Article

How to Maintain Compliance Among Host Country Employees as the COVID-19 Pandemic Fades: An Attempt to Apply Conservation of Resources Theory to the Workplace

Keisuke Kokubun [1,*] , Yoshiaki Ino [2] and Kazuyoshi Ishimura [2]

1   Graduate School of Management, Kyoto University, Kyoto 606-8501, Japan
2   IEWRI Japan Co., Ltd., Tokyo 107-0062, Japan
*   Correspondence: kokubun.keisuke.6x@kyoto-u.jp

Abstract: As the fear of the spread of COVID-19 has faded, governments around the world are moving to lift strict behavioral restrictions. How should human resource management at overseas subsidiaries adapt to these system changes? To find the answer, this paper clarifies the anxiety of employees working at overseas subsidiaries after the strict behavioral restrictions introduced by governments during the spread of COVID-19 have been lifted, as well as the relationship between psychological and social resources and intention to leave. To this end, we applied and verified the analytical model of "China 2020", which was conducted on 2973 people in East and South China from February to May 2020, the results of which have been published in previous studies, to psychological questionnaire data from "Wuhan 2023", which was conducted on 813 people in Wuhan City from January to March 2023. As a result, it was shown that the analytical model based on the conservation of resources theory (COR) can be applied not only to China 2020 but also to Wuhan 2023. This study proposes an analytical framework that can be widely applied across time and place and can be used as a reference for foreign companies that lack local information on disasters that expand while the nature and impact of the damage change.

Keywords: COVID-19; psychological resources; social resources; anxiety; fatigue; compliance; turnover intention; nationality

1. Introduction

COVID-19, which has raged around the world, continues to increase the number of people infected even today while undergoing repeated mutations and weakening. However, for people who are generally healthy and have no underlying health conditions, such as those who work at manufacturing sites, infection with COVID-19 is no longer as terrifying as the threat of death. Some estimates show that the fatality rate of infected people decreased by 96.8% during the 2.5 years from the onset of the pandemic until mid-2022 [1]. However, at the same time, COVID-19 continues to be a thorn in the side of managers. This is because employees are forced to be absent from work due to infection, and if such employees are responsible for irreplaceable duties, work progress will be disrupted. Additionally, if multiple people become infected, temporary closures of individual workplaces may be forced. In workplaces where the risk of infection is high, employees cannot work with peace of mind, and blindly participating in infection control measures may exhaust their physical strength or increase their intention to quit their jobs [2]. Therefore, in today's world, where there are no uniformly strict regulations by the government, companies need to think about the measures they should take on their own.

Anxiety, if used well, can benefit organizations because anxiety and fear can be considered adaptive responses to perceived threats to maintain survival [3]. Our bodies can quickly respond to dangerous situations by producing stress hormones that trigger a "fight or flight response" when faced with stress [4]. Employees who are worried about their health and job stability tend to assess and analyze the situation and act to protect themselves from the threat [5,6]. Therefore, even during the COVID-19 pandemic, employees who felt anxious or scared performed safety compliance such as wearing masks, washing their hands with soap or alcohol gel, and maintaining an interpersonal distance of more than 2 m from others [7,8]. Therefore, maintaining an appropriate level of anxiety and fear is not something to be avoided, but rather something to be consciously pursued to maintain workplace safety during the COVID-19 pandemic [9]. However, it should be emphasized that such anxiety and fear are closely related to the risk of causing mental disorders such as stress, burnout, depression, and loneliness [10,11]. Employees who experienced excessive stress and mental fatigue due to COVID-19 tended to have less energy, which negatively impacted their safety compliance behaviors [9,12].

At the beginning of the pandemic, everyone felt anxious in the face of an unprecedented and uncertain situation. However, among those who felt similarly anxious, some were willing to cooperate with infection control measures to make their workplaces safer, while others abandoned workplaces where there was a risk of infection and moved to other workplaces. Why does such a difference occur? A useful reference for considering this issue is the conservation of resources (COR) theory proposed by Hobfoll [13]. COR theory is a stress theory that explains the motivations that drive people to maintain current resources and pursue new resources [13]. According to COR theory, when employees experience stress or anxiety and do not have the resources to maintain appropriate behavior at work, they will choose behaviors that are undesirable for the organization, such as leaving the workplace to prevent poor mental health [14–18]. However, if companies can keep their workplaces safe by implementing infection control measures, workers will not have to quit their jobs for fear of resource depletion [19,20]. For this reason, previous studies have mainly adopted cross-sectional analysis methods to analyze the relationship between anxiety and outcomes during the COVID-19 pandemic relying on the COR theory. For example, the fear and anxiety caused by environmental changes during the pandemic not only had the positive effect of encouraging employees to cooperate in infection control measures [7,8] but also decreased work performance and increased intentions to quit [21–25], and, alternatively, the available psychological and social resources moderated these relationships [2,26,27].

So, in what form does this trend exist today after the government restrictions on people's behavior have been lifted and infection control measures have been left to individual companies to make their own decisions? If employees no longer feel as anxious about infection as they once did, companies may be forced to take difficult steps to get those employees to cooperate with the corporate infection control measures. In these circumstances, employees may need to be appropriately motivated by alternatives to anxiety. For reference, recent research into post-pandemic workplaces has revealed that successful leadership in remote work depends on trust between managers and employees [28,29]. Furthermore, for companies such as foreign subsidiaries that are at a disadvantage in obtaining information about the countries in which they operate, these changes are thought to have a more serious impact on corporate management. With this problem in mind, in this paper, we apply an analytical model that reflects the attitudes of employees after the strict government restrictions began at the beginning of the pandemic to employees after the restrictions were lifted. The data after the restrictions were lifted are responses to a psychological questionnaire collected from 813 Chinese employees working at Japanese

manufacturing companies in Wuhan from 5 January to 8 March 2023 (hereinafter referred to as "Wuhan 2023"). Meanwhile, data from the early stages of the pandemic consisted of responses to a psychological questionnaire collected from 2973 Chinese employees working at Japanese companies in East and South China between 15 February and 31 May 2020 (hereafter referred to as "China 2020"), and the analysis results have already been made public [2]. Wuhan was chosen as the study subject because it is a city that has been severely affected by repeated pandemics from the time the virus was discovered in December 2019 until restrictions were lifted in January 2023. In Kokubun et al. [2], Wuhan was excluded from the survey due to the severity of the damage during the early phase of the pandemic. Therefore, it is meaningful to test the robustness of their analytical model across time and location using a single company in Wuhan. In addition, the fact that 94.7% of the participants in China 2020 were manufacturing workers suggests that the model may be applicable to Wuhan 2023, which is entirely comprised of manufacturing workers. This study will verify the applicability of the analytical model in Kokubun et al. [2] in a setting where the time and place are changed.

In addition, the reason why this study was limited to one company was to eliminate the risk that including multiple companies would introduce noise and make the results difficult to interpret. If the dataset had been collected when many companies were focused on the pandemic, such as China 2020, it may not have been necessary to be so sensitive about differences between companies even if the data from multiple companies were included in the sample. However, today, companies' interests are not limited to COVID-19, so the differences between companies are likely to be more diverse and complex. In this study, by limiting the sample to one company, it was possible to reduce the potential influence of unobserved differences such as leadership style and daily management systems such as reward systems. Research conducted with this idea in mind includes, for example, a study based on COR theory that revealed how overloaded employees use resilience and tolerance resources to overcome dissatisfaction and maintain knowledge-sharing efforts, targeting approximately 500 employees working at a large German company operating in the construction retail industry in Portugal [30]. Incidentally, our study is not the first attempt to apply a common analytical model to samples from different times and places and compare them. Previous research has compared the impact of "extreme context" on worker behavior in two datasets, one collected during the Syrian civil war and the other collected in the Middle East during COVID-19, by inputting them into an analytical model developed with COR theory in mind. The results showed some differences between the two but also showed a common tendency that extreme-context perception increases work alienation and affects its organizational outcomes [31]. It is also common to this study that these studies [30,31] were conducted in a cross-sectional manner.

In addition, interviews were conducted with managers from the same company that obtained the Wuhan 2023 data and one Japanese manufacturing company in Thailand to help interpret the results of this study. If Kokubun et al.'s [2] model is applicable across time and place, the social and psychological resources they claim may be maintained or strengthened rather than diminished by disasters. Recent studies have also provided evidence that people were not only hurt and stressed during the COVID-19 pandemic but also maintained or strengthened their positive attitudes while weathering the crisis [32,33]. Analysis of the interview survey results provides a better understanding of the nature of social and psychological resources and provides useful information for future workplace resource development.

2. Literature Review

2.1. COVID-19 and COR Theory

While COVID-19 has great destructive power as a disaster, it does not inflict the same damage on all people but is extremely uneven, making the situation of socially vulnerable people even worse [34–36]. Therefore, since the reality of this disaster became known, many researchers have applied the COR theory model to understand workplace issues during the pandemic. COR theory asserts that psychological and social resources moderate the relationship between disaster-induced stress and stress-induced outcomes [37]. Psychological resources are endogenous resources that include factors such as self-efficacy and resilience, which enable employees to cope with adversity and difficulties [38]. On the other hand, social resources are interpersonal resources that include elements such as trust, norms, and networks, which can activate cooperative behavior and improve social efficiency [39]. Previous research has shown, for example, that the stress and job insecurity caused by COVID-19 hurt employee performance and organizational citizenship behavior, and that trust in management and psychological capital moderated the relationship between them [26,27]. Other studies have shown that perceived organizational support moderates the relationship between COVID-19 stress and burnout [40] and that self-efficacy and social support moderate declines in remote worker happiness and engagement [41]. In this way, psychological and social-related resources have been shown to have the effect of making the worst-case disaster scenario less likely to occur. This is consistent with the COR theory, which argues that disasters have a more severe impact on people with fewer resources than on those with more resources and is also consistent with the heterogeneity of the impact of COVID-19 on people.

Kokubun et al. [2] conducted one of the earliest studies on COVID-19. In this study, they presented a model that integrates COR theory and arguments about the dual nature of anxiety [42–44] and conducted an analysis using data from Japanese companies in the East and South regions of China. While anxiety has the positive effect of increasing compliance, that is, understanding and participation in infection control measures, it has the negative effect of increasing fatigue and the intention to quit the job. Therefore, if managers are distracted by the good aspects of the former and only think about getting employees to comply with immediate infection control measures, the bad aspects of the latter will become apparent, and the overall result will be worse. At this time, if there are psychological resources in the workplace, employees will not follow infection control measures driven by anxiety but will participate in them based on their sense of self-efficacy and resilience, keeping fatigue and intentions to quit low. Furthermore, when social resources are available in the workplace, employees are more likely to feel safer at work because they have confidence that they are not alone in following infection control measures and that those around them will also do so, leading to lower turnover intentions [2].

Many previous studies based on COR theory that dealt with COVID-19 from the perspective of human resource management had three problems. First, they treated anxiety and stress as having only negative effects on outcomes. For example, fear of infection has been shown to negatively impact work, home, and health due to increased emotional suppression and a lack of fulfillment of psychological needs [45]. Most recently, Perry and his colleagues [46] included good stress for behavior change and bad stress that only depletes resources in an analytical model to identify influencing factors of work and family stress during remote work, but this type of research is the exception. Therefore, Kokubun and his colleagues' [2] study is unique in showing that it is desirable to suppress anxiety even when considering the positive side of increasing compliance, while also considering the negative side of increasing fatigue and turnover intention.

Another point is related to time and place. Based on the consensus among researchers that COR theory deals with changes in resources and stress, there has been an increasing trend in recent years in studies that incorporate time and place as factors [41,47–49]. Among them, Straus et al. [41], based on an analysis of diary data from remote workers during the pandemic, revealed that resources such as self-efficacy and social support may prevent declines in outcomes such as happiness and work engagement. However, to the authors' knowledge, there is no research based on COR theory that applies and verifies an analytical model established with data collected during the strict behavioral restrictions of the pandemic to a different location after the behavioral restrictions are lifted.

The last thing to consider is the nationality of the company. Many studies focused on domestic companies, so there is insufficient understanding of the actual situation at foreign subsidiaries during the pandemic. In general, the scale and social impact of a disaster depend on the country's institutions and regulations [50]. Therefore, to minimize the damage caused by disasters, companies need to have a thorough understanding of the country's circumstances, implement effective strategies, and appropriately manage human resources [51]. However, local subsidiaries generally do not have detailed plans or human resources to deal with major disaster risks [51–53]. Therefore, local subsidiaries are considered to have a weakness, even more than domestic companies, in that they have difficulty obtaining information and responding to disasters in the countries in which they operate. These problems seem more serious in Japanese-affiliated local subsidiaries where authority is not actively delegated to local personnel and therefore expatriates tend to make many important decisions [54,55].

2.2. Pandemic, Wuhan, and Japanese Subsidiaries' Response

To understand the situation after the removal of restrictions, this research targets Chinese employees of Japanese manufacturing companies located in Wuhan from January to March 2023. So, let us look at the evolution of COVID-19 and the response of Japanese subsidiaries in Wuhan. Wuhan is an industrial city in Hubei province, with approximately 200 Japanese companies operating there. As is well known, COVID-19 was first discovered in Wuhan in December 2019. The Chinese government imposed a city lockdown in major cities across China, including Wuhan, for two and a half months from January to April 2020 in response to the spread of the infection. Due to the success of this policy, the country continued to maintain its "zero-Covid policy" to prevent infections, and by mid-2020, China succeeded in containing the spread of the pandemic throughout China. However, in July 2022, infections were confirmed in the city again, leading to another urban lockdown in Wuhan, following Shanghai in June 2022. This second lockdown was not as effective as expected given the highly contagious variants of the virus. As a result, in November, some Japanese companies took measures such as temporarily shutting down their factories because employees living in areas with movement restrictions were unable to come to work.

Under such circumstances, in December 2022, the Chinese government announced the end of the zero-COVID policy considering cost-effectiveness, and from January 2023 onward, it was left to each company to take measures against infection. However, in December, some media reported that the infection was still spreading and the number of deaths was increasing in Wuhan. As a result, many Japanese companies operating there were forced to continue to take infection control measures such as wearing masks, sanitizing hands, and practicing social distancing in the workplace while remaining vigilant against infection, based on various media and on-site interviews conducted by the authors. The current research, conducted under such aptly circumstances, well the psychological state of employees after the government's strict travel restrictions were lifted, and it can

be said that the conditions are good for verifying the applicability of the analytical model developed by Kokubu et al. [2].

3. Hypotheses

Kokubun et al. [2], who dealt with China 2020, established and verified the following hypotheses:

H1. *Association between emotions (fatigue and anxiety) and behaviors (compliance and turnover).*

H1a. *Anxiety is positively related to turnover intention.*

H1b. *Anxiety is positively related to fatigue.*

H1c. *Fatigue is positively related to turnover intention.*

H1d. *Anxiety is positively related to compliance with COVID-19-related measures.*

H2. *Association between behaviors (compliance and turnover).*

H2a. *Compliance with COVID-19-related measures is negatively related to turnover intention.*

H3. *Moderation of resources (social and psychological resources) on the association between anxiety and compliance, anxiety and fatigue, and compliance and turnover).*

H3a. *Psychological resources weaken the positive relationship between anxiety and fatigue.*

H3b. *Psychological resources weaken the positive relationship between anxiety and compliance with COVID-19-related measures.*

H3c. *Social resources strengthen the negative relationship between compliance with COVID-19-related measures and turnover intention.*

A review of the basis for these hypotheses and the recent research is as follows: First, regarding H1, COR theory asserts that individuals use finite resources, such as energy and concentration, and that these resources deplete with use [13]. Here, resource depletion leads to chronic symptoms such as emotional exhaustion [56]. For example, anxiety has been empirically confirmed to consume energy and lead to resource depletion and emotional exhaustion [57]. When employees feel this fatigue, they may seek a safer workplace and increase their turnover intention to avoid further resource depletion and increased fatigue [14–18,58]. Recent research based on COR theory conducted during the pandemic also shows that fatigue mediates the relationship between anxiety and performance, suggesting that anxiety exhausts employees by taking away their emotional resources, depleting the energy needed for performance [59,60].

However, anxiety has both good and bad sides. For example, anxiety serves as a signal of how different the desired state is from the actual state. Therefore, anxiety can motivate people to take certain actions by increasing their awareness of the risks to be avoided [42–44,61]. Empirical studies also show that emotional risk perception predicts higher safety compliance and participation [62,63]. Neuroscience has demonstrated the power of anxiety: corticotropin-releasing factor (CRF), released when we feel stress, acts centrally to mediate fear-related behaviors, triggering neurochemical responses including the noradrenergic system and releasing transmitters throughout the brain that are associated with increased vigilance behaviors, which are important for dealing with acute

threats [64]. Therefore, it is assumed that the greater the anxiety about COVID-19 among workers, the greater their intention to cooperate with COVID-19 countermeasures. From these discussions, the four hypotheses of H1 are derived.

Next, regarding H2, this hypothesis is derived by turning the story of H1 on its head. In other words, if the workplace becomes safer and there is no need to worry about energy depletion, employees' intention to leave will decrease. During the pandemic, practicing compliance to prevent the spread of COVID-19 will improve workplace safety. Previous research has shown that safety climate is negatively associated with turnover intention [14,65]. From the above discussion, H2 was derived.

Finally, regarding H3, according to COR theory, if required resources are not available, they can be replaced by alternative resources. Hobfoll [37] stated that these alternative resources can be classified into social resources and psychological resources. Psychological resources, including self-efficacy and resilience, enable employees to adapt to adversity, cope with difficulties, and function well in the workplace [38,66,67]. Therefore, previous studies have shown that psychological resources have a positive effect on safety compliance and participation [68,69] and a negative effect on emotional fatigue [70,71]. Furthermore, prior research has shown that psychological resources moderate the relationships between variables. For example, psychological resources were shown to attenuate the negative association between stress and participation in workplace safety measures [69]. Similarly, another study found that psychological resources weakened the relationship between job anxiety and emotional exhaustion [72] and depression [73]. Therefore, even during the pandemic, employees with high psychological resources are thought to be able to weaken the impact of anxiety on their health and behavior.

On the other hand, social resources based on trust, norms, and networks activate people's cooperative behavior and facilitate goal achievement [39,74]. Therefore, social resources can be expected to strengthen the relationship between compliance and turnover. As mentioned above, compliance should reduce the risk of infection, increase feelings of security, and thus reduce the willingness to quit work. However, whether compliance leads to actual safety depends on the social resources possessed by people in the workplace [75,76]. This is because when social resources are scarce, employees may worry whether their co-workers are following infection control measures themselves [77]. In such a psychological state, employees will practice compliance with anxiety, and, in contrast to superficial behavior, they may look for opportunities to change jobs to avoid resource depletion. From this, Kokubun et al. [2] proposed three hypotheses for H3.

In this study, we will verify these hypotheses using data from different locations and times and clarify the possibility that Kokubun et al.'s [2] model can be universally applied.

4. Research Methodology

4.1. Data

This questionnaire was distributed to more than 1000 Chinese employees at a manufacturing company in Wuhan from 5 January to 8 March 2023. A total of 823 employees responded to it online. However, this analysis uses data from 813 employees who answered all the questions. This paper uses data from "Wuhan 2023" and data collected from 2973 employees (94.7% of them were manufacturing employees) who were working for 26 companies in the eastern and southern areas from 15 February to 31 May 2020 "China 2020", which was provided by one of the authors of Kokubun et al. [2].

This study was approved by the Ethics Committee of IEWRI Japan Co., Ltd. (Tokyo, Japan. approval number 2020–01) and was conducted following the institutes' guidelines and regulations. All participants provided written informed consent before participation and their anonymity was maintained.

4.2. Measures

The questionnaire consisted of attributes, including age, sex, position, and tenure, as well as 50 question items based on a 5-point Likert response scale from 1 (I do not think this way) to 5 (I do think this way). These items are the same as those used by Kokubun et al. [2]. Of these, 14 items are related to social resources such as "The company cares about its employees", 11 items concern psychological resources such as "I think I can handle various things well even in a mess", 5 items relate to compliance such as "I would like to cooperate with the hygiene management of the company to prevent COVID-19 infection", 4 items concern anxiety such as "I'm worried about the COVID-19", 4 items are related to fatigue such as "I always feel gloomy because of my work", and 2 items concern turnover intentions such as "Within a half year, I will quit my current job". Each item was translated into Chinese using the back-translation method. For other details on the creation process and items of these variables, please refer to Kokubun et al. [2].

For each variable, 1 to 5 points were assigned to the individual response items of the 5-point Likert response scale, and the average was calculated for easy comparison. Regarding age, 1 to 4 points were assigned to the options of "under 30", "30–39", "40–49", and "50 or older". Similarly, concerning the length of service, 1 to 4 points were assigned to the options "less than 1 year", "1 year to less than 3 years", "3 years to less than 5 years", and "5 years or more".

5. Analysis and Findings

All statistical analyses were performed using IBM SPSS Statistics/AMOS Version 26 (IBM Corp., Armonk, NY, USA). Before proceeding to the main analyses, Harman's single-factor analysis was used to check whether the variance in the data could be largely attributed to a single factor, while confirmatory factor analysis (CFA) was used to test whether the factors were related to the measures. First, the factor analysis indicated that only 36.3 percent of the variance could be explained by a single factor, which was <50 percent. Thus, it was established that the data did not suffer from common method variance [78]. Next, for CFA, the model fit was evaluated by examining the chi-square (χ^2), comparative fit index (CFI), standardized root mean square residual (SRMR), and root mean square error of approximation (RMSEA). Values above 0.95 are deemed to indicate a good fit for CFI, and values below 0.05 and 0.08 indicate a good fit for RMSEA and SRMR, respectively [79,80]. Similar to Kokubun et al. [2], it was shown that the 6-factor model (χ^2 (615) = 1073.550, $p < 0.001$; CFI = 0.986; RMSEA = 0.030, $p < 0.001$, 90% CI = 0.027–0.033; SRMR = 0.038) fits better than the 1-factor model that added 6 variables (χ^2 (657) = 2735.487, $p < 0.001$; CFI = 0.935; RMSEA = 0.062, $p < 0.001$, 90% CI = 0.060–0.065; SRMR = 0.085).

Table 1 shows the results of the descriptive statistics. Looking at the "Wuhan 2023" results shown on the right side of the table, the highest score was 4.39 for psychological resources, followed by 4.38 for compliance and 4.08 for social resources. In contrast, at 1.87, the turnover intention was the lowest, followed by 2.27 for fatigue and 3.36 for anxiety about COVID-19. It can be said that overall positive awareness is high and negative awareness is low. However, looking at the standard deviation, the former is 0.78 to 0.86, while the latter is around 1.14, indicating that the latter has more variation. Therefore, it should be noted that negative consciousness, especially turnover intention, is not so high on average, but the difference between employees is relatively large. These results are also the same for "China 2020" shown on the left side of the table.

Table 1. Mean value of each variable and comparison between groups.

	China 2020			Wuhan 2023			
	α	Mean	SD	α	Mean	SD	*t*
Social resources	0.952	3.922	0.940	0.963	4.081	0.861	4.369 ***
Psychological resources	0.938	4.346	0.762	0.965	4.385	0.762	1.273
Fatigue	0.872	2.508	1.169	0.914	2.266	1.136	5.343 ***
Anxiety	0.753	3.630	1.121	0.782	3.364	1.135	5.931 ***
Compliance	0.914	4.639	0.707	0.874	4.380	0.781	9.023 ***
Turnover intention	0.923	1.812	1.126	0.953	1.869	1.140	1.275
Age	-	1.960	0.785	-	2.130	0.780	5.582 ***
Tenure	-	2.760	1.134	-	2.530	1.182	4.924 ***
Manager	-	0.050	0.219	-	0.020	0.130	4.133 ***
Sex	-	1.620	0.485	-	1.610	0.489	0.902

Note: *n* = 2973 for "China 2020" and *n* = 813 for "Wuhan 2023". *** $p < 0.001$. α: the reliability coefficients, *t*: Student's *t*-test.

Next, we will compare "China 2020" and "Wuhan 2023" using Student's *t*-test from the same table. Social resources are higher in "Wuhan 2023" than in "China 2020". On the other hand, fatigue, anxiety, and compliance are lower in "Wuhan 2023" than in "China 2020". The results were the same in an analysis of covariance (ANCOVA) that controlled for demographic variables age, tenure, manager, and sex (available upon request). These results indicate that "Wuhan 2023" has lower fatigue and anxiety than "China 2020", as well as lower awareness of workplace infection prevention measures, but higher social resources. There were also significant differences between the two groups in terms of age, tenure, and manager (all at the 0.1% level). These differences may reflect differences in time and location, as well as the fact that "Wuhan 2023" targeted a single company, whereas "China 2020" targeted multiple companies. Table 2 shows the results of the correlation analysis for each group. The bottom left of the table shows the results for "China 2020" and the top right shows the results for "Wuhan 2023".

Table 3 shows the results of a simultaneous multi-population analysis conducted to examine the differences in the magnitude of the paths between variables in both groups. First, the negative path from anxiety to turnover intention is significantly larger in "China 2020" than in "Wuhan 2023" at the 1% level, while the negative path from fatigue to turnover intention is significantly larger in "China 2020" than in "Wuhan 2023" at the 1% level. On the other hand, the path to compliance for psychological resources and social resources was shown to be smaller in "China 2020" than in "Wuhan 2023" at the 0.1% level. The negative path of interaction variable between anxiety and psychological resources to compliance is significantly larger in "China 2020" than in "Wuhan 2023" at the 5% level. Let us also look at the relationship between demographic variables and main variables. In the path from sex to compliance, "China 2020" is significantly larger than "Wuhan 2023" at the 1% level. Similarly, the path from tenure to fatigue is significantly larger for "China 2020" than for "Wuhan 2023" at the 5% level. Additionally, although there are no significant group differences, the path from tenure to compliance is significant at the 0.1% level in "China 2020", but not significant at the 5% level in "Wuhan 2023". These differences may also be influenced by a variety of factors, including time and location.

Table 2. Results of correlation analysis.

		1	2	3	4	5	6	7	8	9	10
1	Social resources		0.639 **	−0.408 ***	−0.040	0.656 ***	−0.387 ***	0.160 ***	0.107 **	0.130 ***	0.154 ***
2	Psychological resources	0.578 ***		−0.237 ***	0.087 *	0.743 ***	−0.232 ***	0.153 ***	0.0360	0.083 *	0.065
3	Fatigue	−0.394 ***	−0.203 ***		0.391 ***	−0.220 ***	0.487 ***	−0.121 **	−0.074 *	−0.066	−0.073 *
4	Anxiety	−0.028	0.148 ***	0.353 ***		0.090 *	0.183 **	−0.005	−0.005	−0.170 ***	0.090 **
5	Compliance	0.471 ***	0.674 ***	−0.082 ***	0.250 ***		−0.258 ***	0.129 ***	0.079 *	0.093 **	0.062
6	Turnover intention	−0.376 ***	−0.243 ***	0.424 ***	0.202 ***	−0.209 ***		−0.264 ***	−0.268 ***	−0.101 **	−0.170 ***
7	Age	0.154 ***	0.129 ***	−0.138 ***	−0.062 **	0.082 ***	−0.184 ***		0.343 ***	0.038	0.309 ***
8	Tenure	0.014	0.033	0.024	−0.001	0.083 ***	−0.113 ***	0.421 ***		0.149 ***	0.213 ***
9	Manager	0.074 ***	0.059 **	−0.074 ***	−0.117 ***	0.048**	−0.079 ***	0.182 ***	0.167 ***		−0.087 *
10	Sex	0.047 *	0.019	−0.013	0.079 ***	0.087 ***	−0.100 ***	0.099 ***	0.070 ***	−0.141 ***	

Note: n = 2973 for "China 2020" (lower left) and n = 813 for "Wuhan 2023" (upper right). *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$. The figures are the correlation coefficients.

Table 3. Between-group comparison of paths.

Path			Estimate		*t*
			China 2020	**Wuhan 2023**	
Anxiety	--->	Compliance	0.162 ***	0.127 ***	0.794
Sex	--->	Compliance	0.045 ***	−0.035	3.086 **
Tenure	--->	Compliance	0.050 ***	0.026	0.918
Social resources	--->	Compliance	0.129 ***	0.297 ***	5.728 ***
Psychological resources	--->	Compliance	0.308 ***	0.379 ***	2.597 ***
Anxiety × Psychological resources	--->	Compliance	−0.673 ***	−0.444 ***	2.107 *
Anxiety	--->	Fatigue	0.346 ***	0.405 ***	1.260
Social resources	--->	Fatigue	−0.351 ***	−0.369 ***	0.938
Psychological resources	--->	Fatigue	−0.090 ***	−0.078 *	0.332
Anxiety × Psychological resources	--->	Fatigue	−0.119 ***	−0.139 ***	0.837
Age	--->	Fatigue	−0.077 ***	−0.046	0.904
Tenure	--->	Fatigue	0.059 ***	−0.023	2.415 *
Compliance	--->	Turnover intention	−0.275 ***	−0.190 ***	1.659
Sex	--->	Turnover intention	−0.079 ***	−0.054	0.746
Fatigue	--->	Turnover intention	0.241 ***	0.327 ***	2.306 *
Anxiety	--->	Turnover intention	0.114 ***	0.008	2.817 **
Tenure	--->	Turnover intention	−0.073 ***	−0.177 ***	2.842 **
Age	--->	Turnover intention	−0.051**	−0.105 ***	1.494
Social resources	--->	Turnover intention	−0.219 ***	−0.197 ***	0.033
Social resources × Compliance	--->	Turnover intention	−0.260 ***	−0.270 ***	0.305

Note: n = 2973 for "China 2020" and n = 813 for "Wuhan 2023". *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$. *t*: Student's *t* value. The figures are standardized coefficients.

In the above analysis, the model for "China 2020" was used, so the goodness of fit for "Wuhan 2023" is low. Therefore, we conducted a new path analysis using only "Wuhan 2023" data by deleting paths that were not significant and created a model that better reflects the psychological state of the workplace after the abolition of regulations. Figure 1 and Table 4 show the results of path analysis. In the analysis, modification indices were used to improve the model fit. Among demographic variables, only the path from age to turnover intention became significant (omitted in the figure). Regarding the relationship between the main variables, the only difference from "China 2020" shown by Kokubun et al. [2] is that the path from anxiety to turnover intention has disappeared. Therefore, in China 2020, all eight hypotheses from H1 to H3 were supported, and in "Wuhan 2023", seven hypotheses except H1a were supported. This indicates the high applicability of Kokubun et al.'s [2] model in different pandemic stages.

As shown in Kokubun et al. [2], here too, the relationship between anxiety and turnover intention is complicated. Anxiety has the effect of lowering turnover intention through an increase in COVID-19 compliance (β = 0.13 × −0.19 = −0.02). However, at the same time, it has the effect of indirectly increasing turnover intention through the fatigue increase (β = 0.40 × 0.33 = 0.13). As a result, the overall effect of anxiety on willingness to leave was positive (β = 0.11), indicating that anxiety enhanced the willingness to leave the job. However, in "Wuhan 2023", the overall effect of anxiety on willingness to leave was a little smaller than in "China 2020" (β = 0.13) because there is no longer a direct path from anxiety to intention to leave. However, it can be said that a common trend after the introduction of the regulation and after its abolition is that methods that arouse anxiety end up increasing the intention to quit the job.
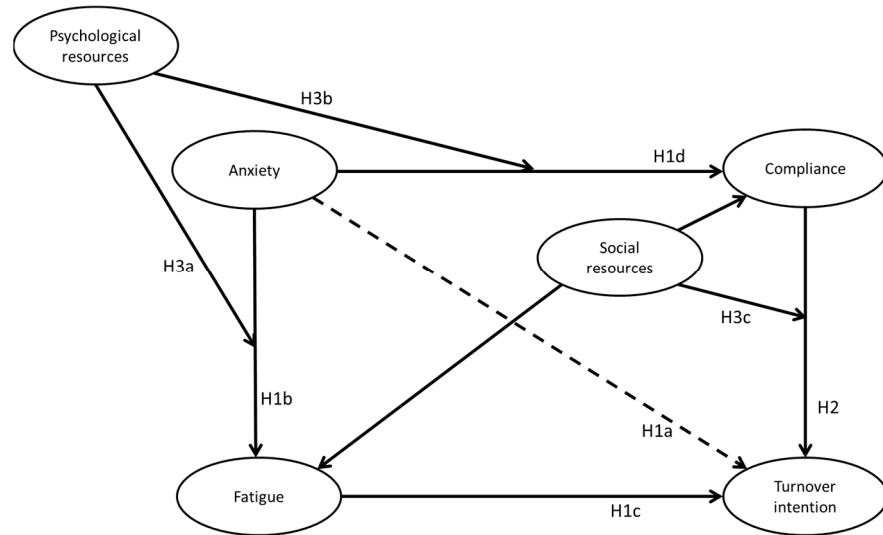
Figure 1. Results of path analysis. Linear paths are significant at the 0.1% level. Dashed line paths were not significant even at the 5% level and were therefore excluded from the final model. Goodness-of-fit indices: $\chi^2 = 40.57$, df = 28, root mean square error of approximation (RMSEA) = 0.024, probability of close fit (PCLOSE) = 0.999, goodness of fit index (GFI) = 0.992, adjusted goodness of fit index (AGFI) = 0.977, normed fit index (NFI) = 0.987, comparative fit index (CFI) = 0.996. n = 813.

Table 4. Results of path analysis.

Path			Estimate
Anxiety	--->	Compliance	0.125
Social resources	--->	Compliance	0.293
Psychological resources	--->	Compliance	0.379
Anxiety × Psychological resources	--->	Compliance	−0.446
Anxiety	--->	Fatigue	0.404
Social resources	--->	Fatigue	−0.377
Psychological resources	--->	Fatigue	−0.083
Anxiety × Psychological resources	--->	Fatigue	−0.141
Compliance	--->	Turnover intention	−0.185
Fatigue	--->	Turnover intention	0.330
Tenure	--->	Turnover intention	−0.181
Age	--->	Turnover intention	−0.116
Social resources	--->	Turnover intention	−0.203
Social resources × Compliance	--->	Turnover intention	−0.272

Note: The numbers in the table are standardized path coefficients. All paths are significant at the 0.1% level. Correlation between variables is omitted (available upon request).

To further understand the significance of the interaction terms, in Figures 2 and 3, the data are divided into a group with high psychological resources and a group with low psychological resources. The horizontal axis shows the group with high anxiety and the group with low anxiety, and the vertical axis shows compliance in Figure 2 and fatigue in Figure 3. In Figure 4, the data are divided into a group with high social resources and a group with low social resources; the horizontal axis shows the group with high compliance and the group with low compliance, and the vertical axis shows turnover intention. The criterion for high and low is whether the score is 1 SD higher or lower than the average, following the recommendation of Aiken et al. [81].
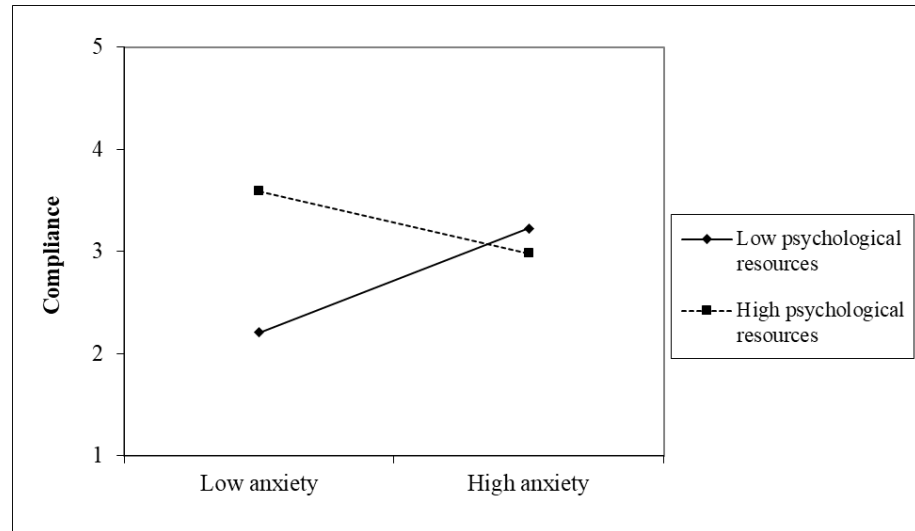
Figure 2. The moderating effect of psychological resources between anxiety and compliance.
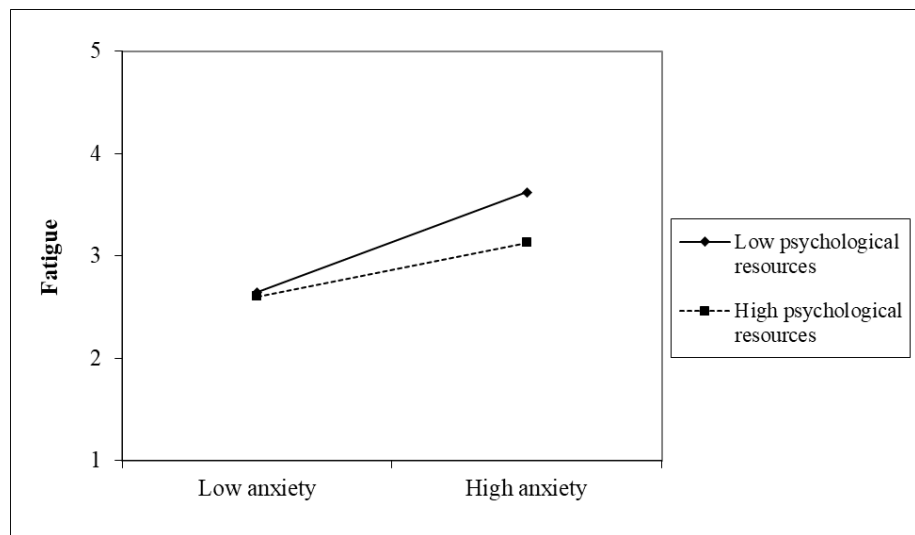

Figure 3. The moderating effect of psychological resources between anxiety and fatigue.
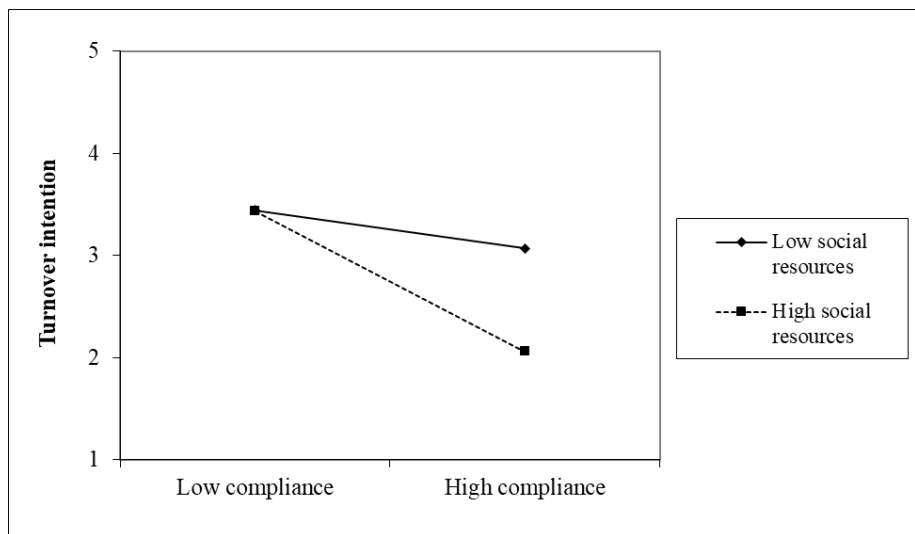

Figure 4. The moderating effect of social resources between compliance and turnover intention.

6. Supplemental Interview Survey

The above analysis showed that the effectiveness of management centered on social and psychological resources transcends the time and place of the pandemic. Our next interest is how to increase these resources. If the effect was maintained before and after the pandemic, it is possible that management during the pandemic contributed to maintaining and strengthening these resources. Recent research findings in positive psychology argue that not only were people hurt and weakened during the COVID-19 pandemic but also organizations may have become more resilient in the process of dealing with various problems [32,33].

Table 5 shows the results of interviews with 15 managers. After reading the following text, which is a summary of Kokubun et al. [2], participants were asked to answer two questions: "What efforts has your company made to prevent COVID-19?" and "How has your company dealt with the concerns of local employees during the COVID-19 pandemic, and what results and lessons have you learned?":

"Hobfoll's [13] Conservation of Resources Theory is a psychological theory that explains human behavior through anxiety and stress caused by a lack of resources. When faced with a crisis (such as the COVID-19 pandemic), employees feel anxious due to a lack of safety resources. Anxious employees try to compensate for their resources through behavior (such as participating in infection control measures). However, behavior driven by anxiety often does not produce sufficient results. Moreover, employees who become physically and mentally exhausted through reckless behavior may end up increasing their intention to leave their jobs in search of other workplaces where they can obtain more resources (i.e., safer and less physically and mentally exhausted), which can have a negative impact on the organization. At this time, if an organization has social resources (trust in those around them) and psychological resources (resilience to overcome a crisis), employees will be able to trust their colleagues and act calmly and steadily rather than being driven by anxiety, which will reduce unnecessary wear and tear and keep the intention to leave low. Companies' daily attitudes and education towards their employees are what increase these social and psychological resources. Even during the recent COVID-19 pandemic, in companies with abundant social and psychological resources, even if employees felt anxious, the effect of the resources allowed them to implement steady infection control measures, and as a result, fatigue and intention to leave tended to be kept low (Kokubun et al. [2])".

Numbers 1 to 6 are the results of interviews conducted with a Japanese manufacturing company in Thailand, conducted from 29 November to 12 December 2023, and 7 to 15 are the results of interviews conducted with the Japanese manufacturing company in Wuhan, China, which was covered in the above analysis, conducted from December 13 to 23, 2023. We included Thai companies here to reduce the impact of host country differences on our results, which was not possible in the above analysis.

First, regarding the first question, in addition to providing masks and disinfectants, installing partitions, encouraging employees to work from home, and distributing antigen test kits (ATK) (#1), they also provided spoons in the cafeteria (#4), provided lunch (#5), divided rooms and took temperatures of employees (#6), set up a dedicated medical room (#7), distributed food to strengthen the immune system (#9), considered the balance between work and home (#11), strengthening communication using chat apps (#12,15), considered for employees who are on holiday or cannot leave the dormitory (#13,14), etc.

Next, in response to the second question, the following were mentioned: Employees' decision-making ability and teamwork have been strengthened during the pandemic (#1), cost consciousness has increased (#2), infection control measures have prevented employees from leaving (#4), providing lunch has maintained peace of mind (#5), autonomy has

increased (#7), crisis response capabilities have improved (#8,9), work engagement has increased (#10), there has been active encouragement (#11), employees' anxiety has been reduced by fostering friendship (#12), employees have become mentally stable by providing sufficient explanations (#14), and unity and skills have been strengthened (#15). Some even claimed that the autonomy strengthened during past disasters has been utilized during the COVID-19 pandemic (#3).

Overall, the results suggest that companies' infection control measures during the pandemic may have strengthened employees' social and psychological resources.

Table 5. Results of interview survey.

Number	Position	Nationality	What Efforts Has Your Company Made to Prevent COVID-19?	How Has Your Company Dealt with the Concerns of Local Employees During the COVID-19 Pandemic, and What Results and Lessons Have You Learned?
1	General Manager	Japan	Simple partitions were installed at desks. Disinfectant was placed in various places (near doorknobs, etc.). Wearing a mask was made mandatory, and if employees were feeling unwell, they were encouraged to work from home. Masks and ATK (antigen test kits) were distributed free of charge.	When the number of coronavirus patients increased, they had the courage to stop production and prevent the spread of coronavirus, even if it meant reducing production. Everyone's ability to manage themselves improved, including making decisions as soon as possible. If they were feeling unwell, they would voluntarily wear a mask or take a rest. It seems they have acquired the ability to manage the unknown. The connections between people have become stronger than before. They have more small conversations and are more considerate. For example, local employees contacted Japanese seconded employees who were working alone to check on their safety, and when someone in the office felt unwell, someone who would not have taken any particular action before came over and asked, "Are you OK?"
2	Managing Director	Japan		Employees who have reduced their overtime work and income have started to support themselves by taking on side jobs. Cost consciousness has increased. For example, turning off the lights promptly and taking good care of consumables.

Table 5. *Cont.*

Number	Position	Nationality	What Efforts Has Your Company Made to Prevent COVID-19?	How Has Your Company Dealt with the Concerns of Local Employees During the COVID-19 Pandemic, and What Results and Lessons Have You Learned?
3	Managing Director	Japan		I haven't noticed any change. When floods occurred in the past, the employees were anxious, but since then, we have been educating them to think for themselves and act accordingly. This time, there was no confusion or anxiety, and they were able to think for themselves and act accordingly.
4	General Manager	Japan	The company paid for two vaccinations for employees who wanted them. Partitions and alcohol are installed in various places in the workplace (including the cafeteria). Spoons and other items used to be shared in the cafeteria, but now they are distributed for individual use.	Employees were very grateful to receive the vaccine at the company's expense, and there were no notable mass resignations.
5	Factory Manager	Japan	Before COVID-19, employees bought their own lunch and ate it in the cafeteria, but now the company provides lunch for them. We tried to make sure employees didn't worry too much about the company's financial situation.	Providing lunch during the COVID-19 period has given employees peace of mind since they were unable to go out to buy food. The program was very well received, so we decided to continue it indefinitely, and it is still ongoing.
6	Managing Director	Japan	Japanese staff were preparing for shipments and doing sales, but we created an environment where they could do so remotely from Japan even if they were not in Thailand. We took employees' temperatures every day, and the company purchased ATK to test every Monday. We divided the office into separate rooms, with one person working in each room, and only the interpreter was able to work remotely from home.	
7	Managing Director	Japan		There were times when they stayed overnight at the company, and by working hard together and facing difficulties, our relationship of trust was strengthened. There is no doubt that the number of employees who can think and act for themselves has increased.
8	Deputy Director	China	We took employees' temperatures every day and monitored their health conditions. We also set up a medical room so that we could provide initial examinations if employees complained of feeling unwell.	After establishing a system for how to prevent COVID-19 in the company, we communicated it to each department and conducted training to promote the system. If an employee was infected, we were able to provide them with paid leave, provide them with free medical care, and allow them to recover, which helped to reduce anxiety. We are now able to respond quickly if a similar problem occurs again.

Table 5. *Cont.*

Number	Position	Nationality	What Efforts Has Your Company Made to Prevent COVID-19?	How Has Your Company Dealt with the Concerns of Local Employees During the COVID-19 Pandemic, and What Results and Lessons Have You Learned?
9	Deputy Director	China	I wore a mask every day. The company encouraged employees to take plenty of rest. Employees who were sick or infected were asked to stay home, but in such cases, no deductions were made from their wages, so employees didn't have to worry. During the COVID-19 period, the company distributed immunity-boosting foods to employees several times, such as sets of milk, fruits, and nuts.	We learned how to prevent confusion. The factory was temporarily closed after the COVID-19 outbreak, but some employees remained and continued production. They secured food and sleeping quarters within the company and continued production.
10	Section Manager	China		Employee engagement with the company has increased. There has been less turnover than before. Veteran employees used to say "I want to quit" at every opportunity, but since COVID-19, they have stopped saying such negative things. Employees' trust in and engagement with the company has increased.
11	Section Manager	China	We tried to balance work and rest for employees, made masks mandatory and advised them to eat nutritious food and drink plenty of water.	When faced with anxiety, the team encouraged each other, for example during morning meetings or handover procedures.
12	Section Manager	China	I emphasized several times a week about measures such as wearing masks, avoiding crowds, and washing hands frequently. I had them report their health status to their superiors using Weixin (China's biggest chat app) during normal times, and their superiors reported to me so that I could keep them informed.	During the lockdown, we purchased and provided badminton and other sports equipment so that employees could relax by playing sports after work. We also made time for them to watch the FIFA World Cup. Providing entertainment helped to reduce employees' anxiety.
13	Section Manager	China	Wearing masks was made mandatory and disinfectants were provided. Attention was also paid to the health of people on holiday.	
14	Section Manager	China	Wearing masks was made mandatory. The company adjusted the process as much as possible to ensure work proceeded according to schedule. Because the lockdown meant that employees were unable to leave the company dormitory, the company prioritized their situation and ensured their livelihood.	We gave priority to employees who lived in the dorms, and then arranged for everyone else to come to work. We explained the current situation of the company to the employees, and told them the company schedule, and most of the employees were satisfied with the explanation. Most of the employees were mentally stable, trusted the company, and did not leave the company.

Table 5. *Cont.*

Number	Position	Nationality	What Efforts Has Your Company Made to Prevent COVID-19?	How Has Your Company Dealt with the Concerns of Local Employees During the COVID-19 Pandemic, and What Results and Lessons Have You Learned?
15	Section Manager	China	We communicated with employees every day using group chat to check whether their areas were under lockdown and to keep track of their situation.	There were no complaints because the salary was calculated in the same way as if the employees had come to work normally. Through COVID-19, the employees' cooperation was strengthened, and furthermore, because there were few employees who could come to work, their multi-skills were improved out of necessity.

Note: Numbers 1 to 6 are the results of interviews conducted with a Japanese manufacturing company in Thailand and numbers 7 to 15 are the results of interviews conducted with a Japanese manufacturing company in Wuhan, China, which is the same as analysis target above.

7. Discussion

Kokubun et al. [2] presented a model that combines COR theory and the dual nature of anxiety and conducted an analysis using employee attitude data after restrictions started. As a result, it has been argued that infection control measures implemented by inciting anxiety may increase fatigue and intention to quit and may also reduce organizational strength. In this study, we conducted a multi-population simultaneous analysis by inputting employee attitude data from a Japanese company in Wuhan after the lifting of restrictions into an analytical model constructed by Kokubun et al. [2] based on employee attitude data from Japanese companies in a wide area of China after the start of restrictions during the COVID-19 pandemic. Then, based on COR theory, we verified the universality of the magnitude of the path from anxiety, fatigue, and compliance to the intention to quit and adjustment by psychological and social resources as shown by Kokubun et al. [2].

More concretely, we demonstrated that the three points confirmed in "China 2020", the data after the start of behavioral restrictions under the COVID-19 pandemic [2], can also be applied without many changes to "Wuhan 2023", the data after restrictions are lifted. First, the more anxious employees are, the more tired they are and the more likely they are to quit their jobs. At the same time, more anxious employees are more likely to be compliant. These are the good and bad ways of inciting fear into submission. Second, compliance lowers turnover intentions. This is because infection control practices improve workplace safety, which reduces the benefits of moving to another workplace due to concerns about reduced resources. Third, psychological resources weaken the relationship between anxiety and fatigue or anxiety and compliance. Additionally, social resources weaken the relationship between compliance and intention to quit. The former means that people with abundant psychological resources are less likely to feel fatigued even when they are anxious and can practice compliance effectively without arousing anxiety. On the other hand, the latter means that the more social resources an employee has, the more compliance practices will contribute to reducing their intention to quit.

Once restrictions begin, government decisions will be communicated to employees as information that the pandemic is scary. At this stage, anxiety becomes a driver for compliance practices to prevent the decline of workplace safety resources. However, anxiety can also have a negative impact on employees' mental and physical health [10,11] and hinder correct information processing [82,83]. Therefore, infection control measures that rely solely on anxiety are not very effective. On the other hand, after restrictions are lifted, the government's decision will convey to employees the information that

COVID-19 is less scary than it was before. If compliance decreases due to decreased anxiety, infection becomes more likely to occur. To prevent this problem, regardless of the level of anxiety, compliance needs to be practiced by making use of resources even after regulations are abolished.

There have been many previous studies on employee attitudes during pandemics, but to the authors' knowledge, this is the first study to apply such an analytical model to different locations after restrictions have been lifted. Therefore, this study proposes a highly universal framework that can be used as a reference for foreign companies, especially those lacking local information, to predict changes in employee attitudes and respond appropriately to disasters that expand while changing the nature and impact of the damage.

8. Implications for Theory and Practice

This study shows that the model proposed by Kokubun et al. [2] can be applied to employee attitude data after deregulation without significant changes. During the pandemic, companies were able to encourage employees to participate in infection control measures by inciting anxiety, but when regulations are lifted and employees' anxiety decreases, this method becomes difficult to apply. In addition to anxiety, psychological and social resources motivate employees to take infection control measures. However, unlike anxiety, these resources cannot be developed overnight. Foreign-affiliated companies with large differences in nationality and organizational culture will continue to struggle to implement infection control measures even today after deregulation.

The results of the supplementary interview survey showed that these social and psychological resources could be strengthened by the company's response to the pandemic. This is consistent with previous studies that have shown that companies' CSR activities and responses to adversity during the pandemic can increase employees' resources, based on COR theory [32,33], but it is surprising in light of the fact that many other studies have pessimistically evaluated the pandemic as something that only brings harm. The durability and universality of the resource effects shown in this study may be well explained by the positive nature of the pandemic. However, of course, disasters cannot and should not be caused artificially. Future research should focus on elucidating ways to strengthen employees' social and psychological resources without relying on disasters. For example, in the future, there will be a need to develop training techniques that can have a similar effect in companies that have not experienced disasters, such as image training of disaster response using virtual technology. We hope that this study will provide good suggestions for the future activities of overseas local subsidiaries of various nationalities.

9. Limitations of the Study and Directions for Future Research

This study has several limitations. First, the data used in this analysis may be idiosyncratic. Kokubun et al. [2] referenced in this study collected data from 26 companies operating in the East and South China regions, whereas this study used data from one company in one city. Therefore, the results may be influenced by the conditions of specific companies or regions. In the future, it is recommended to conduct comparative studies targeting multiple regions and companies to verify the results of this study. Similarly, there is the issue of generalizability. Chinese and Japanese people have many things in common, such as the strong influence of Confucian culture, but the response to the pandemic was stricter in China than in Japan. These differences in how the pandemic is fought in the home country may have influenced the results, but since both Kokubun et al. [2] and this study targeted local Japanese subsidiaries in China, universality across nationalities has not been examined at all. Therefore, in the future, it will be necessary to verify whether the same

applies to employees of companies of other nationalities in other countries. Third, in this study, we used the scale developed by Kokubun et al. [2] instead of a general psychological scale. Therefore, it is necessary to verify reproducibility using a more general scale.

10. Conclusions

This study shows that the analytical framework developed for Japanese companies in East and South China after the government's strong restrictions were implemented can be applied to Japanese companies in Wuhan after the restrictions were lifted without major changes. This result implies that, regardless of the time or location of the pandemic, rather than relying on infection prevention measures that make employees anxious, it is necessary to take a long-term perspective and make efforts to increase social and psychological workplace resources to motivate employees instead of anxiety. In particular, the results of this study provide information that should be used as a reference in many workplaces around the world today, where anxiety has decreased after restrictions were lifted despite the continued increase in the number of infected people.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of IEWRI Japan Co., Ltd. (approval number 2020–01; approval date 6 January 2020).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The datasets used and/or analyzed in the current study are available from the corresponding author upon reasonable request.

Conflicts of Interest: Y.I. and K.I. were employed by IEWRI Japan Co., Ltd. The remaining author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest. The raw data supporting the conclusions of this manuscript will be made available by the authors, without undue reservation, to any qualified researcher.

References

1. Horita, N.; Fukumoto, T. Global case fatality rate from COVID-19 has decreased by 96.8% during 2.5 years of the pandemic. *J. Med. Virol.* **2023**, *95*, e28231. [CrossRef]
2. Kokubun, K.; Ino, Y.; Ishimura, K. Social and psychological resources moderate the relation between anxiety, fatigue, compliance and turnover intention during the COVID-19 pandemic. *Int. J. Workplace Health Manag.* **2022**, *15*, 262–286. [CrossRef]
3. Gullone, E. The development of normal fear: A century of research. *Clin. Psychol. Rev.* **2000**, *20*, 429–451. [CrossRef] [PubMed]
4. Goldstein, D.S.; Kopin, I.J. Evolution of concepts of stress. *Stress* **2007**, *10*, 109–120. [CrossRef] [PubMed]
5. Maddux, J.E.; Rogers, R.W. Protection motivation and self-efficacy: A revised theory of fear appeals and attitude change. *J. Exp. Soc. Psychol.* **1983**, *19*, 469–479. [CrossRef]
6. Rogers, R.W. A protection motivation theory of fear appeals and attitude change1. *J. Psychol.* **1975**, *91*, 93–114. [CrossRef] [PubMed]
7. Beca-Martínez, M.T.; Romay-Barja, M.; Falcón-Romero, M.; Rodríguez-Blázquez, C.; Benito-Llanes, A.; Forjaz, M.J. Compliance with the main preventive measures of COVID-19 in Spain: The role of knowledge, attitudes, practices, and risk perception. *Transbound. Emerg. Dis.* **2022**, *69*, e871–e882. [CrossRef] [PubMed]
8. Harper, C.A.; Satchell, L.P.; Fido, D.; Latzman, R.D. Functional fear predicts public health compliance in the COVID-19 pandemic. *Int. J. Ment. Health Addict.* **2021**, *19*, 1875–1888. [CrossRef] [PubMed]

9. Wang, Y.; He, Y.; Sheng, Z.; Yao, X. When does safety climate help? A multilevel study of COVID-19 risky decision making and safety performance in the context of business reopening. *J. Bus. Psychol.* **2022**, *37*, 1313–1327. [CrossRef]

10. Follmer, K.B.; Sabat, I.E.; Siuta, R.L. Disclosure of stigmatized identities at work: An interdisciplinary review and agenda for future research. *J. Organ. Behav.* **2020**, *41*, 169–184. [CrossRef]

11. Taylor, S.; Landry, C.A.; Paluszek, M.M.; Fergus, T.A.; McKay, D.; Asmundson, G.J. Development and initial validation of the COVID stress scales. *J. Anxiety Disord.* **2020**, *72*, 102232. [CrossRef] [PubMed]

12. Liu, H.; Du, Y.; Zhou, H. The impact of job burnout on employees' safety behavior against the COVID-19 pandemic: The mediating role of psychological contract. *Front. psychol.* **2022**, *13*, 618877. [CrossRef]

13. Hobfoll, S.E. Conservation of resources: A new attempt at conceptualizing stress. *Am. Psychol.* **1989**, *44*, 513–524. [CrossRef]

14. Jung, H.S.; Jung, Y.S.; Yoon, H.H. COVID-19: The effects of job insecurity on the job engagement and turnover intent of deluxe hotel employees and the moderating role of generational characteristics. *Int. J. Hosp. Manag.* **2021**, *92*, 102703. [CrossRef]

15. Lee, E.; Jang, I. Nurses' Fatigue, job stress, organizational culture, and turnover intention: A culture–work–health model. *West. J. Nurs. Res.* **2020**, *42*, 108–116. [CrossRef] [PubMed]

16. Modaresnezhad, M.; Andrews, M.C.; Mesmer-Magnus, J.; Viswesvaran, C.; Deshpande, S. Anxiety, job satisfaction, supervisor support and turnover intentions of mid-career nurses: A structural equation model analysis. *J. Nurs. Manag.* **2021**, *29*, 931–942. [CrossRef] [PubMed]

17. Probst, T.M.; Lee, H.J.; Bazzoli, A. Economic stressors and the enactment of CDC-recommended COVID-19 prevention behaviors: The impact of state-level context. *J. Appl. Psychol.* **2020**, *105*, 1397–1407. [CrossRef] [PubMed]

18. Sinclair, R.R.; Probst, T.M.; Watson, G.P.; Bazzoli, A. Caught between Scylla and Charybdis: How economic stressors and occupational risk factors influence workers' occupational health reactions to COVID-19. *Appl. Psychol.* **2020**, *70*, 85–119. [CrossRef] [PubMed]

19. Falco, A.; Girardi, D.; Dal Corso, L.; Yıldırım, M.; Converso, D. The perceived risk of being infected at work: An application of the job demands–resources model to workplace safety during the COVID-19 outbreak. *PLoS ONE* **2021**, *16*, e0257197. [CrossRef] [PubMed]

20. Hu, X.; Yan, H.; Casey, T.; Wu, C.H. Creating a safe haven during the crisis: How organizations can achieve deep compliance with COVID-19 safety measures in the hospitality industry. *Int. J. Hosp. Manag.* **2021**, *92*, 102662. [CrossRef] [PubMed]

21. Chen, Q.; Li, Y.; Wang, R.; Shen, R. How COVID-19 perceived risk causes turnover intention among Chinese flight attendants: A moderated mediation model. *Psychol. Res. Behav. Manag.* **2023**, *16*, 95–108. [CrossRef]

22. Kakar, A.S.; Misron, A.; Meyer, N.; Durrani, D.K. Job insecurity as a mediator between fearing COVID-19 and turnover intention: Empirical evidence during the COVID-19 pandemic. *Int. J. Educ. Manag.* **2023**, *37*, 752–767. [CrossRef]

23. Kumar, P.; Kumar, N.; Aggarwal, P.; Yeap, J.A.L. Working in lockdown: The relationship between COVID-19 induced work stressors, job performance, distress, and life satisfaction. *Curr. Psychol.* **2021**, *40*, 6308–6323. [CrossRef]

24. Obuobisa-Darko, T.; Sokro, E. Psychological impact of COVID-19 pandemic and turnover intention: The moderating effect of employee work engagement. *Soc. Sci. Humanit. Open.* **2023**, *8*, 100596. [CrossRef] [PubMed]

25. Singh, S.; Kaurav, R.P.S. Is fear of COVID-19 leading to future career anxiety and turnover intentions? Problematic social media use and confidence in the vaccine as a mediator. *Vision* **2022**, 09722629221130831. [CrossRef]

26. Pradhan, R.K.; Panda, M.; Hati, L.; Jandu, K.; Mallick, M. Impact of COVID-19 stress on employee performance and well-being: Role of trust in management and psychological capital. *J. Asia Bus. Stud.* **2023**, *18*, 85–102. [CrossRef]

27. Farroukh, N.; Messarra, L.C.; Yunis, M. The perception of job insecurity and organizational citizenship behavior during COVID-19: The moderating roles of positive psychological capital and grit. *J. Asia Bus. Stud.* **2023**, *17*, 1069–1087. [CrossRef]

28. Abgeller, N.; Bachmann, R.; Dobbins, T.; Anderson, D. Responsible autonomy: The interplay of autonomy, control and trust for knowledge professionals working remotely during COVID-19. *Econ. Ind. Democr.* **2024**, *45*, 57–82. [CrossRef]

29. Badrinarayanan, V. Trust building strategies for virtual leaders in the post pandemic era. *Proj. Leadersh. Soc.* **2024**, *5*, 100126. [CrossRef]

30. De Clercq, D.; Pereira, R. How overloaded employees can use resilience and forgiveness resources to overcome dissatisfaction and maintain their knowledge-sharing efforts. *Int. J. Organ. Anal.* **2024**, *33*, 390–415. [CrossRef]

31. Mahmoud, A.B.; Reisel, W.D.; Berman, A.; Fuxman, L.; Long, C.; Abu Jdea, F.; Hack-Polay, D. War vs. pandemic—Investigating the type of extreme context as a moderator of extreme-context perception effects on work alienation and its organisational outcomes. *Int. J. Hum. Resour. Manag.* **2024**, *35*, 3415–3450. [CrossRef]

32. Mao, Y.; He, J.; Morrison, A.M.; Andres Coca-Stefaniak, J. Effects of tourism CSR on employee psychological capital in the COVID-19 crisis: From the perspective of conservation of resources theory. *Curr. Issues Tour.* **2021**, *24*, 2716–2734. [CrossRef]

33. Waters, L.; Algoe, S.B.; Dutton, J.; Emmons, R.; Fredrickson, B.L.; Heaphy, E.; Moskowitz, J.T.; Neff, K.; Niemiec, R.; Pury, C.; et al. Positive psychology in a pandemic: Buffering, bolstering, and building mental health. *J. Posit. Psychol.* **2022**, *17*, 303–323. [CrossRef]

34. Debus, M.E.; Unger, D.; Probst, T.M. Dirty work on the COVID-19 frontlines: Exacerbating the situation of marginalized groups in marginalized professions. *Ind. Organ. Psychol.* **2021**, *14*, 144–148. [CrossRef]

35. Obinna, D.N. Confronting disparities: Race, ethnicity, and immigrant status as intersectional determinants in the COVID-19 era. *Health Educ. Behav.* **2021**, *48*, 397–403. [CrossRef]

36. Sy, K.T.L.; Martinez, M.E.; Rader, B.; White, L.F. Socioeconomic disparities in subway use and COVID-19 outcomes in New York City. *Am. J. Epidemiol.* **2021**, *190*, 1234–1242. [CrossRef]

37. Hobfoll, S.E. Social and psychological resources and adaptation. *Rev. Gen. Psychol.* **2002**, *6*, 307–324. [CrossRef]

38. Kim, T.; Karatepe, O.M.; Lee, G.; Lee, S.; Hur, K.; Cui, X. Does hotel employees' quality of work life mediate the effect of psychological capital on job outcomes? *Int. J. Contemp. Hosp. Manag.* **2017**, *29*, 1638–1657. [CrossRef]

39. Putnam, R.D.; Leonardi, R.; Nanetti, R.Y. *Making Democracy Work: Civic Traditions in Modern Italy*; Princeton University Press: Princeton, NJ, USA, 1994.

40. Tham, T.L.; Alfes, K.; Holland, P.; Thynne, L.; Vieceli, J. Extreme work in extraordinary times: The impact of COVID-stress on the resilience and burnout of frontline paramedic workers–the importance of perceived organisational support. *Int. J. Hum. Resour. Manag.* **2023**, *35*, 1739–1762. [CrossRef]

41. Straus, E.; Uhlig, L.; Kühnel, J.; Korunka, C. Remote workers' well-being, perceived productivity, and engagement: Which resources should HRM improve during COVID-19? A longitudinal diary study. *Int. J. Hum. Resour. Manag.* **2023**, *34*, 2960–2990. [CrossRef]

42. Strack, J.; Lopes, P.; Esteves, F.; Fernandez-Berrocal, P. Must we suffer to succeed? When anxiety boosts motivation and performance. *J. Individ. Differ.* **2017**, *38*, 113–124. [CrossRef]

43. Carver, C.S.; Scheier, M.F. Self-regulation of action and affect. In *Handbook of Self-Regulation: Research, Theory, and Applications*, 2nd ed.; Guilford Press: New York, NY, USA, 2011; pp. 3–21.

44. Norem, J.K.; Chang, E.C. The positive psychology of negative thinking. *J. Clin. Psychol.* **2002**, *58*, 993–1001. [CrossRef]

45. Trougakos, J.P.; Chawla, N.; McCarthy, J.M. Working in a pandemic: Exploring the impact of COVID-19 health anxiety on work, family, and health outcomes. *J. Appl. Psychol.* **2020**, *105*, 1234–1245. [CrossRef] [PubMed]

46. Perry, S.J.; Carlson, D.S.; Kacmar, K.M.; Wan, M.; Thompson, M.J. Interruptions in remote work: A resource-based model of work and family stress. *J. Bus. Psychol.* **2023**, *38*, 1023–1041. [CrossRef] [PubMed]

47. Halbesleben, J.R.; Neveu, J.P.; Paustian-Underdahl, S.C.; Westman, M. Getting to the "COR" understanding the role of resources in conservation of resources theory. *J. Manag.* **2014**, *40*, 1334–1364. [CrossRef]

48. Mäkikangas, A.; Bakker, A.B.; Aunola, K.; Demerouti, E. Job resources and flow at work: Modelling the relationship via latent growth curve and mixture model methodology. *J. Occup. Organ. Psychol.* **2010**, *83*, 795–814. [CrossRef]

49. Xanthopoulou, D.; Bakker, A.B.; Demerouti, E.; Schaufeli, W.B. Work engagement and financial returns: A diary study on the role of job and personal resources. *J. Occup. Organ. Psychol.* **2009**, *82*, 183–200. [CrossRef]

50. Slovic, P. Perception of risk: Reflections on the psychometric paradigm. In *Social Theories of Risk*; Krimsky, S., Golding, D., Eds.; Praeger: Westport, CT, USA, 1992; pp. 117–152.

51. Oetzel, J. Smaller may be beautiful but is it more risky? Assessing and managing political and economic risk post FDI in Costa Rica. *Int. Bus. Rev.* **2005**, *14*, 765–790. [CrossRef]

52. Kobrin, S.J.; Basek, J.; Blank, S.; Palombara, J.L. The assessment and evaluation of noneconomic environments by American firms: A preliminary report. *J. Int. Bus. Stud.* **1980**, *11*, 32–47. [CrossRef]

53. Oh, C.H.; Oetzel, J. Multinationals' response to major disasters: How does subsidiary investment vary in response to the type of disaster and the quality of country governance? *Strateg. Manag. J.* **2011**, *32*, 658–681. [CrossRef]

54. Kokubun, K.; Yasui, M. Gender differences in organizational commitment and rewards within Japanese manufacturing companies in China. *Cross Cult. Strateg. Manag.* **2021**, *28*, 501–529. [CrossRef]

55. Kokubun, K.; Yasui, M. Differences in the organizational-commitment–rewards relationship between Chinese managers and Japanese expatriates in manufacturing companies in China. *Evid.-Based HRM* **2023**, *11*, 315–334. [CrossRef]

56. Maslach, C.; Leiter, M.P. Early predictors of job burnout and engagement. *J. Appl. Psychol.* **2008**, *93*, 498–512. [CrossRef] [PubMed]

57. Cheng, B.H.; McCarthy, J.M. Understanding the dark and bright sides of anxiety: A theory of workplace anxiety. *J. Appl. Psychol.* **2018**, *103*, 537–560. [CrossRef] [PubMed]

58. Howard, L.W.; Cordes, C.L. Flight from unfairness: Effects of perceived injustice on emotional exhaustion and employee withdrawal. *J. Bus. Psychol.* **2010**, *25*, 409–428. [CrossRef]

59. Jawahar, I.M.; Mohammed, Z.J.; Schreurs, B. Effects of financial anxiety and employability on emotional exhaustion and performance. *J. Vocat. Behav.* **2022**, *137*, 103761. [CrossRef]

60. Yin, J.; Ji, Y.; Ni, Y. Anxious hotel employees in China: Engaged or exhausted? Multiple effects of workplace anxiety. *Int. J. Hosp. Manag.* **2023**, *114*, 103577. [CrossRef]

61. Schwarz, N.; Bless, H. Happy and mindless, but sad and smart? The impact of affective states on analytic reasoning. In *Emotion and Social Judgements*; Forgas, J., Ed.; Garland Science: New York, NY, USA, 1991; pp. 55–71.

62. Bozo, Ö.; Tunca, A.; Šimšek, Y. The effect of death anxiety and age on health-promoting behaviors: A terror-management theory perspective. *J. Psychol.* **2009**, *143*, 377–389. [CrossRef] [PubMed]

63. Xia, N.; Wang, X.; Griffin, M.A.; Wu, C.; Liu, B. Do we see how they perceive risk? An integrated analysis of risk perception and its effect on workplace safety behavior. *Accid. Anal. Prev.* **2017**, *106*, 234–242. [CrossRef]

64. Bremner, J.D. Traumatic stress: Effects on the brain. *Dialogues Clin. Neurosci.* **2006**, *8*, 445–461. [CrossRef] [PubMed]

65. Smith, T.D. An assessment of safety climate, job satisfaction and turnover intention relationships using a national sample of workers from the USA. *Int. J. Occup. Saf. Ergon.* **2018**, *24*, 27–34. [CrossRef]

66. Paek, S.; Schuckert, M.; Kim, T.T.; Lee, G. Why is hospitality employees' psychological capital important? The effects of psychological capital on work engagement and employee morale. *Int. J. Hosp. Manag.* **2015**, *50*, 9–26. [CrossRef]

67. Song, L.; Wang, Y.; Zhao, Y. How employee authenticity shapes work attitudes and behaviors: The mediating role of psychological capital and the moderating role of leader authenticity. *J. Bus. Psychol.* **2020**, *36*, 1125–1136. [CrossRef]

68. Eid, J.; Mearns, K.; Larsson, G.; Laberg, J.C.; Johnsen, B.H. Leadership, psychological capital and safety research: Conceptual issues and future research questions. *Saf. Sci.* **2012**, *50*, 55–61. [CrossRef]

69. Wang, D.; Wang, X.; Xia, N. How safety-related stress affects workers' safety behavior: The moderating role of psychological capital. *Saf. Sci.* **2018**, *103*, 247–259. [CrossRef]

70. Moyer, F.; Aziz, S.; Wuensch, K. From workaholism to burnout: Psychological capital as a mediator. *Int. J. Workplace Health Manag.* **2017**, *10*, 213–227. [CrossRef]

71. Wang, Y.; Liu, L.; Wang, J.; Wang, L. Work-family conflict and burnout among Chinese doctors: The mediating role of psychological capital. *J. Occup. Health* **2012**, *54*, 232–240. [CrossRef]

72. Shoss, M.K.; Jiang, L.; Probst, T.M. Bending without breaking: A two-study examination of employee resilience in the face of job insecurity. *J. Occup. Health Psychol.* **2018**, *23*, 112–126. [CrossRef] [PubMed]

73. Aguiar-Quintana, T.; Nguyen, T.H.H.; Araujo-Cabrera, Y.; Sanabria-Díaz, J.M. Do job insecurity, anxiety and depression caused by the COVID-19 pandemic influence hotel employees' self-rated task performance? The moderating role of employee resilience. *Int. J. Hosp. Manag.* **2021**, *94*, 102868. [CrossRef] [PubMed]

74. Leana, C.R., III; Van Buren, H.J. Organizational social capital and employment practices. *Acad. Manag. Rev.* **1999**, *24*, 538–555. [CrossRef]

75. Coleman, J.S. *Foundations of Social Theory*; Belknap: Cambridge, MA, USA, 1990.

76. Podolny, J.M.; Baron, J.N. Resources and relationships: Social networks and mobility in the workplace. *Am. Sociol. Rev.* **1997**, *62*, 673–693. [CrossRef]

77. Kokubun, K.; Yamakawa, Y. Social capital mediates the relationship between social distancing and COVID-19 prevalence in Japan. *Inquiry* **2021**, *58*, 00469580211005189. [CrossRef] [PubMed]

78. Chang, S.J.; Van Witteloostuijn, A.; Eden, L. From the editors: Common method variance in international business research. *J. Int. Bus. Stud.* **2010**, *41*, 178–184. [CrossRef]

79. Byrne, B.M. *Structural Equation Modeling with AMOS*, 2nd ed.; Routledge Academic: New York, NY, USA, 2010.

80. Hu, L.T.; Bentler, P.M. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Struct. Equ. Model.* **1999**, *6*, 1–55. [CrossRef]

81. Aiken, L.S.; West, S.G.; Reno, R.R. *Multiple Regression: Testing and Interpreting Interactions*; Sage Publications: Thousand Oaks, CA, USA, 1991.

82. Chen, Q.; Li, M.; Wang, Y.; Zhang, L.; Tan, X. Changes in anxiety, depression, and stress in 1 week and 1 month later after the Wuhan shutdown against the COVID-19 epidemic. *Disaster Med. Public Health Prep.* **2022**, *16*, 1423–1430. [CrossRef] [PubMed]

83. Easterbrook, J.A. The effect of emotion on cue utilization and the organization of behavior. *Psychol. Rev.* **1959**, *66*, 183–201. [CrossRef] [PubMed]