Perceived Risk of COVID-19 and Employee Decision-Making: How Psychological Distress during the Pandemic Increases Negative Performance Outcomes among Healthcare Workers

Ngqabutho Moyo 1,*, Anita D. Bhappu 1, Moment Bhebhe 2 and Farai Ncube 2

1 Department of Management of Complex Systems, School of Engineering, University of California, 5200 North Lake Rd., Merced, CA 95343, USA; abhappu@ucmerced.edu
2 Department of Human Resource Management, Faculty of Social Sciences, Midlands State University, Gweru P. Bag 9055, Zimbabwe; mbhebhe@staff.msu.ac.zw (M.B.); fncube@staff.msu.ac.zw (F.N.)

* Correspondence: nmoyo@ucmerced.edu

Abstract: In this research, we examined how COVID-19 impacts employee decision-making and performance, knowing that this virus has negatively affected public health, crippled economies, and transformed social and business environments across the globe. To quantitatively test our specific hypotheses regarding the effects of employees' perceived risk of COVID-19 and psychological distress on negative performance outcomes, we surveyed 443 healthcare workers who were employed by a group of private hospitals in Zimbabwe. These essential workers were delivering day-to-day frontline services with high exposure to COVID-19 during the pandemic. We find that employees' perceived risk of COVID-19 increases their disengagement, turnover intention, burnout, and low morale at a p < 0.05 significance level. These latter relationships are mediated by employees' psychological distress at a p < 0.05 significance level. Our findings shed light on how the COVID-19 pandemic is affecting the cognitions and behaviors of the frontline workers who are vulnerable to this contagious disease. Turnover intentions are amplified among healthcare employees, due to their perceived risk of COVID-19 and the resulting psychological distress. Similarly, burnout becomes predominant as these workers worry about contracting the coronavirus due to the poor working conditions they face. As such, our research confirms that the pandemic has intensified the precariousness of work and challenge of managing employee performance, especially for frontline healthcare workers.

Keywords: frontline workers; employee disengagement; low morale; turnover intention; burnout; survey research; healthcare employees

1. Introduction

The novel coronavirus, also known as COVID-19, is a highly transmittable and pathogenic disease [1]. It has instigated fear and caused panic all over the globe [2–15], negatively affected public health, crippled economies, and transformed social and business environments [16]. The COVID-19 pandemic, which is regarded as one of the worst pandemics in human history [17], has also had an unprecedented effect on the living conditions and deaths of human beings. Globally, as of February 2022, more than 400 million cases of COVID-19 had been confirmed, including almost 6 million deaths, even though more than 10 billion doses of vaccines had been administered [18]. Control measures, such as mandatory lockdowns and social distancing, have also affected the mental health of the public at large [19].

In response to the COVID-19 pandemic, most employers have been implementing measures such as the washing of hands, use of hand sanitizers, closure of operations, and social distancing [20,21]. Many have also adopted hybrid and remote work arrangements [22–24], which allow employees to be geographically dispersed and physically distanced [25]. While hybrid and remote work appears to have become a new normal in many corporations [26],...
employees in essential sectors, such as healthcare, have been required to increase their work hours and physical presence, in order to support operational demands. Most healthcare employees, particularly nurses, not surprisingly, are more psychologically disturbed and overworked. Some employees have also been exhibiting negative performance outcomes, such as burnout, disengagement, psychological distress, and low morale. Globally, employee engagement decreased by 2%, from 22% in 2019 to 20% in 2020 [28], amid the COVID-19 pandemic. Around 45% of employees indicated that their lives had been significantly affected by the coronavirus, and workers’ daily stress levels reached a record high, increasing from 38% in 2019 to 43% in 2020 [28]. Therefore, understanding how these factors affect employee decision-making should be a priority for organizations because their effectiveness is highly dependent on employees’ willingness to perform [29,30]. Furthermore, organizations should be looking for better ways to adapt to complexity in their environment [31]. Amid the COVID-19 pandemic and all other infectious disease outbreaks, employers ought to protect their employees and cater to their wellbeing because they are the most valuable assets of an organization. When employees are treated well, they become loyal, engaged, committed, and attached to their organization [32]. Therefore, this research examines how COVID-19 impacts employee decision-making processes and performance outcomes. Specifically, we investigate how employees’ perceived risk of COVID-19 influences their psychological distress, disengagement, turnover intention, burnout, and low morale. Figure 1 depicts our theoretical model, which we now situate within the broader literature on employee behavior.

![Image](image-url)

**Figure 1.** Theoretical model.

### 1.1. COVID-19 Pandemic and Employee Behavior

The COVID-19 pandemic has disrupted normative work arrangements and influenced employee behavior in many ways [33]. It has been associated with job insecurity, financial losses, social exclusion, and stigmatization [20], as well as uncertainty about the future of work, lower job attitudes, and performance [34,35]. Globally, it remains the major workplace transformative event that has forced many organizations to adopt new work arrangements, such as allowing employees to work from home [33]. However, employees in essential sectors, such as healthcare, had to increase their working hours and physical presence, in order to meet operational demands [36]. Healthcare employees have complained about the scarcity of resources, insufficient support, and poor leadership and communication during the COVID-19 pandemic [37].

The COVID-19 pandemic has caused severe psychological effects among healthcare workers [38–41]. Although it resulted in the employment of more medical practitioners and increased medical research funding [21], healthcare workers are more vulnerable, since they work in an environment where COVID-19 infections are more likely to occur [42,43]. As a result, healthcare workers have experienced emotional fatigue, aggression, and depersonalization [44,45]. In fact, most employees have been exhibiting mood swings, depressive
thoughts, headache and gastric disorders, isolation, demotivation, and poor performance at work [46]. In addition, employees have been experiencing psychological distress, which has been associated with exhaustion and cynical attitudes [15,47,48]. Prolonged exposure to stress and inadequate coping strategies can result in emotional exhaustion [49].

1.2. Employee Perceived Risk & Psychological Distress

The perceived risk of COVID-19 is regarded as a key driver of psychological distress [20] because it is associated with a wide range of stressors that drain the mental health of employees, especially fear and panic [20]. Other stressors include the threat of infection [50], uncertainty [51], quarantine and confinement [52], exclusion from the society and stigmatization [52], job insecurity, and loss of finances [53]. Employees in the health sector have been the most affected frontline workers during the pandemic [54]. This has been largely attributed to their level of exposure, given the nature of their job [55] and risk of interacting with patients suffering from COVID-19 [56], as well as the risk of being infected by work colleagues [57]. It is, therefore, important to understand how the perceived risk of COVID-19 influences employee decision-making.

Perceptions regarding the risk of a disease, also known as the perceived susceptibility and severity, affect an individual’s behavior [58]. Deciding on whether or not to adopt safe precautions is highly dependent on people’s perceptions of their vulnerability to illnesses [58]. According to the Health Belief Model (HBM), one of the well-established models of health behavior, perceived risk or severity can be understood as a person’s subjective assessment of the seriousness of a disease, which is affected by different types of factors, such as future expectations and current reality [59]. An increased perception regarding disease severity is associated with proactive precautionary health behaviors [58,60]. Individuals who trust that they are not at risk of falling ill are less likely to take safe precautions, thereby exposing themselves and others to hazard, compared to those who strongly believe that they are at risk [61].

The perceived risk of COVID-19 has challenged the psychological resilience of workers [62] and increased their psychological distress [20,38,63]. Based on Lazarus and Folkman’s (1984) transactional stress model, threatening situations, such as pandemics, ignite anxiety [63]. On a similar note, an emphasis of the influential role played by a situation in building anxiety is made by Cheng and McCarthy’s (2018) theory of workplace anxiety, as well as Gross’ (1998) process framework of emotion regulation [63–65]. Psychological distress is defined as the state of person’s emotional suffering, consisting of symptoms of depression, such as sadness and anxiety [66], as well as somatic symptoms, such as insomnia [20,66]. It is an indicator of mental health problem [66] because it may result in major depression if not identified [20,66]. Psychological distress is triggered by a person’s inability to cope with a situation outside of their control [66], such as the COVID-19 pandemic. As such, we propose that:

**Hypothesis 1.** Employees’ perceived risk of COVID-19 increases their psychological distress.

1.3. Employee Perceived Risk & Negative Performance Outcomes

The conservation of resources (COR) theory suggests that stress arises when (a) there is a threat of losing essential resources, (b) there is loss of key resources, and (c) an effort to achieve central or key resources has been made, but no resources have been attained [67]. In this regard, a sense of purpose and meaning in life, family, health, wellbeing, self-esteem [67], and social support are among the frequently valued resources [68]. When these resources are exhausted, employees tend to enter a defensive mode, in order to preserve themselves and guard against aggressive, duplicitous, and irrational behavior [67]. When threatened, individuals tend to use a coping strategy, in order to overcome the threat [63]. For instance, when feeling anxious, they are likely to develop a defense mechanism, in the form of a fight or flight response, as a way of overcoming the threat [69]. A fight response is
activated when a threat is deemed manageable, whereas a flight response is ignited when a threat is hard to overcome [70].

COVID-19 is a highly contagious disease, which can cause severe health problems, such as abdominal pain, pneumonia [71,72], and even death [73]. Most workers are worried that they might get infected, be stigmatized at work, infect their relatives and coworkers, and lose personal freedoms [27,74,75] because the virus has no cure [76,77]. Therefore, the perceived risk of COVID-19 is believed to induce a flight response [63] and negative performance behaviors among workers [78]. Organizations tend to experience increased levels of absenteeism and poor work performance during epidemics and pandemics [79]. Stress and poor working conditions during the COVID-19 pandemic have increased negative performance outcomes [80–82], such as employee turnover intention, disengagement, low morale, and burnout [24,83–85].

Turnover intention is defined as the probability that a worker will quit an organization [86,87]. When employees quit their jobs, organizations tend to bear the loss of human capital. They also suffer from the costs associated with the loss of productivity [88,89]. Turnover intention is usually attributed to work-related factors, such as poor working conditions, the lack of safety at work, and individual and external factors [90]. Amid the COVID-19 pandemic, turnover intention among employees has been influenced by higher levels of psychological distress [37,91]. Psychological distress is the key driver of increased turnover intentions at work [83,92,93]. In addition, the perceived risk of COVID-19 has been examined, in relation to employees’ wellbeing and mental health outcomes [94]. The perception of this disease as a serious threat increases the fear of COVID-19 among healthcare workers, hence their intention to leave [95,96]. As such, the pandemic is forcing workers to think about quitting their jobs.

Due to the pandemic, most workers have been exhibiting a lack of engagement [83]. Disengagement is concerned with the lack of motivation and attachment towards the achievement of organizational goals and objectives [97,98]. The risk and fear of contracting COVID-19 has also resulted in low morale among employees [99]. Employee morale is regarded as the epitome for business success and a key antecedent of achieving organizational competitiveness. Low morale among employees is viewed as a threat by organizations that seek to achieve their goals and objectives [100].

Amid the COVID-19 pandemic, most employees have also been experiencing high levels of burnout [1,101]. Burnout is defined as a syndrome that emanates from the chronic stress at work, with adverse effects on employees’ psychological well-being [102], as well as their work behavior and physical health [103]. Burnout is usually attributed to hostile working conditions, which result from prolonged stress at work, with negative effects on employee performance [104]. As a result of burnout, employees may display behaviors such as negative attitudes, lack of commitment, dissatisfaction, and poor performance at work [102]. As such, we propose that:

**Hypothesis 2.** Employees’ perceived risk of COVID-19 increases their negative performance outcomes.

**Hypothesis 3a.** Psychological distress mediates the relationship between employees’ perceived risk of COVID-19 and turnover intention.

**Hypothesis 3b.** Psychological distress mediates the relationship between employees’ perceived risk of COVID-19 and disengagement.

**Hypothesis 3c.** Psychological distress mediates the relationship between employees’ perceived risk of COVID-19 and low morale.

**Hypothesis 3d.** Psychological distress mediates the relationship between employees’ perceived risk of COVID-19 and burnout.
2. Materials and Methods

2.1. Research Methods

We conducted an employee survey, with a high response rate, to test our theoretical model and hypotheses, which is an appropriate method [105]. Quantitative research allows researchers to clearly and precisely specify both the independent and dependent variables under investigation. We first used SPSS Version 20 software to enter our survey data, analyze sample characteristics, and measure correlations. We then used Smart PLS3 software to construct and evaluate our measurement model using structural equation modeling, which is an appropriate statistical method [106]. In our quantitative analyses, perceived risk of COVID-19 was the independent variable, whereas turnover intention, employee disengagement, low morale, and burnout were the dependent variables; psychological distress was the mediator.

2.2. Survey Sample

We surveyed healthcare workers employed by a group of private hospitals in one of the largest provinces in Zimbabwe. They were essential workers who were actively delivering day-to-day frontline services [107] with high exposure to COVID-19, given the nature of their work, during the pandemic. Our printed survey was made available to healthcare workers in four different hospitals by their employers for voluntary completion. We, therefore, used a convenience, non-probability sampling method [108,109] to select survey respondents. Survey respondents also remained anonymous to us because we collected their completed unidentified surveys from their employer’s central office, where they had dropped them off. We, therefore, had no data to assess differences across the four hospitals, although none were anticipated, given the convergence of management practices within the hospital group. In total, 443 of 550 hospital employees completed our survey, representing an 80.5% response rate. Given anonymity requirements, we did not collect data on these employees’ specific job roles and, therefore, had no data to assess differences across staff types.

2.3. Survey Measures

To measure the perceived risk of COVID-19, we adopted a scale (see Table 1) developed by [110]. This scale is regarded as valid and acceptable for measuring employees’ perceived risk of COVID-19 given its reliability score of 0.86 [111]. Likert responses to scale items were: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

To measure psychological distress, we adapted the Perceived Stress Scale, which has reported reliability scores between 0.65 and 0.86 (see Table 1) [112,113]. Likert responses to scale items were: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

To measure turnover intention, we adopted a scale (see Table 1) developed by Mobley, Horner, and Hollingsworth [86]. This scale is regarded as valid and acceptable for measuring employees’ turnover intention, given its reliability score of 0.91 [111]. Likert responses to scale items were: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

To measure employee disengagement, we adapted a scale (see Table 1) developed by [114]. Likert responses to scale items were: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

To measure low morale, we developed a scale (see Table 1) based on our review of the literature. Likert responses to scale items were: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

To measure burnout, we adopted Maslach’s burnout inventory scale (see Table 1) for human services [84,115]. This scale is regarded as valid and acceptable for measuring employees’ burnout [111]. Likert responses to scale items were: 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.


3. Results

3.1. Sample Characteristics

Out of the 443 survey respondents, 220 (49.7%) were males, and 223 (50.3%) were females. In terms of age, 288 (65%) were between 21 and 30 years old, 152 (34.3%) were between 31 and 40 years old, and 3 (0.7%) were 41 to 50 years old. With regards to education, 310 (70%) had a high school diploma, and 133 (30%) had a bachelor’s degree. In terms of employment history, 151 (34.1%) had less than six years of service with their current employer, whereas 292 (65.9%) had more than six years of service.

3.2. Measurement Model Assessment

We initially calculated sample descriptive statistics and Pearson correlations for the variables measured in our survey, which were all significantly correlated, as shown in Table 2.

Table 2. Pearson correlations.

| Correlations                  | Mean       | SD      | B    | ED    | LM    | PRC   | PD    | TI    |
|-------------------------------|------------|---------|------|-------|-------|-------|-------|-------|
| Burnout (B)                   | 4.7765     | 0.35107 | 1    |       |       |       |       |       |
| Employee disengagement (ED)   | 4.7752     | 0.34196 | 0.257** | 1     |       |       |       |       |
| Low morale (LM)               | 4.8081     | 0.35176 | 0.511** | 0.348** | 1     |       |       |       |
| Perceived risk of COVID-19 (PRC) | 4.7968 | 0.39397 | 0.368** | 0.342** | 0.262** | 1     |       |       |
| Psychological distress (PD)   | 4.8167     | 0.27799 | 0.532** | 0.485** | 0.452** | 0.342** | 1     |       |
| Turnover intention (TI)       | 4.7532     | 0.43338 | 0.431** | 0.334** | 0.380** | 0.483** | 0.380** | 1     |

** Correlation coefficient is significant at the 0.01 level (2-tailed).
Next, we conducted an assessment of our measurement model, in line with the endorsements of well-known researchers, in partial least squares analysis [116]. We first assessed the composite reliability and discriminant validity of each survey scale using the PLS algorithm. The outer loading of each scale item, which should range between 0.40 and 0.70 [105,106], were first examined to determine whether they were measuring the same construct. Out of 27 scale items, measuring 6 variables in our model, 3 of the items from the perceived risk of COVID-19 scale were deleted, as a result of poor factor loadings; these were items 4, 5, and 6 in Table 1. As such, our final calculations were based on the remaining 24 scale items, with most of the factor loadings exceeding the recommended 0.50 threshold [117], as shown in Figure 2.

| Variable                  | Mean | SD  | p-value | Correlation Coefficients |
|---------------------------|------|-----|---------|--------------------------|
| Employee disengagement (ED) | 4.7752 | 0.34196 | 0.257 ** | 1 |
| Low morale (LM)            | 4.8081 | 0.35176 | 0.511 ** | 0.348 ** | 1 |
| Perceived risk of COVID-19 (PRC) | 4.7968 | 0.39397 | 0.368 ** | 0.342 ** | 0.262 ** | 1 |
| Psychological distress (PD) | 4.8167 | 0.27799 | 0.532 ** | 0.485 ** | 0.452 ** | 0.342 ** | 1 |
| Turnover intention (TI)    | 4.7532 | 0.43338 | 0.431 ** | 0.334 ** | 0.380 ** | 0.483 ** | 0.380 ** | 1 |

** Correlation coefficient is significant at the 0.01 level (2-tailed).

Composite reliability is the best statistical approach to use when evaluating the internal consistency a scale [105]. Based on the results of the PLS algorithm, the composite reliability of each survey scale had an acceptable level of internal consistency, as recommended by [105]. Specifically, the composite reliability of burnout was 0.701, perceived risk of COVID-19 was 0.739, employee disengagement was 0.703, low morale was 0.712, psychological distress was 0.613, and turnover intention was 0.695.

Discriminant validity evaluates the uniqueness of a measured construct and its representation as a distinct phenomenon of interest in a structural equation model [106]. To assess the discriminant validity, most researchers rely on Heterotrait–Monotrait ratio (HTMT) [118]. Discriminant validity is attained when the obtained values of HTMT are less than the suggested thresholds of 0.85 [119,120] to 0.90 [121]. A value that is higher than this suggested threshold implies that there is lack of discriminant validity [121]. As shown in Table 3, we assessed HTMT for all survey scales by running our first model (PLS algorithm) to calculate these values.
Table 3. Discriminant validity using Heterotrait–Monotrait ratio (HTMT).

| Construct                             | B   | ED | LM | PRC | PD  |
|---------------------------------------|-----|----|----|-----|-----|
| Burnout (B)                           | 0.519 |    |    |     |     |
| Employee disengagement (ED)           | 1.094 | 0.768 |    |     |     |
| Low morale (LM)                       | 0.736 | 0.700 | 0.614 |     |     |
| Perceived risk of COVID-19 (PRC)      | 1.460 | 1.209 | 1.219 | 0.813 |     |
| Psychological distress (PD)           | 1.049 | 0.831 | 1.014 | 1.158 | 1.135 |
| Turnover intention (TI)               |      |    |    |     |     |

All HTMT values highlighted in bold have acceptable discriminant validity. Those not highlighted in bold exceed the suggested threshold.

3.3. Hypotheses Testing

To test our hypotheses, we then assessed our theoretical model using a regular bootstrapping technique, which was applied to the data from the 443 survey respondents, in order to determine the significance level of the path coefficients shown in Figure 3. Hypotheses 1 and 2 were supported, given the statistically significant direct effects outlined in Table 4. To test Hypotheses 3a–3d, we also assessed the mediation effect of psychological distress. Hypotheses 3a–3d was supported, given the statistically significant indirect effects outlined in Table 5.
Table 4. Direct effects.

| Hypothesized Effect       | Sample Mean | Standard Deviation | T Statistic | p Value | Result |
|---------------------------|-------------|--------------------|-------------|---------|--------|
| PRC -> Burnout            | 0.239       | 0.052              | 4.3060      | 0.000   | Positive |
| PRC -> Employee disengagement | 0.172     | 0.043              | 3.6870      | 0.000   | Positive |
| PRC -> Low morale         | 0.171       | 0.042              | 3.7120      | 0.000   | Positive |
| PRC -> Psychological distress | 0.363       | 0.069              | 5.0390      | 0.000   | Positive |
| PRC -> Turnover intention | 0.148       | 0.040              | 3.2960      | 0.001   | Positive |
| PD -> Burnout             | 0.660       | 0.064              | 10.195      | 0.000   | Positive |
| PD -> Employee disengagement | 0.472     | 0.062              | 7.4010      | 0.000   | Positive |
| PD -> Low morale          | 0.468       | 0.051              | 8.8530      | 0.000   | Positive |
| PD -> Turnover intention  | 0.404       | 0.052              | 7.3110      | 0.000   | Positive |

Table 5. Indirect mediation effects.

| Hypothesized Effect       | Sample Mean | Standard Deviation | T Statistic | p Value | Result |
|---------------------------|-------------|--------------------|-------------|---------|--------|
| PRC -> PD -> Burnout      | 0.239       | 0.052              | 4.3060      | 0.000   | Positive |
| PRC -> PD -> Employee disengagement | 0.172     | 0.043              | 3.6870      | 0.000   | Positive |
| PRC -> PD-> Low morale    | 0.171       | 0.042              | 3.7120      | 0.000   | Positive |
| PRC -> PD -> Turnover intention | 0.148       | 0.040              | 3.2960      | 0.001   | Positive |

4. Discussion

The main aim of this research was to examine how COVID-19 impacts employee decision-making processes and performance outcomes. In support of our hypotheses, we find that employees’ perceived risk of COVID-19 increases their disengagement, turnover intention, burnout, and low morale. These latter relationships are mediated by employees’ psychological distress. Our findings shed light on how the global pandemic is affecting the cognitions and behaviors of frontline workers. We find that as healthcare employees’ perception of the risk of COVID-19 increases, their psychological distress surges. This in turn decreases healthcare employees’ work performance and increases their intent to quit their job given working conditions during the pandemic.

Our study establishes that higher perceived risk of COVID-19 and psychological distress increases employee disengagement. During the pandemic, most workers are fearful of contracting this contagious disease that can lead to extreme health problems or death [73,122], which may potentially be fueling disengagement among employees. Previous research indicates that the perceived risk and fear of contracting the virus results in demotivation and low morale among employees [1]. Additionally, workplace absenteeism is usually caused by felt psychological pressure to meet work demands, job insecurity, excessive workloads, and long working hours [123]; these factors were dominant at the time when we conducted this survey research during the pandemic.

The findings of our research also suggest that higher perceived risk of COVID-19 and induced psychological distress are associated with burnout among healthcare employees. Burnout is usually caused by prolonged stress at work and attributed to hostile working conditions, which have adverse effects on employee performance [104]. In other words, there is a connection between burnout and working conditions, which can cause employees to display negative attitudes, lack of commitment, apathy, dissatisfaction, and poor performance at work [102].

Prior research indicates that most workers are experiencing high levels of burnout [1] and suffering from depression and anxiety [124] amid the pandemic. Adjusting to new work schedules, such as rotating shifts, night shifts, and flextime, has also resulted in employee absenteeism and increased turnover intentions [125]. In addition, there has been an increase in alcohol consumption and gambling [126] during the pandemic, especially among the employees forced to work remotely from home [127]. Concern over the risk of contracting the virus is another factor contributing to stress and anxiety among frontline workers [128]. For example, the pandemic has increased a sense of job insecurity among
hospitality workers and their perception of being unemployed, thus adversely affecting their mental health [126]. In the construction industry, it has affected employees’ general wellbeing [127]. Even students have experienced boredom, anxiety, and frustration as a result of COVID-19 disruptions in higher education [127]. Thus, the continued mutation of the coronavirus will likely contribute to an increase in the stress levels and resignation of healthcare workers.

4.1. Limitations

A limitation of our study is related to our research methodology, which may reduce the generalizability of our findings. We opted for a quantitative approach to conduct this investigation and encountered some issues with our measures. Some of our HTMT values exceeded the suggested threshold of 0.90 [121]. This could be attributed to factors such as mono-method bias, given our cross-sectional data collection using a single survey and response bias, wherein some respondents may have inaccurately or untruthfully completed the survey. Furthermore, our measure of perceived risk of COVID-19 could be expanded to include a cognitive component in addition to the current affect-based questions, similar to the construction worker risk perception (CoWoRP) scale [128]. Finally, we gathered data from only healthcare workers who were more exposed and susceptible to coronavirus than other types of employees.

4.2. Future Research

Future research should use a mixed methods approach to incorporate respondents’ qualitative insights on how COVID-19 is influencing their cognitions and behaviors at work, which would provide a more in-depth understanding of employee performance outcomes during the pandemic. Our survey findings should also be replicated with other groups of frontline employees in the retail, agriculture, manufacturing, and mining industries who may be experiencing equal or greater risks during the pandemic than healthcare workers.

4.3. Practical Recommendations

Our study reveals that psychological distress mediates the effect of perceived risk of COVID-19 on employees’ turnover intention, disengagement, low morale, and burnout. We, therefore, recommend that organizations help their employees manage pandemic-related stress by providing psycho-social support through counseling and wellness programs. While this may require additional investment, it should limit negative employee performance outcomes and related costs during this uncontrollable pandemic. Furthermore, employees should feel more motivated and engaged when they are reassured that their employer is trying to help them cope in a difficult circumstance.

To improve working conditions and reduce employees’ burnout, we also recommend that organizations provide their workers with additional resources, such as personal protective clothing and products, health insurance, and medical leave, as well as financial compensation for working extended and extra hours. With such resources, employees should be able to pay more attention to and focus on job details, despite their perceived risk of COVID-19, which will enhance their work performance during the pandemic. Organizations should also conduct risk assessments in order to determine if their employees are exposed to any possible threats, and review their safety rules in order to ensure an effective response to infectious diseases outbreaks.

5. Conclusions

We conclude by affirming that the COVID-19 pandemic has led to unprecedented effects in the world of work, especially among frontline healthcare employees who are most vulnerable to this contagious disease. Our research findings establish that turnover intentions are amplified among this group of workers due to their perceived risk of COVID-19 and induced psychological distress. The latter reduces employee morale and engagement, with burnout becoming predominant as workers worry about contracting the coronavirus due to the
poor working conditions that frontline employees face. As such, our research confirms that the pandemic has intensified the precariousness of work and challenge of managing employee performance. There is a convincing need for organizations to develop strong and supportive management and leadership systems, particularly for frontline workers given their atypical and straining work conditions. To do so, it is prudent for managers to continuously interact and engage with these employees to offer emotional support and encouragement, address any issues of concern, and demonstrate care for these workers and their families. Embodying these managerial qualities may be central to improved employee performance during the pandemic and the mitigation of the negative employee performance outcomes that our study established.

Author Contributions: Conceptualization, N.M., A.D.B. and M.B.; methodology, N.M. and F.N.; software, N.M.; validation, N.M.; formal analysis, N.M.; investigation, N.M., M.B. and F.N.; resources, F.N.; data curation, N.M.; writing—original draft preparation, N.M. and A.D.B.; writing—review and editing, N.M., A.D.B., M.B. and F.N.; visualization, N.M.; supervision, N.M.; project administration, N.M. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: All subjects gave their informed consent for inclusion before they participated in the study. The study was conducted in accordance with the Declaration of Helsinki, and the study was approved by Midlands Medical Chambers.

Informed Consent Statement: Informed consent was obtained from all participants involved in the study. A section in respect of this was included in the survey questionnaire.

Data Availability Statement: The data presented in this study is available upon request from the corresponding author.

Acknowledgments: The authors would like to thank the reviewers and editorial team of the International Journal of Environmental Research and Public Health (IJERPH) for their support in improving the quality of this paper. The authors would also like to thank Remi Ayoko from the Business School of The University of Queensland for her support in developing some of the research questions.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. De los Santos, J.A.A.; Labrague, L.J. The impact of fear of COVID-19 on job stress, and turnover intentions of frontline nurses in the community: A cross-sectional study in the Philippines. Traumatology 2021, 27, 52-59. [CrossRef]
2. Lastrucci, V.; Lorini, C.; Del Riccio, M.; Gori, E.; Chiesi, F.; Moscadelli, A.; Zanella, B.; Boccalini, S.; Bechini, A.; Puggelli, F.; et al. The Role of Health Literacy in COVID-19 Preventive Behaviors and Infection Risk Perception: Evidence from a Population-Based Sample of Essential Frontline Workers during the Lockdown in the Province of Prato (Tuscany, Italy). Int. J. Environ. Res. Public Health 2021, 18, 13386. [CrossRef] [PubMed]
3. Gambaro, E.; Gramaglia, C.; Marangon, D.; Azzolina, D.; Probo, M.; Rudoni, M.; Zeppegno, P. The Mediating Role of Gender, Age, COVID-19 Symptoms and Changing of Mansion on the Mental Health of Healthcare Workers Operating in Italy during the First Wave of the COVID-19 Pandemic. Int. J. Environ. Res. Public Health 2021, 18, 13083. [CrossRef] [PubMed]
4. Masoumi, M.; Shokraee, K.; Mohammad, S.; Moradi, S.; Bagherzade, M.; Balasi, J.; Smiley, A. Sleep Duration as the Main Indicator of Self-Rated Wellness and Health among Healthcare Workers Involved in the COVID-19 Pandemic. Int. J. Environ. Res. Public Health 2021, 19, 136. [CrossRef] [PubMed]
5. Kim, H.-Y.; Shin, S.-H.; Lee, E.-H. Effects of Health Belief, Knowledge, and Attitude toward COVID-19 on Prevention Behavior in Health College Students. Int. J. Environ. Res. Public Health 2022, 19, 1898. [CrossRef]
6. Choi, E.-H.; Kim, W.-J.; Baek, E.-M. Latent Class Analysis of Health Behavior Changes Due to COVID-19 among Middle-Aged Korean Workers. Int. J. Environ. Res. Public Health 2022, 19, 1832. [CrossRef]
7. Yeun, Y.-R.; Kim, S.-D. Psychological Effects of Online-Based Mindfulness Programs during the COVID-19 Pandemic: A Systematic Review of Randomized Controlled Trials. Int. J. Environ. Res. Public Health 2022, 19, 1624. [CrossRef]
8. Harris, S.; Jenkinson, E.; Carlton, E.; Roberts, T.; Daniels, J. “It’s Been Ugly”: A Large-Scale Qualitative Study into the Difficulties Frontline Doctors Faced across Two Waves of the COVID-19 Pandemic. Int. J. Environ. Res. Public Health 2021, 18, 13067. [CrossRef]
9. Ulbrichtova, R.; Svihojra, V.; Tatarkova, M.; Hudeckova, H.; Svihojra, J. Acceptance of COVID-19 Vaccination among Healthcare and Non-Healthcare Workers of Hospitals and Outpatient Clinics in the Northern Region of Slovakia. Int. J. Environ. Res. Public Health 2021, 18, 12695. [CrossRef]
10. Hoffmann, S.; Scheibel, J.; Hufert, F.; Gremmelis, H.-D.; Spallek, J. COVID-19 among Healthcare Workers: A Prospective Serological-Epidemiological Cohort Study in a Standard Care Hospital in Rural Germany. *Int. J. Environ. Res. Public Health* **2021**, *18*, 10999. [CrossRef]  

11. Liu, F.; Chen, H.; Xu, J.; Wen, Y.; Fang, T. Exploring the Relationships between Resilience and Turnover Intention in Chinese High School Teachers: Considering the Moderating Role of Job Burnout. *Int. J. Environ. Res. Public Health* **2021**, *18*, 6418. [CrossRef] [PubMed]  

12. Fotiadis, K.; Dadouli, K.; Avakian, I.; Bogogiannidou, Z.; Mouchtouri, V.A.; Gogosis, K.; Speletas, M.; Koureas, M.; Lagoudaki, E.; Kokkini, S.; et al. Factors Associated with Healthcare Workers’ (HCWs) Acceptance of COVID-19 Vaccinations and Indications of a Role Model towards Population Vaccinations from a Cross-Sectional Survey in Greece, May 2021. *Int. J. Environ. Res. Public Health* **2021**, *18*, 10558. [CrossRef]  

13. Rodríguez-Almagro, J.; Hernández-Martínez, A.; Romero-Blanco, C.; Martínez-Arce, A.; Prado-Laguna, M.D.C.; García-Sanchez, F.J. Experiences and Perceptions of Nursing Students during the COVID-19 Crisis in Spain. *Int. J. Environ. Res. Public Health* **2021**, *18*, 10459. [CrossRef] [PubMed]  

14. Scheibe, S.; De Bloom, J.; Modderman, T. Resilience during Crisis and the Role of Age: Involuntary Telework during the COVID-19 Pandemic. *Int. J. Environ. Res. Public Health* **2022**, *19*, 1762. [CrossRef] [PubMed]  

15. Grandi, A.; Zito, M.; Sist, L.; Martoni, M.; Russo, V.; Colombo, L. Wellbeing in Workers during COVID-19 Pandemic: The Mediating Role of Self-Compassion in the Relationship between Personal Resources and Exhaustion. *Int. J. Environ. Res. Public Health* **2022**, *19*, 1714. [CrossRef]  

16. Kim, J.; Lee, H.W.; Gao, H.; Johnson, R.E. When CEOs are all about themselves: Perceived CEO narcissism and middle managers’ workplace behaviors amid the COVID-19 pandemic. *J. Appl. Psychol.* **2021**, *106*, 1283–1298. [CrossRef]  

17. Ployhart, R.E.; Shepherd, W.J.; Strizver, S.D. The COVID-19 pandemic and new hire engagement: Relationships with unemployment rates, state restrictions, and organizational tenure. *J. Appl. Psychol.* **2021**, *106*, 518–529. [CrossRef]  

18. WHO Coronavirus (COVID-19) Dashboard. Available online: https://covid19.who.int (accessed on 30 December 2020).  

19. Wontorczyk, A.; Rożnowski, B. Remote, Hybrid, and On-Site Work during the SARS-CoV-2 Pandemic and the Consequences for Workplace behaviors amid the COVID-19 pandemic. *BRAIN Broad Res. Artif. Intell. Neurosci.* **2020**, *11*, 185–200. [CrossRef]  

20. Hamouche, S. COVID-19 and employees’ mental health: Stressors, moderators and agenda for organizational actions. *Emerald Open Res.* **2020**, *2*, 15. [CrossRef]  

21. Agba, M.S.; Agba, A.O.; Chukvurah, D.C. COVID-19 Pandemic and Workplace Adjustments/Decentralization: A Focus on Teleworking in the New Normal. *BRAIN Broad Res. Artif. Intell. Neurosci.* **2020**, *11*, 185–200. [CrossRef]  

22. Costa, C.; Teodoro, M.; Mento, C.; Giamb, F.; Vitello, C.; Italia, S.; Fenga, C. Work Performance, Mood and Sleep Alterations in Home Office Workers during the COVID-19 Pandemic. *Int. J. Environ. Res. Public Health* **2022**, *19*, 1990. [CrossRef] [PubMed]  

23. Pelissier, C.; Paredes, J.; Moulin, M.; Bitot, T.; Fakra, E.; Fontana, L. Telework and Psychological Health in Hospital Staff during the First Wave of the COVID-19 Epidemic in France. *Int. J. Environ. Res. Public Health* **2021**, *18*, 13207. [CrossRef] [PubMed]  

24. George, G.; Lakhani, K.R.; Puranam, P. What has changed? The Impact of COVID Pandemic on the Technology and Innovation Management Research Agenda. *J. Manag. Stud.* **2020**, *57*, 1574–1578. [CrossRef]  

25. Wontorczyk, A.; Roznowski, B. Remote, Hybrid, and On-Site Work during the SARS-CoV-2 Pandemic and the Consequences for Workforce and Engagement. *Int. J. Environ. Res. Public Health* **2022**, *19*, 2400. [CrossRef] [PubMed]  

26. Garcia, A.; Zito, M.; Sist, L.; Martoni, M.; Russo, V.; Colombo, L. Wellbeing in Workers during COVID-19 Pandemic: The Mediating Role of Self-Compassion in the Relationship between Personal Resources and Exhaustion. *Int. J. Environ. Res. Public Health* **2022**, *19*, 1714. [CrossRef]  

27. Yu, J.; Wu, Y. The Impact of Enforced Working from Home on Employee Job Satisfaction during COVID-19: An Event System Perspective. *Int. J. Environ. Res. Public Health* **2019**, *17*, 7857. [CrossRef]  

28. Gallup, “State of the Global Workplace: 2021 Report”, Work. Insights. 2021; p. 219. Available online: https://www.gallup.com/workplace/insights.aspx (accessed on 17 February 2022).  

29. Brown, S.; McHardy, J.; Taylor, K. Employee trust and workplace performance. *J. Econ. Behav. Organ.* **2015**, *116*, 361–378. [CrossRef]  

30. Brown, S.; McHardy, J.; McNabb, R.; Taylor, K. Workplace Performance, Worker Commitment, and Loyalty. *J. Econ. Manag. Strat.* **2011**, *20*, 925–955. [CrossRef]  

31. Shamsi, M.; Iakovleva, T.; Olsen, E.; Bagozzi, R.P. Employees’ Work-Related Well-Being during COVID-19 Pandemic: An Integrated Perspective of Technology Acceptance Model and JD-R Theory. *Int. J. Environ. Res. Public Health* **2021**, *18*, 11888. [CrossRef] [PubMed]
35. Yoon, S.; McClean, S.T.; Chawla, N.; Kim, J.K.; Koopman, J.; Rosen, C.C.; Trougakos, J.P.; McCarthy, J.M. Working through an “infodemic”: The impact of COVID-19 news consumption on employee uncertainty and work behaviors. J. Appl. Psychol. 2021, 106, 501–517. [CrossRef]

36. Keller, E.; Widestrom, M.; Gould, J.; Fang, R.; Davis, K.G.; Gillespie, G.L. Examining the Impact of Stressors during COVID-19 on Emergency Department Healthcare Workers: An International Perspective. Int. J. Environ. Res. Public Health 2022, 19, 3730. [CrossRef] [PubMed]

37. Tan, B.; Chew, N.W.; Lee, G.K.; Jing, M.; Goh, Y.; Yeo, L.L.; Zhang, K.; Chin, H.-K.; Ahmad, A.; Khan, F.A.; et al. Psychological Impact of the COVID-19 Pandemic on Health Care Workers in Singapore. Ann. Intern. Med. 2020, 173, 317–320. [CrossRef]

38. Temsah, M.H.; Alenezi, S.; Al-Arabi, M.; Aljamaan, F.; Alhasan, K.; Assiri, R.; Bassrawi, R.; Alshahrani, F.; Alhabsb, A.; Alaraj, A.; et al. Healthcare workers’ COVID-19 Omicron variant uncertainty-related stress, resilience, and coping strategies during the first week of World Health Organization alert. medRxiv 2021. Available online: http://medrxiv.org/content/early/2021/12/24/2021.12.24.21268377.abstract (accessed on 26 April 2022).

39. Dzinamarira, T.; Murewanhema, G.; Mhango, M.; Irdudukunda, P.G.; Chitungu, I.; Mashora, M.; Makanda, P.; Atwine, J.; Chimene, M.; Mbunge, E.; et al. COVID-19 Prevalence among Healthcare Workers. A Systematic Review and Meta-Analysis. Int. J. Environ. Res. Public Health 2021, 19, 146. [CrossRef]

40. Pascoe, A.; Paul, E.; Putland, M.; Willis, K.; Smallwood, N. Differences in Coping Strategies and Help-Seeking Behaviours among Australian Junior and Senior Doctors during the COVID-19 Pandemic. Int. J. Environ. Res. Public Health 2021, 18, 13275. [CrossRef]

41. Popa, I.; Sánchez, M.; Tejera, K.R.d.L.; Ruiz-Robledillo, N.; Duro-Torrijos, J.L.; García-Román, V.; Albaladejo-Blázquez, N.; Ferrer-Cascales, R. Prevalence of SARS-CoV-2 Infection in a Sample of Health Workers in Two Health Departments of the Valencian Community in Spain. Int. J. Environ. Res. Public Health 2021, 19, 66. [CrossRef]

42. Riedel, P.-L.; Kreh, A.; Kulcar, V.; Lieber, A.; Juen, B. A Scoping Review of Moral Stressors, Moral Distress and Moral Injury in Healthcare Workers during COVID-19. Int. J. Environ. Res. Public Health 2022, 19, 1666. [CrossRef] [PubMed]

43. Cashtanov, A.; Molotok, E.; Yavorovskiy, A.; Boyarykov, A.; Vasi’Ev, Y.; Alsaegh, A.; Dydykin, S.; Kytko, O.; Meylanova, R.; Enina, ô; et al. Psychological Impact of the COVID-19 Pandemic on Health Care Workers in Jordan. Int. J. Environ. Res. Public Health 2022, 19, 146. [CrossRef]

44. Pascoe, A.; Paul, E.; Putland, M.; Willis, K.; Smallwood, N. Differences in Coping Strategies and Help-Seeking Behaviours among Australian Junior and Senior Doctors during the COVID-19 Pandemic. Int. J. Environ. Res. Public Health 2021, 18, 13275. [CrossRef]

45. Jerg-Bretzke, L.; Kempf, M.; Jarczok, M.N.; Weimer, K.; Hirning, C.; Gündel, H.; Erim, Y.; Morawa, E.; Geiser, F.; Hiebel, N.; et al. Psychosocial Impact of the COVID-19 Pandemic on Healthcare Workers and Initial Areas of Action for Intervention and Prevention—The egePan/VOICE Study. Int. J. Environ. Res. Public Health 2021, 18, 10531. [CrossRef]

46. Bongers, C.C.; de Korte, J.Q.; Zwartkruis, M.; Levels, K.; Kingma, B.R.; Eijsvogels, T.M. Heat Strain and Use of Heat Mitigation Strategies among COVID-19 Healthcare Workers Wearing Personal Protective Equipment—A Retrospective Study. Int. J. Environ. Res. Public Health 2022, 19, 1905. [CrossRef] [PubMed]

47. Lasalvia, A.; Bodini, L.; Amaddeo, F.; Porru, S.; Carta, A.; Poli, R.; Bonetto, C. The Sustained Psychological Impact of the COVID-19 Pandemic on Health Care Workers One Year after the Outbreak—A Repeated Cross-Sectional Survey in a Tertiary Hospital of North-East Italy. Int. J. Environ. Res. Public Health 2021, 18, 13374. [CrossRef] [PubMed]

48. Klusmann, U.; Aldrup, K.; Schmidt, J.; Lüdtke, O. Is emotional exhaustion only the result of work experiences? A diary study on daily hassles and uplifts in different life domains. Int. J. Environ. Res. Public Health 2022, 19, 6762. [CrossRef] [PubMed]

49. Ruiz-Frutos, C.; Ortega-Moreno, M.; Soriano-Tarín, F.; Cabanillas-Moruno, J.L.; Gómez-Salgado, J. Psychological Distress Among Occupational Health Professionals during Coronavirus Disease 2019 Pandemic in Spain: Description and Effect of Work Engagement and Work Environment. J. Occup. Environ. Med. 2018, 60, 248–257. [CrossRef]

50. Zhou, X.; Snoswell, C.L.; Harding, I.E.; Bambling, M.; Edirippulige, S.; Bai, X.; Smith, A.C. The Role of Telehealth in Reducing the Mental Health Burden from COVID-19. Telemed. J. e-Health 2020, 26, 377–379. [CrossRef]

51. Ruiz-Frutos, C.; Ortega-Moreno, M.; Soriano-Tarín, G.; Romero-Martín, M.; Allande-Cussó, R.; Cabanillas-Moruno, J.L.; Gómez-Salgado, J. Psychological Distress Among Occupational Health Professionals during Coronavirus Disease 2019 Pandemic in Spain: Description and Effect of Work Engagement and Work Environment. Front. Psychol. 2021, 12, 765169. [CrossRef]

52. Chew, N.W.S.; Ngiam, J.N.; Tan, B.Y.-Q.; Tham, S.-M.; Tan, C.Y.-S.; Jing, M.; Sagayanathan, R.; Chen, J.T.; Wong, L.Y.H.; Ahmad, A.; et al. Asian-Pacific perspective on the psychological well-being of healthcare workers during the evolution of the COVID-19 pandemic. BJPsych Open 2020, 6, e116. [CrossRef] [PubMed]

53. Ruiz-Frutos, C.; Ortega-Moreno, M.; Soriano-Tarín, F.; Cabanillas-Moruno, J.L.; Gómez-Salgado, J. Psychological Distress Among Occupational Health Professionals during Coronavirus Disease 2019 Pandemic in Spain: Description and Effect of Work Engagement and Work Environment. Front. Psychol. 2021, 12, 765169. [CrossRef]

54. Babicki, M.; Szewczykowska, I.; Mastalerz-Migas, A. The Mental Well-Being of Health Care Workers during the Peak of the COVID-19 Pandemic—A Nationwide Study in Poland. Int. J. Environ. Res. Public Health 2021, 18, 6101. [CrossRef] [PubMed]

55. Babicki, M.; Szewczykowska, I.; Mastalerz-Migas, A. The Mental Well-Being of Health Care Workers during the Peak of the COVID-19 Pandemic—A Nationwide Study in Poland. Int. J. Environ. Res. Public Health 2021, 18, 6101. [CrossRef] [PubMed]
116. Henseler, J.; Ringle, C.M.; Sarstedt, M. A new criterion for assessing discriminant validity in variance-based structural equation modeling. *J. Acad. Mark. Sci.* 2015, 43, 115–135. [CrossRef]

117. Kline, R.B. *Principles and Practice of Structural Equation Modeling*, 3rd ed.; The Guilford Press: New York, NY, USA, 2011.

118. Ab Hamid, M.; Sami, W.; Sidek, M.M. Discriminant validity assessment: Use of Fornell & Larcker criterion versus HTMT criterion. In *Proceedings of the Journal of Physics: Conference Series*, Kuantan, Malaysia, 8–10 August 2017; p. 012163.

119. Liu, Y.-C.; Kuo, R.-L.; Shih, S.-R. COVID-19: The first documented coronavirus pandemic in history. *Biomed. J.* 2020, 43, 328–333. [CrossRef]

120. Yıldız, H.; Yıldız, B.; Zehir, C.; Aykaç, M. The Antecedents of Presenteeism and Sickness Absenteeism: A Research in Turkish Health Sector. *Procedia-Soc. Behav. Sci.* 2015, 207, 398–403. [CrossRef]

121. Håkansson, A. Changes in Gambling Behavior during the COVID-19 Pandemic—A Web Survey Study in Sweden. *Int. J. Environ. Res. Public Health* 2020, 17, 4013. [CrossRef]

122. Alsharef, A.; Banerjee, S.; Uddin, S.; Albert, A.; Jaselskis, E. Early Impacts of the COVID-19 Pandemic on the United States Construction Industry. *Int. J. Environ. Res. Public Health* 2021, 18, 1559. [CrossRef] [PubMed]

123. Narayananurthy, G.; Tortorella, G. Impact of COVID-19 outbreak on employee performance—Moderating role of industry 4.0 base technologies. *Int. J. Prod. Econ.* 2021, 234, 108075. [CrossRef]

124. Pamidimukkala, A.; Kermanshachi, S. Impact of COVID-19 on field and office workforce in construction industry. *Proj. Leadersh. Soc.* 2021, 2, 100018. [CrossRef]

125. Romeo, A.; Benfante, A.; Castelli, L.; Di Tella, M. Psychological Distress among Italian University Students Compared to General Workers during the COVID-19 Pandemic. *Int. J. Environ. Res. Public Health* 2021, 18, 2503. [CrossRef]

126. Khan, K.; Niazi, A.; Nasir, A.; Hussain, M.; Khan, M. The Effect of COVID-19 on the Hospitality Industry: The Implication for Open Innovation. *J. Open Innov. Technol. Mark. Complex.* 2021, 7, 30. [CrossRef]

127. Ravšelj, D.; Tomazevi, N. Impacts of the COVID-19 Pandemic on Life of Higher Education Students: A Global Per-spective. *Sustainability* 2020, 12, 8438.

128. Man, S.S.; Chan, A.H.S.; Alabdulkarim, S. Quantification of risk perception: Development and validation of the construction worker risk perception (CoWoRP) scale. *J. Saf. Res.* 2019, 71, 25–39. [CrossRef] [PubMed]