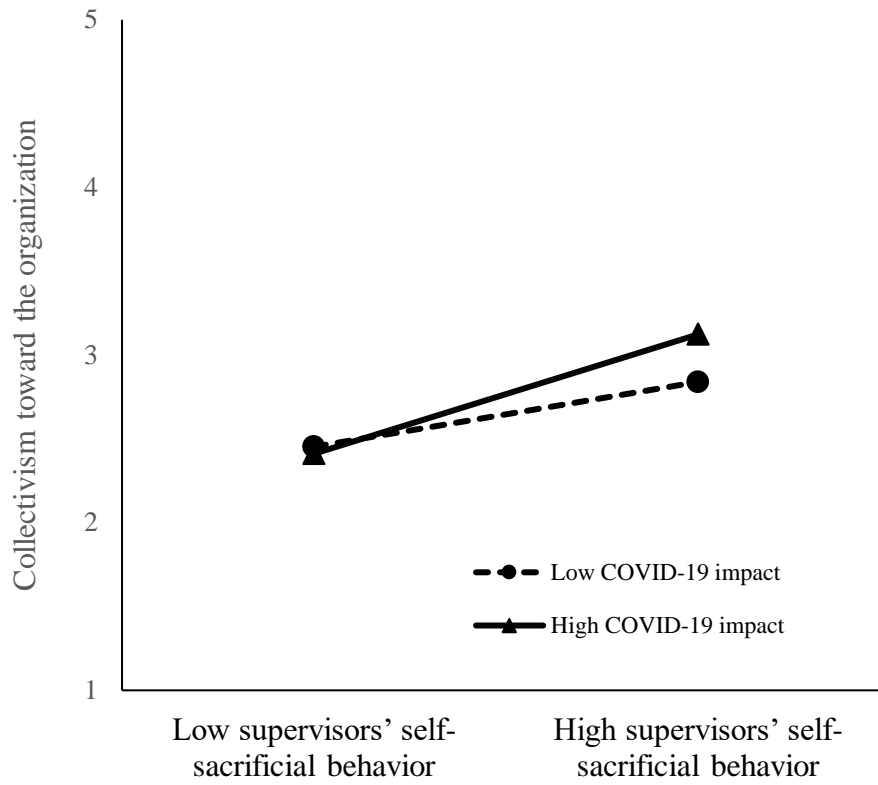


Figure 4

The interaction effect of perceived overqualification and collectivism toward the organization in predicting felt obligation toward the organization in the main study

