Current Psychology
https://doi.org/10.1007/s12144-022-03775-8

How to enhance psychological security of enterprise employees during the COVID-19 pandemic: Based on MRA and fsQCA

Yu Gao[1] · Haiyan Liu[1]

Accepted: 13 September 2022

Abstract
The economic impact caused by the outbreak and dynamic evolution of COVID-19 has reduced employees' psychological security (PS), which not only threatens the physical and mental health of employees but also seriously affects the stable operation and sustainable development of enterprises. PS has been determined to be closely related to daily life experiences. Therefore, the purpose of this article is to examine the types and combinations of life events that improve employees' PS during the pandemic. Cross-sectional data came from 764 enterprise employees in 8 provinces and cities in China during the pandemic period. The participants completed the PS scale to evaluate their PS, and the PS events scale to evaluate the different types of daily life events they experienced. Multiple regression analysis (MRA) and fuzzy-set qualitative comparative analysis (fsQCA) methods were used to test the research hypothesis. The results of MRA suggest that rich leisure activities (RLA), harmonious family relationship (HFR), stable economic order (SEO) and recognition and support from others (RSO) are important life events that enhance employees' PS. The results of fsQCA suggest that the independent role of SEO, the combined role of sound social security system (SSSS), peace and health events (PHE) and HFR, the combined role of PHE, fulfilling work/life status (FWLS), SEO and RSO can substitute for each other to promote employees' high PS. This article reveals the contribution of daily life events to the PS of enterprise employees, and provides an empirical basis for formulating corresponding intervention measures to promote the physical and mental health of enterprise employees and effective enterprise management.

Keywords COVID-19 · Psychological security · Multiple regression analysis · Fuzzy-set qualitative comparative analysis

Introduction

It has been more than two years since the outbreak of coronavirus disease 2019. Especially the wide spread of mutant strains such as Lambda, Delta, and Omicron makes the new crown pneumonia epidemic still spreading around the world, full of uncertainties and challenges. At present, more than 500 million people confirmed cases of COVID-19, including more than 6 million deaths (World Health Organization, 2022). In the face of the raging pandemic, measures such as timely vaccination, frequent hand washing, wearing masks, maintaining social distance, gated communities, mandatory home isolation, and institutional isolation are still effective measures to contain the spread of the virus (Dubey et al., 2020; Potas et al., 2022; Scandurra et al., 2021). However, this has also forced many enterprises to shut down, live beyond their means, or even become bankrupt (Dubey et al., 2020; Gao & Liu, 2021; Vieira dos Santos et al., 2022), which has impacted and disrupted the existing economic and social order (Mandal et al., 2020). Under the dual threats of "health and safety risks"(physical and mental health problems caused by COVID-19) and "occupational uncertainty" (employee salary reduction, layoffs, unemployment and other problems caused by the shortage of enterprise resources and shutdown under the influence of COVID-19), the safety needs of enterprise employees cannot be met in a timely manner (Obrenovic et al., 2021), which will lead to reduced employees' sense of security and increased insecurity.

✉ Haiyan Liu
liuhy@cugb.edu.cn

[1] School of Economics and Management, China University of Geosciences (Beijing), 29 Xueyuan Road, Haidian District, 100083 Beijing, China

Published online: 24 October 2022

PS refers to a feeling of safety and freedom separated from fear and anxiety, and it is also a comprehensive subjective feeling with situational, evaluable and predictive, which is formed by individuals based on past experiences, perception and evaluation of environmental security cues and hunch about the future (Chen et al., 2006; Cong & An, 2004; Saáry et al., 2021; Wang et al., 2019). The lack of sense of security can easily lead to negative emotional experiences such as panic, anxiety and depression (Khudaykulov et al., 2022; Yang et al., 2020), which will further reduce employees' immunity and make employees more susceptible to diseases (Yu, 2020). The lack of sense of security can also make employees nervous, feel stressed, produce emotional exhaustion and job burnout, and then reduce organizational performance (Yang et al., 2020). Moreover, employees who lack a sense of security will also worry about their own continuity at work, and even consider changing jobs (Alyahya et al., 2022), which is bound to be detrimental to the stable operation and sustainable development of enterprises during the pandemic. Therefore, it is very important to timely meet the PS needs of employees, and improve the PS of employees to effectively promote the physical and mental health of employees, optimize and improve enterprise management during the period of COVID-19.

Under the background of the current complex, unstable and uncertain external environment, a stable and orderly working and living environment needs to be provided to enterprise employees to meet their basic PS needs (He, 2014). In contrast, an external environment that risks loss or brings suffering is the root cause of employees' psychological impairment (Obrenovic et al., 2021). Khudaykulov et al. (2022) also pointed out that changes in the external environment will continue to affect a person's internal psychological state, especially external threatening events (catastrophes, disasters, health challenges and so on) will always put people's psychological welfare at risk. Life events, as an external environmental stimulus, involve major changes in work and life (Brown et al., 1988; Tang & Zhou, 2014). Employees also experienced the impact of daily life events all the time during the period of COVID-19. Therefore, we focus on the impact of daily life events on PS of enterprise employees.

Looking at the existing literature, we believe that the types of daily life events that affect PS can be summarized into seven categories: RLA (Parry & Shaw, 1999), SSSS (Wang et al., 2019), PHE (Ning & Liu, 2011), HFR (Pordelan et al.,2021), FWLS (Ning & Liu, 2011), SEO (Wang & He, 2017), and RSO (Shen & Wang, 2022). Although many studies have been carried out on the relationship between different types of life events and PS, there are still two limitations: (1) Previous studies are mostly limited to "binary relation", assuming that events are independent of each other and will not interact with each other, and the result analysis only has an equilibrium and unique optimal path (Gao et al., 2022; Ning & Liu, 2011; Svetek, 2020). However, the influence of interdependence and interaction among multiple different types of events on employees' PS, and the possible path equivalence issues in the analysis of the results have been ignored (Woodside, 2015). (2) Previous studies mostly focused on analyzing the impact of different types of life events on employees' PS from a qualitative perspective (Liu, 2005; Parry & Shaw, 1999; Zhang & Zhu, 2019). Even if some studies have used quantitative approaches (such as frequency analysis, correlation analysis, regression analysis) (Gao et al., 2022; Svetek, 2020; Wang & He, 2017; Wu & Chen, 2021), they only examine the linear and symmetrical relationship between events and PS to solve the problem of net effect. However, the possible non-linear and asymmetric relationships between variables (Woodside, 2015) and the problem of solving the configuration effects among variables have also been neglected.

To sum up, fsQCA method based on set-theoretical approach provides a new method perspective to make up for the above limitations by emphasizing the combination of antecedent conditions, explaining path equivalence and asymmetry between variables (Ragin, 2000, 2008). Based on this, this study aims to use MRA to explore life events beneficial to employees' PS, and use fsQCA as a complementary approach to explore the combinations of life events beneficial to employees' PS during the COVID-19 pandemic. This paper makes the following contributions to existing PS research: (1) Previous studies mostly explored the impact of a single life event on PS, lacking the role of multiple event combinations. This paper deeply analyzes and explores the single life event and the combination of multiple life events that affect PS, enriches and expands the existing research content of PS. (2) Previous studies mostly focused on the linear and symmetric relationship between variables, lacking the path equivalence, non-linear and asymmetric relationship between variables. Combining MRA and fsQCA, this paper conducts an in-depth analysis of the relationship between variables, and compares the results obtained by the two methods, making an important methodological contribution to the existing PS research. (3) This paper explores the types and combinations of events that are beneficial to PS, which can provide empirical evidence for managers to formulate corresponding intervention measures to promote the physical and mental health of employees and effective enterprise management.

Theoretical background and research hypotheses

RLA, that is, various activities in peoples' leisure time. Leisure activities have positive psychological effects (Şener

et al., 2007). Based on conservation of resources theory, uncertainty can bring about mental health problems, triggering psychological distress and emotional exhaustion (Obrenovic et al., 2021). This is due to the deprivation of resources that people use to regulate emotions and maintain stability (Godinic et al., 2020). Therefore, facing the suddenness and uncertainty of the COVID-19, employees will feel uneasy, anxious and panic (Guberina & Wang, 2021). At this time, if mandatory home isolation measures are adopted, meals, gatherings and other entertainment activities are suspended, the social support of employees will be deprived, the leisure resources for employees to adjust their emotions will be lacking, and their own insecurity, anger and depression will be further aggravated (Guberina & Wang, 2021). Hence, we speculate that RLA should be more beneficial to employees' PS. Previous studies also support our inference. For example, Parry and Shaw (1999) conducted interviews with menopause and midlife women and found that leisure activities were beneficial to their physical and mental health, and enhance their sense of familiarity and security. Physically active leisure can also alleviate anxiety and depression, improve cognitive function and sleep status, and improve happiness, life satisfaction and quality of life (Cui et al., 2021). In a study of COVID-19, Khudaykulov et al. (2022) pointed out that the implementation of the lockdown policy will force employees to isolate, which will have adverse effects on employees' mental health, such as irritability, anxiousness and obsessive thoughts, which can be used as a supplementary basis for this paper. Therefore, the following hypothesis is put forward.

H1: RLA is positively related to PS of enterprise employees.

SSSS refers to various social resources necessary for people's normal life. Based on the instrumental support of social support theory, when an individual receives material support from the outside (such as providing financial assistance, material security, life care) (Jiang et al., 2022), he/she can better cope with various external challenges or pressures and make psychological adjustment in time (Shao, 2021). Therefore, facing the external pressure of salary reduction, debts and even layoffs caused by COVID-19 (Obrenovic et al., 2021), providing employees with financial assistance and material security in a timely manner should be beneficial to employees' psychological adjustment and improve their PS. Previous studies also support our inference. For example, Wang et al. (2019) emphasized that social security factors can affect PS. The improvement of psychological pre-warning system for security events, the protection of personal security of the public (Tang, 2010), occupational security, food security (Wang et al., 2019), and the creation of a good community living environment (Chen et al., 2021) can strengthen PS of the public. Using regression analysis, Svetek(2020) also found that contract workers have higher job insecurity than fixed-term employees. Therefore, the following hypothesis is put forward.

H2: SSSS is positively related to PS of enterprise employees.

PHE, that is, owning a house and the physical health of individuals, parents, spouses and children. Peace and health are the basic guarantee for individuals' survival and development. The health of oneself, families and relatives will make individuals feel secure and safe (Ning & Liu, 2011). Based on terror management theory, individuals will develop death anxiety or fear when they receive information related to death, and carry out psychological defense subconsciously (self-esteem striving, worldview defense, and close relationship) (Mikulincer et al., 2003; Pyszczynski et al., 1997). For example, the establishment of intimacy, attachment and connection between individuals and others can make anxious or fearful individuals feel hope and secure, thereby alleviating anxiety or fear of death, while the breakdown of intimate relationships will lead to a heightened awareness of death (Mikulincer et al., 2003). Therefore, the instability and uncertainty of the COVID-19 outbreak inevitably causes individuals to have thoughts related to death, thus generating fear and anxiety related to death. At this time, when oneself, families and relatives are in good health and close relationships are maintained, the individual's insecurity, anxiety, and fear will be effectively alleviated, while the health of oneself, families and relatives are damaged, they may be separated from each other to seek treatment, and close relationships are destroyed, which should aggravate individuals' loneliness and insecurity. Previous studies also support our inference. For example, Liu (2005) pointed out that work pressure will make entrepreneurs worry too much about their own health, which will lead to fear and insecurity. Using independent-samples T test, Wu and Chen (2021) found that the more serious the pandemic, the stronger the psychological insecurity experience of the public. Uncertainty about the disease can also induce anxiety, depression and other negative emotions, thereby reducing the level of hope (Yu & Qiao, 2022). Therefore, the following hypothesis is put forward.

H3: PHE is positively related to PS of enterprise employees.

HFR describes the relationship among family members. Family systems theory believes that the family is an organized system, and an interconnected relationship network, which will affect the thinking, emotion and behavior of individuals (Minuchin, 1985). Therefore, we infer that HFR should be closely related to PS during the COVID-19. Previous studies also support our inference. For example, HFR is an important social support for individuals, which can give people a sense of security and belonging (Yu, 2021).

The good relationship between employees and their families can obtain support from their families for their work, reduce family-work conflicts (Zhang et al., 2021), which is beneficial to employees' PS. Using a combination of qualitative (grounded theory) and quantitative (one-sample t-test, Friedman test) methods, Pordelan et al. (2021) found that teleworking conditions of married working women can enhance family cohesion and then enhance their sense of PS. Therefore, the following hypothesis is put forward.

H4: HFR is positively related to PS of enterprise employees.

FWLS describes work and life conditions. Based on conservation of resources theory, psychological distress and emotional exhaustion occur due to the lack of resources used to regulate emotions and maintain stability (Godinic et al., 2020). The COVID-19 pandemic has made many small and medium-sized enterprises hopeless to resume work, suffered heavy losses, and even caused enterprises to become bankrupt, thus making it impossible to guarantee the continuous employment and work resources of employees (Guberina & Wang, 2021). However, work can provide employees with safety and buffer the insecurity, panic, and anxiety under the pandemic (Godinic et al., 2020). Therefore, we speculate that FWLS should alleviate employees' insecurity about the pandemic and enhance their PS. Previous studies also support our inference. For example, work successfully was conducive to reducing work stress and thus improving PS (Ning & Liu, 2011). Zhang and Zhu (2019) argued that the absence of human resource allocation and management experience in the enterprise will lead to the absence of employees' sense of identity and belonging to the enterprise, and reduce their PS. Guberina and Wang (2021) pointed out that employees who have alternative career opportunities will feel more secure than those who have doubts about their future employability. If employees are unable to achieve personal development or career advances, their well-being will be reduced (Guberina & Wang, 2021). Job uncertainty during COVID-19 can also seriously damage employees' psychology, causing anxiety and depression (Khudaykulov et al., 2022). Furthermore, decent working conditions and appropriate supervision of workplace harassment/violence were also conducive to safety and health of employees (Ohnishi et al., 2021). Therefore, the following hypothesis is put forward.

H5: FWLS is positively related to PS of enterprise employees.

SEO refers to the economic basis and property security necessary for people's lives. Based on stressor-strain perspective, economic crisis or recession can be regarded as a socioeconomic stressor, and employees who face this stressor experience psychological stress and negative emotions (Montani et al., 2020). Therefore, we infer that under the background of COVID-19, SEO should be beneficial to reduce employees' psychological pressure, alleviate employees' negative emotions, and improve employees' PS. Previous studies also support our inference. For example, Godinic et al. (2020) mentioned that permanent employment and regular income can predict good mental health of employees. Ning and Liu (2011) noted that income stability and economic affluence are essential to improve PS. Tang et al. (2017) pointed out that positive life events such as promotion and meritorious service will make employees have a pleasant emotional experience, while negative life events will reduce employees' sense of security and make employees feel depressed and anxious. Using frequency analysis method, Wang and He (2017) found that the more stable and fulfilling the work, the higher people's sense of security, that is, the employees of organs and institutions have a higher sense of security than enterprise employees and freelancers. Wang et al. (2019) also mentioned that occupational stability and occupational risk can determine PS to a certain extent. Therefore, the following hypothesis is put forward.

H6: SEO is positively related to PS of enterprise employees.

RSO, that is, gaining recognition and trust from the outside world. Based on the emotional support of social support theory, when an individual feels that he/she is cared for and loved, esteemed and valued by the outside (Cobb, 1976; Jiang et al., 2022), he/she can better cope with various external challenges or pressures and make psychological adjustment in time (Shao, 2021). Therefore, we infer that when facing the external pressure and challenge of COVID-19, if employees are recognized and supported by their relatives, colleagues and neighbors, it should be more beneficial to improve their PS. Previous studies also support our inference. For example, interpersonal support and trust are related to people's internal security, which can make individuals develop appropriate attachment to important others, and then promote security (Ning & Liu, 2011). Wang et al. (2019) also pointed out that individuals with higher levels of interpersonal security and interpersonal trust will perceive fewer negative events, and then increasing PS, while excessive loneliness and alienation will reduce PS. Neighborhood familiarity (such as neighborhood identity, neighborhood attachment and neighborhood cohesion) was also beneficial to individuals' PS (Shen & Wang, 2022). Gao and Liu (2021) also argued that employees receive trust and support from leaders or colleagues often improve their PS. This conclusion was also confirmed in the study of Gao et al. (2022). Therefore, the following hypothesis is put forward.

H7: RSO is positively related to PS of enterprise employees.

Based on event system theory, events are not independent of each other and develop independently. Different

events can depend on and interweave with each other in the same or different time and space to form an "event cluster", and then affect the outcome variables (Morgeson et al., 2015). Zhang (2021) pointed out that people's sense of security originates from their daily life experiences, such as having a more stable economic development environment, more sound social security mechanism, better medical and health services, safer online cultural environment, and more harmonious interpersonal relations, which again shows that there may be an internal logic and intersection between events. Therefore, we speculate that the different types of life events described above can also combine with each other to affect PS. Furthermore, based on complexity theory, the relationship between variables in real life may also have equifinality, non-linear, and asymmetry (Woodside, 2015). Therefore, we speculate that the combination of different types of life events can also substitute for each other to affect PS. The following hypothesis is put forward.

H8: Disparate combinations of RLA, SSSS, PHE, HFR, FWLS, SEO, and RSO will affect high PS of enterprise employees, and disparate combinations are equifinal in leading to high PS of enterprise employees.

Methods

Participants and procedure

This article was approved by the ethics committee of the author's institution, followed the basic principles of the Declaration of Helsinki, and ensured the anonymity, confidentiality of responses, and non-discrimination of the participants. The participants were also informed that they had the right to withdraw from the questionnaire at any time. A cross-sectional study design was adopted for this paper. Theoretical sampling and stratified cluster sampling method were used. Theoretical sampling method is suitable for QCA research, that is, relevant cases are selected according to the research questions, and cases need to meet the principles of similarity and comparability (Zhang & Du, 2019). Data were further collected by stratified cluster sampling. In this paper, the layers were divided according to whether COVID-19 occurs, that is, from 31 provinces and cities in China, the provinces and cities experiencing the novel coronavirus (positive cases) and the provinces and cities not experiencing the novel coronavirus (negative cases) during the COVID-19(from November 2020 to January 2021 and from January to February 2022) were selected. Then, clusters were selected from these two layers. The provinces and cities experiencing the novel coronavirus were selected from Henan, Beijing, Guangdong, and Jiangsu. The provinces and cities not experiencing the novel coronavirus were selected from Shandong, Hunan, Shaanxi, and Hubei. A total of 764 enterprise employees from 8 provinces and cities. Data collection originated from the online questionnaire survey on the "Wenjuanxing" platform. Fill in and submit the questionnaire online was equivalent to obtaining the participants' informed consent. The collected data followed the background characteristics of the similarity between cases (Zhang & Du, 2019). In other words, 8 provinces and cities are cases, all of which have a similar background of the COVID-19 pandemic, and the research theme is PS during the COVID-19 pandemic. The collected data also followed the principle of heterogeneity among cases. In other words, cases include both positive and negative cases, and based on the ripple effect (Slovic, 1987), they may correspond to non-high PS and high PS regions, respectively. Finally, 764 valid participants were obtained. Among them, 49.6% were male(n = 379), 50.4% were female(n = 385), 50.4% were youth (25 ~ 35, n = 385) and 49.6% were midlife (36 ~ 50, n = 379).

Measures

PS scale and PS events scale developed by the research group were used to measure PS of enterprise employees and the different types of daily life events experienced by enterprise employees. Both PS scale and PS events scale adopt stratified cluster sampling method. First, 784 urban residents (including public servants, public institutions, enterprise employees and ordinary residents) from 11 provinces and cities in China (including Beijing, Hebei, Shandong, Shanxi, Shaanxi, Jiangsu, Hubei, Shanghai, Zhejiang, Guangdong, Liaoning) were selected for structured interviews. Effective interviewees (N_{PS} = 760ers, $N_{PS\ events}$ = 737ers) were obtained through screening interview records, and the interview results were coded and re-coded. The original items of PS and PS events (N_{PS} = 64 items, $N_{PS\ events}$ = 69 items) were collected to form a prediction scale. Second, 303 urban residents from 6 provinces and cities in China (including Beijing, Liaoning, Shanxi, Hubei, Hebei and Guangdong) were selected to carry out item analysis (including frequency analysis, correlation method, discrimination index method) and exploratory factor analysis of the prediction scale, and the questionnaire items were screened (N_{PS} = 59 items, $N_{PS\ events}$ = 60 items). Finally, 312 urban residents from 6 provinces and cities in China (Beijing, Shanxi, Hebei, Hubei, Liaoning and Hunan) were selected to carry out confirmatory factor analysis on the items of the scale, and the reliability and validity of the scale were calculated to form a formal scale of PS and PS events (N_{PS} = 36 items, $N_{PS\ events}$ = 60 items) (Ning, 2011; Yang, 2016). PS events are collectively referred to below as life events.

PS scale consists of seven factors: sense of common security (describes positive and optimistic conditions, such as warmth, happiness, satisfaction), sense of certainty (such as self-confidence, calmness, sense of control, concentration/engagement), normal physiological function (describes various physiological manifestations of security, such as smooth breathing, stable heartbeat, physical health), sense of peace (refers to an individual reaching a state of peace and calm, mostly thinking activities, such as peace, calm, comfort), sense of trust (refers to the sense of trust in interpersonal communication, such as trust, helpfulness, sharing), sense of relaxation (refers to various leisure activities with less thinking and less exercise to achieve a purpose of catharsis and relaxation, such as shopping, singing), sense of excitement (that is encourage individuals to engage in various communications and activities, such as excitement, talkative). The scale consists of 36 items. The items were measured on a 5-point Likert scale ranging from 1(not at all like me) to 5(very much like me). The Cronbach's alpha for the scale was 0.934. The construct validity of the scale was very well (χ^2/df = 4.19, NFI = 0.96, RFI = 0.95, IFI = 0.97, CFI = 0.97, RMSEA = 0.070). At the same time, the scale also had good test-retest reliability and criterion validity (Ning, 2011).

PS events scale consists of 7 different types of life events: RLA (such as watching TV/movies, shopping, vacation), SSSS (such as sound social warning mechanism, the basic livelihood is guaranteed), PHE (such as own physical health, children's physical health, own a house), HFR (such as mutual trust between family members, family care, family harmony), FWLS (such as work with high efficiency, suitable working environment, clear career goals), SEO (such as good social order, affluent economy, stable income), RSO (such as gain recognition, friend's care, love and help events). The scale consists of 60 items. The items were measured on a 5-point Likert scale ranging from 1(not feel secure) to 5(feel very secure). The Cronbach's alpha for the scale was 0.954. The construct validity of the scale was very well (χ^2/df = 2.33, NFI = 0.91, RFI = 0.91, IFI = 0.95, CFI = 0.95, RMSEA = 0.068). At the same time, the scale also had good test-retest reliability and criterion validity (Ning, 2011).

Data analysis

MRA is the traditional mainstream quantitative research method in social science research at present. Based on the operation principle of elementary algebra, the basic logic of MRA is to find out whether the influence of independent variables on dependent variables are significant in a large sample study (Mao & Xu, 2018). MRA usually assumes that multiple condition variables act independently of each other, and assumes that there is a symmetric relationship between independent and dependent variables, that is, the high (/low) value of independent variables corresponds to the high (/low) value of dependent variables (Woodside, 2013). In addition, generalizable solutions can also be provided (Gligor & Bozkurt, 2020). However, MRA may be threatened by multicollinearity when dealing with multiple independent variables. The relationship between condition and outcome variables changed from significant to insignificant due to the influence of other variables in the model (Woodside, 2013). Non-linear and asymmetry between variables cannot be explained, that is, in some cases, the high value of independent variables corresponds to the low value of dependent variables (Gligor & Bozkurt, 2020). The interdependence and interaction among multiple condition variables are ignored in particular (Du & Jia, 2017).

Based on the principle of Boolean algebra, fsQCA is a new research paradigm that can deal with the set relationship between multiple causes and outcomes at the same time (Du & Jia, 2017). It is a method that combines quantitative mathematical statistics and qualitative case inductions (Mao & Xu, 2018). FsQCA is not only suitable for small and medium samples (5–60) but also for large samples (> 100) (Ragin, 2008; Shan, 2019). Not threatened by multicollinearity among condition variables (Gligor & Bozkurt, 2020). Conjunctural causation (cause conditions are combined in different ways to produce different wholes), equifinality (multiple paths can produce a same result) and asymmetry (the reason for a specific result being high or low is different) between variables are the focus of research (Rihoux & Ragin, 2009). Especially, the combination problem of interdependence and interaction between conditions can be solved (Rihoux & Ragin, 2009). However, the research process of fsQCA is opaque (Zhang & Du, 2019). Time sequences and dynamic combinatorial evolution have not been discussed in depth (Zhang & Du, 2019), generalizable solutions cannot be provided (Gligor & Bozkurt, 2020).

Although there are some significant differences between MRA and fsQCA, this difference does not lead to mutual exclusion and drift away between the two, but provides an opportunity for mutual integration (Fiss et al., 2013). For example, (1) MRA has advantages in a large sample research, while depth and effective statistical interpretation cannot be obtained in small and medium-sized samples. FsQCA can be applied in both small-medium sized samples and large samples. (2) MRA may be threatened by multicollinearity between condition variables, resulting in wrong estimates between variables, while fsQCA was not threatened by multicollinearity, and can deeply explore the relationship between condition variables and outcome variables. (3) MRA pays attention to the influence of multiple condition variables on outcome variables while considers

that the conditions are independent of each other, which is inconsistent with the diversity and complexity of social phenomena (that is, outcomes are influenced by a combination of factors). FsQCA focuses on the influence of the interaction of multiple condition variables on the outcome variable, and the combination of multiple condition variables is equivalent. (4) The linear and symmetrical relationship between variables can be revealed by MRA, while the complexity in real life cannot be explained, that is asymmetry between variables. The asymmetric relationship between cause conditions and outcome variables can be analyzed by fsQCA. (5) Specific cases can be explained through fsQCA, while the results of the study are also subject to the selected cases, so the results are not universal. Instead, generalizable solutions can be provided through MRA. It can be seen that the combination of MRA and fsQCA can not only reveal the correlation between variables and the internal connection between data but also deeply explore the combination of conditions affecting complex social phenomena (Mao & Xu, 2018). At present, the combination of MRA and fsQCA have also been applied to many research topics, such as customer engagement (Gligor & Bozkurt, 2020), adolescents' attitudes towards diversity (Guasp-Coll et al., 2021), users' health information literacy (Fu et al., 2021), and brand sabotage behavior (Peng et al., 2022). However, few scholars have applied the combination of MRA and fsQCA to the research on the PS of enterprise employees. Therefore, we combined MRA and fsQCA to explore the types and combinations of life events that can effectively enhance employees' PS during the COVID-19 pandemic. The specific steps are as follows:

In this article, SPSS 24.0, Mplus 8.0 and fsQCA 3.0 were used for data processing and analysis. First, SPSS and Mplus were used to test the reliability, validity, common method bias and multicollinearity of each variable of enterprise employees. Second, SPSS was used to carry out descriptive statistics and Pearson product-moment correlation analysis on the variables of enterprise employees. Next, SPSS was used for MRA to explore typical life events that affect PS of enterprise employees. Finally, fsQCA was used for data calibration, necessary condition analysis, and sufficient condition combination analysis. In the sufficiency analysis, according to QCA convention, the case frequency threshold was set to 1 to retain at least 75%~80% of the samples (Ragin, 2008), the original consistency threshold was set to 0.8 (Ragin, 2006), and the PRI consistency threshold was set to 0.75 so as to obtain an effective combination of life events that affect PS of employees. At the same time, the consistency threshold was adjusted to test the robustness of case samples.

Results

Reliability, validity, common method bias and multicollinearity test

Reliability analysis was used to test the reliability. The results show that the Cronbach's alpha of the PS was 0.940, and the Cronbach's alpha of the life events was 0.953. Among different types of life events, the Cronbach's alpha of the RLA was 0.891, the Cronbach's alpha of the SSSS was 0.861, the Cronbach's alpha of the PHE was 0.862, the Cronbach's alpha of the HFR was 0.829, the Cronbach's alpha of the FWLS was 0.832, the Cronbach's alpha of the SEO was 0.734, and the Cronbach's alpha of the RSO was 0.743. Exploratory factor analysis and confirmatory factor analysis were used to test the validity. The results show that KMO value of PS scale was 0.951, Bartlett's test of sphericity was significant ($p < 0.001$), the total variance explained was 55.831%, and the standardized factor loading was 0.50–0.81. The KMO value of life events scale was 0.955, Bartlett's test of sphericity was significant ($p < 0.001$), the total variance explained was 55.317%, and the standardized factor loading was 0.40–0.81. The fitting of the seven-factor model of PS ($\chi^2/df = 3.173$, $p < 0.001$, RMSEA = 0.045, CFI = 0.896, TLI = 0.885, SRMR = 0.050) and the seven-factor model of life events ($\chi^2/df = 3.053$, $p < 0.001$, RMSEA = 0.043, CFI = 0.838, TLI = 0.830, SRMR = 0.064) were general. Therefore, the modified index reported by the software was used to modify the model (Feng et al., 2014). The fitting effect of the modified PS data ($\chi^2/df = 2.621$, $p < 0.001$, RMSEA = 0.038, CFI = 0.927, TLI = 0.918, SRMR = 0.043) and life events data ($\chi^2/df = 2.491$, $p < 0.001$, RMSEA = 0.036, CFI = 0.890, TLI = 0.883, SRMR = 0.060) were good. The above results showed that the scales have good reliability and validity, and can be used as psychometric tools. Harman's single-factor test was used to test the common method bias. The results show that the variance interpretation percentage of the first common factor was 25.020%, which was lower than the critical standard of 40%, indicating that there was no serious common method deviation. Collinearity diagnosis was used for multicollinearity test. The results show that the tolerance of all condition variables was much greater than 0.1 (0.319 ~ 0.511), and the variance inflation factor was much less than 10 (1.956 ~ 3.132), indicating that all condition variables were independent of each other and there was no multicollinearity problem.

Table 1 Descriptive Statistics and Variable Intercorrelations

Variables	M	SD	1	2	3	4	5	6	7	8
1. RLA	3.307	0.687	—							
2. SSSS	3.954	0.580	0.455***	—						
3. PHE	4.168	0.641	0.221***	0.708***	—					
4. HFR	4.315	0.567	0.315***	0.609***	0.715***	—				
5. FWLS	3.794	0.617	0.651***	0.686***	0.509***	0.495***	—			
6. SEO	3.795	0.768	0.251***	0.623***	0.627***	0.467***	0.513***	—		
7. RSO	3.730	0.658	0.615***	0.615***	0.474***	0.472***	0.732***	0.509***	—	
8. PS	3.529	0.598	0.605***	0.525***	0.437***	0.486***	0.599***	0.461***	0.619***	—

Note. M = Mean; SD = Standard Deviation; RLA = Rich Leisure Activities; SSSS = Sound Social Security System; PHE = Peace and Health Events; HFR = Harmonious Family Relationship; FWLS = Fulfilling Work/life Status; SEO = Stable Economic Order; RSO = Recognition and Support from Others; PS = Psychological Security

N = 764, ***p < 0.001

Table 2 Results of Multiple Linear Regression Analysis

Variables	(Unstandardized) β	(Unstandardized) SE	(Standardized) β	t	p-value
RLA	0.310	0.031	0.356	10.002	0.000
SSSS	-0.020	0.045	-0.020	-0.448	0.654
PHE	0.028	0.041	0.030	0.678	0.498
HFR	0.179	0.039	0.170	4.580	0.000
FWLS	0.055	0.043	0.057	1.289	0.198
SEO	0.122	0.027	0.156	4.479	0.000
RSO	0.179	0.036	0.197	4.923	0.000

Note. RLA = Rich Leisure Activities; SSSS = Sound Social Security System; PHE = Peace and Health Events; HFR = Harmonious Family Relationship; FWLS = Fulfilling Work/life Status; SEO = Stable Economic Order; RSO = Recognition and Support from Others

N = 764

Descriptive statistics and intercorrelations among variables

Table 1 shows that the means, standard deviations and correlation coefficient of each variable. It can be seen from Table 1 that RLA, SSSS, PHE, HFR, FWLS, SEO, RSO and PS were all positively correlated, which can lay a foundation for subsequent MRA.

MRA results

A predictive analysis of the effect of different types of life events (RLA, SSSS, PHE, HFR, FWLS, SEO, and RSO) on PS was carried out using multiple linear regression. It can be seen from Table 2 that RLA, HFR, SEO, and RSO were significantly positively correlated with PS, while SSSS, PHE, FWLS were not significantly related to PS, which indicates that RLA, HFR, SEO, and RSO are typical events that affects PS of enterprise employees during the COVID-19 pandemic. Thus, H1, H4, H6 and H7 are supported. H2, H3 and H5 are not supported. However, events do not always play a single role. Different types of events will depend on and interact with each other, then affect PS of employees. Therefore, fsQCA was used to examine the combination of different types of life events that affect PS of enterprise employees during the pandemic.

FsQCA results

Data calibration

In this article, 8 regions of China (Shandong, Henan, Hunan, Guangdong, Shaanxi, Hubei, Beijing, and Jiangsu) during the COVID-19 pandemic were selected as cases. RLA, SSSS, PHE, HFR, FWLS, SEO, and RSO were used as condition variables, and PS was used as an outcome variable. Since fsQCA can only analyze fuzzy-set value (Vis & Dul, 2018), the case data needs to be calibrated before performing fsQCA to satisfy Boolean logic. Calibration methods includes direct assignment, direct calibration, and indirect calibration (Ragin, 2008). The method of direct calibration is the most commonly used method among them. It uses the logistic function calibrate (x, n1, n2, n3) to calibrate the raw data according to three qualitative breakpoints (full nonmembership (0), cross-over point (0.5), and full membership (1)) (Zhang & Du, 2019). The three qualitative breakpoints need to be determined by researchers based on past experiences, theoretical knowledges, data characteristics, and research contexts (Rihoux & Ragin, 2009). Therefore, based on previous studies (Coduras et al., 2016), three qualitative breakpoints were determined according to the median, upper and lower quartiles of the case data to calibrate variables. After calibration, the degree of membership of cases in sets was between 0 and 1. Table 3 shows the calibration anchor and calibrated fuzzy value of each variable in the case.

Necessary conditions

Condition variables with consistency greater than 0.9 can be regarded as necessary conditions for outcome variables

Table 3 Calibration Anchor and Calibrated Fuzzy Value of Each Variable

	RLA	SSSS	PHE	HFR	FWLS	SEO	RSO	PS
Full nonmembership	3.277	3.923	4.101	4.252	3.742	3.783	3.712	3.501
Cross-over point	3.332	3.946	4.132	4.304	3.807	3.802	3.730	3.514
Full membership	3.345	3.969	4.200	4.330	3.830	3.817	3.753	3.538
calibrated fuzzy								
Shandong	0.08	0.83	0.02	0.43	0.05	0.00	0.00	0.00
Henan	0.01	0.99	1.00	1.00	0.42	0.13	0.00	0.90
Hunan	0.99	0.92	0.70	0.64	0.99	0.94	0.92	0.99
Guangdong	0.93	1.00	0.97	1.00	1.00	0.9	0.99	0.09
Shaanxi	0.00	0.01	0.15	0.03	0.74	0.09	0.30	0.06
Hubei	1.00	0.07	0.07	0.76	0.03	0.01	0.66	0.02
Beijing	0.499	0.00	0.02	0.03	0.02	0.97	0.14	0.75

Note. RLA = Rich Leisure Activities; SSSS = Sound Social Security System; PHE = Peace and Health Events; HFR = Harmonious Family Relationship; FWLS = Fulfilling Work/life Status; SEO = Stable Economic Order; RSO = Recognition and Support from Others; PS = Psychological Security

Table 4 Results of Necessary Condition Analysis

	PS		~PS	
Conditions	Cons	Cov	Cons	Cov
RLA	0.551	0.525	0.535	0.560
~RLA	0.538	0.513	0.547	0.572
SSSS	0.559	0.531	0.461	0.481
~SSSS	0.454	0.434	0.551	0.579
PHE	0.719	0.706	0.305	0.330
~PHE	0.318	0.294	0.728	0.740
HFR	0.465	0.448	0.542	0.575
~HFR	0.559	0.526	0.480	0.496
FWLS	0.659	0.603	0.444	0.447
~FWLS	0.396	0.393	0.606	0.661
SEO	0.782	0.738	0.325	0.337
~SEO	0.297	0.285	0.747	0.790
RSO	0.585	0.556	0.482	0.504
~RSO	0.478	0.456	0.575	0.604

Note. RLA = Rich Leisure Activities; SSSS = Sound Social Security System; PHE = Peace and Health Events; HFR = Harmonious Family Relationship; FWLS = Fulfilling Work/life Status; SEO = Stable Economic Order; RSO = Recognition and Support from Others; PS = Psychological Security; Cons = Consistency; Cov = Coverage; ~ = absence of condition (/non-high levels)

(Ragin, 2008). According to the necessary conditions test can be found in Table 4, none of the antecedent conditions could be considered necessary for outcome variable. In other words, the ability of condition variables to independently explain outcome variable was weak. Therefore, it is necessary to carry out a sufficiency analysis for these condition variables to find out the combination of different types of events that lead to employees' high PS versus not.

Sufficient conditions

In the sufficiency analysis, the results of three condition combinations (complex solution, intermediate solution and parsimonious solution) can be obtained. Owing to the cause conditions can be divided into core conditions (the co-occurrence of elements in the intermediate solution and parsimonious solution) and edge conditions (elements that occur only in the intermediate solution and can be replaced), the combination of events can be obtained by combining and analyzing the intermediate solution and parsimonious solution (see Table 5). Furthermore, fsQCA also has asymmetry characteristics. For example, the combination of antecedents that lead to high or low levels of outcomes are not quite the opposite. Therefore, the combination of antecedents of non-high PS was also further analyzed. It can be seen from Table 5 that there are 3 event combinations (A1-A3) that result in high PS, and 3 event combinations that result in non-high PS (NA1-NA3). The consistency of each combination was higher than the acceptable standard of 0.8, and the overall consistency of the solutions were 0.971 and 1.000, respectively, indicating that the results have certain explanatory power. The overall coverage of the solutions was 0.436 and 0.470, respectively, indicating that the condition combinations can explain the case to a large extent (43.6% and 47%). Each event combination was analyzed in detail below.

A combination of events with high PS. Combination A1 points out that ~RLA and SEO are core conditions, and ~SSSS, ~PHE, ~HFR, ~FWLS and ~RSO are edge conditions. The combination shows that in areas lacking RLA, SSSS, PHE, HFR, FWLS and RSO, the government/enterprise departments can promote employees' high PS by maintaining SEO. We summarize it as a SEO-driven. Combination A2 points out that ~RLA and PHE are core conditions, and SSSS, HFR, ~FWLS, ~SEO and ~RSO are edge conditions. The combination indicates that in areas lacking RLA, FWLS, SEO and RSO, the government/enterprise departments can promote employees' high PS by providing SSSS, PHE and HFR. We summarize it as a PHE-driven. Combination A3 points out that ~RLA, PHE and

Table 5 Results of Sufficiency Analysis

	PS			~PS		
Conditions	A1	A2	A3	NA1	NA2	NA3
RLA	◊	◊	◊	○	○	△
SSSS	○	△	○	△	○	○
PHE	○	●	●	◊	◊	◊
HFR	○	△	○	○	○	△
FWLS	○	○	△	○	△	○
SEO	●	○	●	◊	◊	◊
RSO	○	○	△	○	○	△
Consistency	0.950	0.968	0.952	1.000	1.000	1.000
Raw coverage	0.150	0.157	0.157	0.141	0.186	0.167
Unique coverage	0.126	0.152	0.134	0.124	0.165	0.160
Solution consistency	0.971			1.000		
Solution coverage	0.436			0.470		

Notes. RLA = Rich Leisure Activities; SSSS = Sound Social Security System; PHE = Peace and Health Events; HFR = Harmonious Family Relationship; FWLS = Fulfilling Work/life Status; SEO = Stable Economic Order; RSO = Recognition and Support from Others; PS = Psychological Security;●=presence of condition(/high levels) and core condition; △=presence of condition(/high levels) and edge condition; ◊=absence of condition(/low levels) and core condition; ○=absence of condition(/low levels) and edge condition; ~ = absence of condition (/non-high levels)

SEO are core conditions, and ~SSSS, ~HFR, FWLS and RSO are edge conditions. The combination indicates that in areas lacking RLA, SSSS, HFR, the government/enterprise departments can promote employees' high PS by providing PHE, FWLS, SEO and RSO. We summarize it as a PHE and SEO dual-driven. H8 is supported.

Furthermore, drawing on the research of Tan et al. (2019), we identified each event combination and the potential substitution relationship of each event via comparing the similarities and differences of event combination and each event. For example, by comparing combination A1 and A3, we found that in areas lacking RLA but having SEO, the presence or absence of PHE, FWLS, and RSO can both promote high PS of enterprise employees, revealing the important role of SEO in improving PS of employees. By comparing combination A2 and A3, we found that in areas lacking RLA but having PHE, the combination of SSSS and HFR can be substituted with the combination of FWLS, SEO and RSO to promote PS of enterprise employees, revealing the important role of PHE in improving PS of employees.

A combination of events with non-high PS. Combination NA1, NA2 and NA3 both indicates that ~PHE and ~SEO are core conditions. Among them, combination NA1 shows that in areas lacking RLA, PHE, HFR, FWLS, SEO, and RSO, the PS of enterprise employees cannot be improved even if they have SSSS. Combination NA2 shows that in areas lacking RLA, SSSS, PHE, HFR, SEO, and RSO, the PS of enterprise employees cannot be improved even if they have FWLS. Combination NA3 shows that in areas lacking SSSS, PHE, FWLS and SEO, the PS of enterprise employees cannot be improved even if they have RLA, HFR and RSO. It can be seen that the absence of PHE and SEO, whether other life events exist or not, will lead to non-high PS of enterprise employees.

Robustness test

The consistency threshold was increased from 0.80 to 0.85 to test the robustness of fsQCA results. The results indicate that the complex solution, intermediate solution and parsimonious solution have not changed, which proves that the fsQCA results are robust.

Discussion

This study combined MRA and fsQCA to explore the types and combinations of life events that can effectively improve PS of enterprise employees during the COVID-19 pandemic. The findings support hypotheses.

The results from MRA suggest that RLA, HFR, SEO, and RSO are typical types of events that affect PS of employees during the COVID-19 pandemic. These results seem to be in line with previous studies. For example, leisure activities, such as video gaming, TV series watching, surfing the internet, and doing sports are often used to alleviate depression, anxiety and to improve emotional level during the COVID-19 pandemic (Király et al., 2020). Families are safe havens (Germani et al., 2020). Bonds and beliefs between family members can create a sense of security and hope (Prime et al., 2020). As social creatures, people also need constant interaction and mutual recognition (Zhao & Wu, 2021). Huang and Xu (2021) note that neighborhood interaction and trust can enhance the sense of belonging and security. On the contrary, individuals who are socially restricted due to the impact of lockdown measures lack social support, feel lonely and irritable (Khudaykulov et al., 2022). In addition, stable income sources (Bilkis et al., 2020) and improvement of regional security conditions (Yin, 2020) can also enhance

PS to a certain extent. Economic uncertainty, on the other hand, is detrimental to mental health, leading to emotional exhaustion and psychological stress (Godinic et al., 2020).

The results from fsQCA suggest that three event combinations of SEO-driven, PHE-driven and PHE and SEO dual-driven can promote employees' high PS during the pandemic. At the same time, the absence of PHE and SEO, regardless of whether other life events exist or not, will lead to non-high levels of PS of enterprise employees. This paper argues that the importance of PHE and SEO is that in the face of the devastating disease, safe and healthy is not only the bottom line of the people's sense of happiness but also the fundamental guarantee to improve people's sense of security. Jiang and Dong (2021) also note that peace is the basic requirement for people's happiness and health while the basis for ensuring people's sense of security. According to Maslow's hierarchy of needs theory, high salary and incentive reward will meet the basic physiological needs of employees, and then drive employees to seek the satisfaction of safety needs. At this time, the stability of work and the improvement of working and living conditions will further enhance employees' PS (He, 2014). Therefore, PHE and SEO have a prominent role in enhancing PS of enterprise employees compared with other life events during the COVID-19 pandemic. In addition, the above results also confirm that fsQCA has combinatorial equivalence (multiple paths can produce the same result) and the interdependence between cause conditions (different conditions depend on each other to produce results) (Lacey & Fiss, 2009). This article also proves that the results of fsQCA are asymmetrical. For example, the antecedent condition of non-high PS is the absence of RLA, while having RLA may not necessarily lead to high PS. SEO plays a core role in combination A1 and combination A3, while plays opposite role in combination A2.

When comparing the results of MRA and fsQCA, both MRA and fsQCA found that SEO is an important event to improve PS of enterprise employees. However, the results of MRA and fsQCA are also inconsistent. For example, (1) MRA results suggest a significant positive relationship between RLA and PS, while fsQCA results indicate low levels of leisure activities can also lead to high PS of enterprise employees. (2) MRA results note that the relationship between SSSS and PS of employees is not significant. FsQCA results show that SSSS lead to high levels of PS in the case of combination A2. Interestingly, the absence of SSSS will also promote high levels of PS in the cases of combination A1 and A3. (3) MRA results show that the relationship between PHE and PS of employees is not significant. FsQCA results note that PHE result in high levels of PS in the cases of combination A2 and A3, and PHE are the core events. The absence of PHE will also promote high levels of PS in the case of combination A1. (4) MRA results indicate a significant positive relationship between HFR and PS of employees. FsQCA results show that HFR can promote high levels of PS in the case of combination A2. The absence of HFR will also promote high levels of PS in the cases of combination A1 and A3. (5) MRA results note that the relationship between FWLS and PS of employees is not significant. FsQCA results show that FWLS lead to high levels of PS in the case of combination A3. The absence of FWLS will also promote high levels of PS in the cases of combination A1 and A2. (6) MRA results indicate a significant positive relationship between RSO and PS of employees. FsQCA results show that RSO can promote high levels of PS in the case of combination A3. The absence of RSO will also promote high levels of PS in the cases of combination A1 and A2.

The comparison of the two sets of results reveals that MRA can identify the possible relationship between variables, while it fails to explain the complexities that exist in real life and provide a comprehensive explanation of the relationship between variables. For example, the interdependence between condition variables, the asymmetry between condition variables and outcome variables. However, fsQCA can make up for these limitations. The comparison of results also echoes the viewpoint of complexity theory that the relationship between variables may be non-linear in a particular situation, that is, the same antecedent condition may have different effects on the outcome variable (Gligor & Bozkurt, 2020; Urry, 2005). Ordanini et al. (2014) also argue that the outcomes of interest rarely come from a single cause condition, cause conditions rarely function in isolation from each other, and the same condition can produce different or even opposite outcomes depending on the context. In addition, although fsQCA can provide complex and detailed solution, the universality of these solution is weak, while MRA can provide generalizable outcomes, since the generalizable outcomes often depends on contingent factors (Gligor & Bozkurt, 2020). The two approaches can complement each other. Therefore, the combination of MRA and fsQCA in this study can avoid the omission of factors that trigger high PS of enterprise employees, and ensure the comprehensiveness and accuracy of the results. This study also responds to a suggestion of combining regression analysis and QCA advocated by previous scholars (Gligor & Bozkurt, 2020; Zhang & Du, 2019), and broadens the analysis framework of the relationship between variables.

Aside from its methodological contributions, this article also helps to enrich and expand the existing research on PS. Previous studies have mostly examined the effect of single life event on PS, while few have explored the role of multiple event combinations. This article deeply analyzes and discusses the combination of various events affecting

PS, and finds that some condition variables are not always necessary to affect PS. For example, in a study of single event, RLA have positive effect on PS, while in a study of event combination, the absence of RLA can also promote high PS. It is mainly because of the absence of RLA can be made up by maintaining SEO, by providing a combination of SSSS, PHE and HFR or by providing a combination of PHE, FWLS, SEO, and RSO. Therefore, this article has important theoretical significance for revealing the complex mechanism of high PS.

The results of this article can also provide valuable guidance for government and enterprise managers. Improving employees' PS during the pandemic does not need to invest limited resources to meet all conditions at the same time from the perspective of resource allocation (RLA, SSSS, PHE, HFR, FWLS, SEO, and RSO). On the contrary, different combinations and substitutions of the above conditions can result in high levels of PS of enterprise employees. We suggest that government and enterprise managers can invest resources in a targeted and selective manner. Specifically, in the areas affected by the pandemic, many indoor places of entertainment are suspended, and team building activities/ leisure activities within the enterprise can be changed from offline to online, giving full play to the advantages of information technology in the era of big data. Employees should be encouraged to exercise at home to improve their own immunity, and should be advocated to learn new skills in their leisure time to enrich their leisure lives. For small and medium-sized enterprises forced to shut down due to the pandemic, the government should gradually improve employment security by providing rent concessions, increasing enterprise credit aid, providing online vocational training subsidies and free nucleic acid tests and so on. The mental health service system should be improved to strengthen the guidance of mental health service for enterprise employees, cultivate good emotional regulation ability of enterprise employees, and then get rid of sub-health state. Government departments should broaden the social appeal channels, care for epidemic prevention workers, and do a good job in the care and service security work of the family members fighting the pandemic to promote family harmony and happiness. Neighborhood support and assistance should be encouraged to make people feel recognition and support. Flexible employment should be promoted, and innovative and diversified employment models such as citizen journalism, electronic commerce, online education should be encouraged. Effectively safeguard the legitimate rights and interests of employees, such as stabilizing employees' income, ensuring employees' social insurance payment, and promoting the establishment of a long-term mechanism for paired assistance to employees who have returned to poverty due to the pandemic. Multi-level targeted approach to epidemic prevention and control, and resume production in an orderly manner.

However, this study also has some limitations, and the following directions for further research are proposed. First, this article only considers the combination of MRA and fsQCA. Future research can combine other methods and fsQCA, such as necessary condition analysis, grounded theory, and simulation to gain a more comprehensive and accurate understanding of the relationship between variables. Second, only the positive events experienced during the pandemic are selected, while various life events may be experienced during the pandemic, such as work-related stress events, disharmony interpersonal relations, work-family imbalances and other negative events. Future research can combine events of different natures (positive and negative) to explore the types and combinations of life events that affect PS of enterprise employees so as to obtain more accurate conclusions. Third, limited by the research time, energy and cost, the cases in this paper are selected from different provinces and cities in China that were experiencing the novel coronavirus and not experiencing the novel coronavirus during the COVID-19 pandemic. Although the case selection requirements can be met (Shan, 2019; Zhang & Du, 2019), whether the research results are applicable to more regions outside this paper needs to be further tested. Future research can broaden the regional sources of case samples, select multielement cases, and conduct cross-cultural research to enhance the external validity of the research results. Finally, this study only examines the types and combinations of events that affect PS from a static perspective, and lacks the consideration of the dynamic changes. Future research can collect data at different time periods. Hierarchical linear model, linear growth QCA/ multi-period and multi-linear growth QCA (Du et al., 2021) can be used to investigate whether the types and combinations of events that affect PS can change dynamically over time so as to strengthen the interpretation of research results in the diachronic dimension.

Conclusion

In this paper, MRA and fsQCA were used to explore the types and combinations of events affecting the PS of enterprise employees during the COVID-19 pandemic. The following conclusions are set forth: RLA, HFR, SEO and RSO are important events to improve employees' PS during the pandemic. Three combinations can result in high PS of enterprise employees, including SEO-driven, PHE-driven, and PHE and SEO dual-driven. Different combinations have the same effect and can be replaced with each other to improve PS. Three combinations will lead to non-high PS

of enterprise employees, all of which present the adverse consequences of the absence of PHE and SEO.

Acknowledgements The authors thank all study participants.

Authors' contributions (Optional: Please Review the Submission Guidelines from the Journal whether Statements Are Mandatory) All authors contributed to the study conception and design. Material preparation, data collection and analysis were performed by Yu Gao and Haiyan Liu. The first draft of the manuscript was written by Yu Gao and all authors commented on previous versions of the manuscript. All authors have read and approved the final manuscript.

Funding (Information that Explains whether and by Whom the Research Was Supported) This work was supported by National Natural Science Foundation of China (Grant numbers 71,673,256).

Data Availability The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Code Availability (Software Application or Custom Code) Not applicable.

Declaration

Conflicts of Interest/Competing interests (Include Appropriate Disclosures) The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Consent to participate (Include Appropriate Statements) Informed consent was obtained from all individual participants included in the study.

Consent for publication (Include Appropriate Statements) All participants allowed the use of the data obtained for scientific purposes such as disclosure or publication, provided their anonymity was preserved. The data were properly safeguarded at all times.

References

Alyahya, M. A., Elshaer, I. A., & Sobaih, A. E. E. (2022). The impact of job insecurity and distributive injustice post COVID-19 on social loafing behavior among hotel workers: Mediating role of turnover intention. *International Journal of Environmental Research and Public Health*, *19*(1), 411. https://doi.org/10.3390/ijerph19010411

Bilkis, M. S., Islam, M., Zaman, F., Zinia, S. N., & Rahman, M. (2020). Lifestyle and depression in urban elderly of selected district of bangladesh. *Mymensingh Medical Journal: MMJ*, *29*(1), 177–182

Brown, G. W., Adler, Z., & Bifulco, A. (1988). Life events and chronic depression. *British Journal of Psychiatry*, *152*(4), 487–498. https://doi.org/10.1192/bjp.152.4.487

Chen, L., Xu, J. X., Zhang, W. Z., Xie, Y. Y., Dang, Y. X., & Zhan, D. S. (2021). Residents' sense of urban public security and community environment:Analysis based on a large-scale questionnaire survey of Beijing. *Acta Geographica Sinica*, *76*(8), 1939–1950. https://doi.org/10.11821/dlxb202108009

Chen, S. S., Ye, G. Q., Chen, W. J., Li, Q., Xia, C. Y., Xiang, P., & Zou, D. L. (2006). Preliminary development of college students' sense of security scale. *Chinese Journal of Behavioral Medicine Science*, *15*(12), 1142–1143. https://doi.org/10.3760/cma.j.issn.1674-6554.2006.12.040

Cobb, S. (1976). Social support as a moderator of life stress. *Psychosomatic Medicine*, *38*(5), 300–314. https://doi.org/10.1097/00006842-197609000-00003

Coduras, A., Clemente, J. A., & Ruiz, J. (2016). A novel application of fuzzy-set qualitative comparative analysis to gem data. *Journal of Business Research*, *69*(4), 1265–1270. https://doi.org/10.1016/j.jbusres.2015.10.090

Cong, Z., & An, L. J. (2004). Developing of security questionnaire and its reliability and validity. *Chinese Mental Health Journal*, *18*(2), 97–99. https://doi.org/10.3321/j.issn:1000-6729.2004.02.010

Cui, D. G., Qiu, F., Qiu, F. B., Tang, X. Q., Liu, J., Zhu, X. X., & Li, Z. H. (2021). Mental health, quality of life and well-being of recreational physical activity for adults using ICF:A systematic review. *Chinese Journal of Rehabilitation Theory and Practice*, *27*(9), 1038–1047. https://doi.org/10.3969/j.issn.1006-9771.2021.09.007

Du, Y. Z., & Jia, L. D. (2017). Configuration perspective and qualitative comparative analysis (QCA): A new way of management research. *Management World*, *(6)*, 155–167. https://doi.org/10.19744/j.cnki.11-1235/f.2017.06.012

Du, Y. Z., Li, J. X., Liu, Q. C., Zhao, S. T., & Chen, K. W. (2021). Configurational theory and QCA method from a complex dynamic perspective: Research progress and future directions. *Management World*, *37*(3), 180–197. https://doi.org/10.3969/j.issn.1002-5502.2021.03.012

Dubey, S., Biswas, P., Ghosh, R., Chatterjee, S., Dubey, M. J., Chatterjee, S., Lahiri, D., & Lavie, C. J. (2020). Psychosocial impact of COVID-19. *Diabetes & Metabolic Syndrome*, *14*(5), 779–788. https://doi.org/10.1016/j.dsx.2020.05.035

Feng, D., Ji, L., & Yin, Z. (2014). Personality, perceived occupational stressor, and health-related quality of life among chinese judges. *Applied Research in Quality of Life*, *9*(4), 911–921. https://doi.org/10.1007/s11482-013-9277-z

Fiss, P. C., Sharapov, D., & Cronqvist, L. (2013). Opposites attract? Opportunities and challenges for integrating large-N QCA and econometric analysis. *Political Research Quarterly*, *66*(1), 191–198. https://doi.org/10.1177/1065912912468269e

Fu, S., Chen, X., Zheng, H., & Ou, M. (2021). Understanding health information literacy of mhealth app users from digital wellbeing perspective: Evidence from regression analysis and fsQCA. *Library & Information Science Research*, *43*(3), 101108. https://doi.org/10.1016/j.lisr.2021.101108

Gao, Y., & Liu, H. Y. (2021). How supervisor-subordinate guanxi influence employee innovative behavior: A moderated mediation model. *Psychology Research and Behavior Management*, *14*, 2001–2014. https://doi.org/10.2147/PRBM.S342875

Gao, Y., Liu, H. Y., & Sun, Y. C. (2022). Understanding the link between work-related and non-work-related supervisor–subordinate relationships and affective commitment: The mediating and moderating roles of psychological safety. *Psychology Research and Behavior Management*, *15*, 1649–1663. https://doi.org/10.2147/PRBM.S367282

Germani, A., Buratta, L., Delvecchio, E., & Mazzeschi, C. (2020). Emerging adults and COVID-19: The role of individualism-collectivism on perceived risks and psychological maladjustment. *International Journal of Environmental Research and Public Health*, *17*(10), 3497. https://doi.org/10.3390/ijerph17103497

Gligor, D., & Bozkurt, S. (2020). FsQCA versus regression: The context of customer engagement. *Journal of Retailing and*

Consumer Services, *52*, 101929. https://doi.org/10.1016/j.jretconser.2019.101929

Godinic, D., Obrenovic, B., & Khudaykulov, A. (2020). Effects of economic uncertainty on mental health in the COVID-19 pandemic context: Social identity disturbance, job uncertainty and psychological well-being model. *International Journal of Innovation and Economic Development*, *6*(1), 61–74. https://doi.org/10.18775/ijied.1849-7551-7020.2015.61.2005

Guasp-Coll, M., Navarro-Mateu, D., Lacomba-Trejo, L., Giménez-Espert, M. del C., & Prado-Gascó, V. J. (2021). Emotional skills in adolescents' attitudes towards diversity: Regression models vs qualitative comparative analysis models. *Current Psychology*. https://doi.org/10.1007/s12144-020-01319-6

Guberina, T., & Wang, A. M. (2021). Entrepreneurial leadership impact on job security and psychological well-being during the COVID-19 pandemic: A conceptual review. *International Journal of Innovation and Economic Development*, *6*(6), 7–18. https://doi.org/10.18775/ijied.1849-7551-7020.2015.66.2001

He, Z. (2014). Discussion on enterprise incentive based on maslow's theory. *Business Economy*, *(1)*, 76–77.

Huang, Q., & Xu, Y. J. (2021). Research on community security perception and residents' well-being. *Shandong Social Science*, *(6)*, 72–79. https://doi.org/10.14112/j.cnki.37-1053/c.2021.06.011

Jiang, C. Z., Xu, Y. X., Zhu, W. X., & Xie, Y. H. (2022). The dilemma and response of persons with disabilities in major public health emergencies: Based on social support theory and the practice of fighting COVID-19 in Hubei province. *Social Security Studies*, *(1)*, 79–86. https://doi.org/10.3969/j.issn.1674-4802.2022.01.008

Jiang, X. P., & Dong, J. M. (2021). The community expression of peaceful China: How to create a high quality sense of security for the people. *The Journal of Shanghai Administration Institute*, *22*(1), 4–12. https://doi.org/10.3969/j.issn.1009-3176.2021.01.001

Khudaykulov, A., Zheng, C. J., Obrenovic, B., Godinic, D., Alsharif, H. Z. H., & Jakhongirov, I. (2022). The fear of COVID-19 and job insecurity impact on depression and anxiety: An empirical study in China in the COVID-19 pandemic aftermath. *Current Psychology*. https://doi.org/10.1007/s12144-022-02883-9

Király, O., Potenza, M. N., Stein, D. J., King, D. L., Hodgins, D. C., Saunders, J. B., Griffiths, M. D., Gjoneska, B., Billieux, J., Brand, M., Abbott, M. W., Chamberlain, S. R., Corazza, O., Burkauskas, J., Sales, C. M. D., Montag, C., Lochner, C., Grünblatt, E., Wegmann, E., & Demetrovics, Z. (2020). Preventing problematic internet use during the COVID-19 pandemic: Consensus guidance. *Comprehensive Psychiatry*, *100*, 152180. https://doi.org/10.1016/j.comppsych.2020.152180

Lacey, R., & Fiss, P. C. (2009). Comparative organizational analysis across multiple levels: A set-theoretic approach. *Research in the Sociology of Organizations*, *26*, 91–116. https://doi.org/10.1108/S0733-558X(2009)0000026006

Liu, Z. W. (2005). Research on the mental health of entrepreneurs in China. *Human Resource Development of China*, *(8)*, 22–26. https://doi.org/10.16471/j.cnki.11-2822/c.2005.08.005

Mandal, M., Jana, S., Nandi, S. K., Khatua, A., Adak, S., & Kar, T. K. (2020). A model based study on the dynamics of COVID-19: Prediction and control. *Chaos Solitons & Fractals*, *136*, 109889. https://doi.org/10.1016/j.chaos.2020.109889

Mao, Q., & Xu, A. J. (2018). A comparative study of qualitative comparative analysis and regression analysis. *Modern Business Trade Industry*, *32*, 222–223. https://doi.org/10.19311/j.cnki.1672-3198.2018.32.112

Mikulincer, M., Florian, V., & Hirschberger, G. (2003). The existential function of close relationships: Introducing death into the science of love. *Personality and Social Psychology Review*, *7*(1), 20–40. https://doi.org/10.1207/S15327957PSPR0701_2

Minuchin, P. (1985). Families and individual development: provocations from the field of family therapy. *Child development*, *56*(2), 289–302. https://doi.org/10.1111/j.1467-8624.1985.tb00106

Montani, F., Leon-Perez, J. M., Giorgi, G., & Shoss, M. K. (2020). Appraisal of economic crisis, psychological distress, and work-unit absenteeism: A 1-1-2 model. *Journal of Business and Psychology*, *35*(5), 609–620. https://doi.org/10.1007/s10869-019-09643-w

Morgeson, F. P., Mitchell, T. R., & Liu, D. (2015). Event system theory: An event-oriented approach to the organizational sciences. *Academy of Management Review*, *40*(4), 515–537. https://doi.org/10.5465/amr.2012.0099

Ning, S. F., & Liu, H. Y. (2011). Characteristic of psychological safety events of Chinese urban residents. In Esa,R (Ed.), *2011 International Conference on Future Computer Science and Application(FCSA 2011),VOL.4* (pp.268–271).

Ning, S. F. (2011). *Research on the characteristic of psychological security of Chinese urban residents in social transformation*. China University of Geosciences (Beijing).

Obrenovic, B., Du, J., Godinic, D., Baslom, M. M. M., & Tsoy, D. (2021). The threat of COVID-19 and job insecurity impact on depression and anxiety: An empirical study in the USA. *Frontiers in Psychology*, *12*, 648572. https://doi.org/10.3389/fpsyg.2021.648572

Ohnishi, M., Tembo, B., Nakao, R., Matsuura, E., & Fujita, W. (2021). Factors associated with self-rated health among mineworkers in zambia: A cross-sectional study. *Tropical Medicine and Health*, *49*(1), 11. https://doi.org/10.1186/s41182-021-00300-8

Ordanini, A., Parasuraman, A., & Rubera, G. (2014). When the recipe is more important than the ingredients. *Journal of Service Research*, *17*(2), 134–149. https://doi.org/10.1177/1094670513513337

Parry, D. C., & Shaw, S. M. (1999). The role of leisure in women's experiences of menopause and mid-life. *Leisure Sciences*, *21*(3), 205–218. https://doi.org/10.1080/014904099273101

Peng, J. M., Yang, X. Y., Guan, X. H., Zhou, L., & Huan, T. C. (2022). Will catering employees' job dissatisfaction lead to brand sabotage behavior? A study based on conservation of resources and complexity theories. *International Journal of Contemporary Hospitality Management*, *34*(5), 1882–1905. https://doi.org/10.1108/IJCHM-09-2021-1109

Pordelan, N., Hosseinian, S., Heydari, H., Khalijian, S., & Khorrami, M. (2021). Consequences of teleworking using the internet among married working women: Educational careers investigation. *Education and Information Technologies*, *27*(3), 4277–4299. https://doi.org/10.1007/s10639-021-10788-6

Potas, N., Açıkalın, Ş. N., Erçetin, Ş. Ş., Koçtürk, N., Neyişci, N., Çevik, M. S., & Görgülü, D. (2022). Technology addiction of adolescents in the COVID-19 era: Mediating effect of attitude on awareness and behavior. *Current Psychology*, *41*(4), 1687–1703. https://doi.org/10.1007/s12144-021-01470-8

Prime, H., Wade, M., & Browne, D. T. (2020). Risk and resilience in family well-being during the COVID-19 pandemic. *American Psychologist*, *75*(5), 631–643. https://doi.org/10.1037/amp0000660

Pyszczynski, T., Greenberg, J., & Solomon, S. (1997). Why do we need what we need? A terror management perspective on the roots of human social motivation. *Psychological Inquiry*, *8*(1), 1–20. https://doi.org/10.1207/s15327965pli0801_1

Ragin, C. C. (2000). *Fuzzy-set social science*. University of Chicago Press.

Ragin, C. C. (2008). *Redisigning social inquiry: Fuzzy sets and beyond*. University of Chicago Press.

Ragin, C. C. (2006). Set relations in social research: Evaluating their consistency and coverage. *Political Analysis*, *14*(3), 291–310. https://doi.org/10.1093/pan/mpj019

Rihoux, B., & Ragin, C. C. (2009). *Configurational comparative methods: Qualitative comparative analysis (QCA) and related techniques*. Sage Publications.

Saáry, R., Csiszárik-Kocsir, Á., & Varga, J. (2021). Examination of the consumers' expectations regarding company's contribution to ontological security. *Sustainability (Switzerland)*, *13*(17), 9987. https://doi.org/10.3390/su13179987

Scandurra, C., Bochicchio, V., Dolce, P., Valerio, P., Muzii, B., & Maldonato, N. M. (2021). Why people were less compliant with public health regulations during the second wave of the COVID-19 outbreak: The role of trust in governmental organizations, future anxiety, fatigue, and COVID-19 risk perception. *Current Psychology*. https://doi.org/10.1007/s12144-021-02059-x

Şener, A., Terzioğlu, R. G., & Karabulut, E. (2007). Life satisfaction and leisure activities during men's retirement: A turkish sample. *Aging & Mental Health*, *11*(1), 30–36. https://doi.org/10.1080/13607860600736349

Shan, S. N. (2019). College marxist education on contemporary college students' innovation and entrepreneurship influence of values: Qualitative comparative analysis(QCA) based on 8 entrepreneurial cases.Research on College Students Affairs, (*2*),17–25.

Shao, Y. X. (2021). Community worker's intervention on home-quarantined people' s psychological adjustment during the COVID-19 pandemic period: From the perspective of social support theory. *Journal of Harbin University*, *42*(1), 60–65. https://doi.org/10.3969/j.issn.1004-5856.2021.01.014

Shen, T. M., & Wang, Y. (2022). Individual characteristics,income level and gender difference in public security risk perception: An empirical study based on 460 communities. *Chinese Public Administration*, *(1)*, 138–146. https://doi.org/10.19735/j.issn.1006-0863.2022.01.19

Slovic, P. (1987). Perception of risk. *Science*, *236*(4799), 280–285. https://doi.org/10.1126/science.3563507

Svetek, M. (2020). The promise of flexicurity: Can employment and income security mitigate the negative effects of job insecurity? *Economic and Industrial Democracy*, 1–30. https://doi.org/10.1177/0143831X20975474

Tan, H. B., Fan, Z. T., & Du, Y. Z. (2019). Technology management capability, attention distribution and local government website construction: A configurational analysis based on the TOE framework. *Management World*, *35*(9), 81–94. https://doi.org/10.19744/j.cnki.11-1235/f.2019.0119

Tang, B. (2010). Loss and reconstruction: The government's satisfaction to public psychological security: A reflection based on public security events. *Jiang-Huai Tribune*, *3*, 153–156. https://doi.org/10.16064/j.cnki.cn34-1003/g0.2010.03.025

Tang, H. B., & Zhou, M. (2014). Relationship between life events, cognitive emotion regulation and resilience in college students. *China Journal of Health Psychology*, *22*(3), 441–443. https://doi.org/10.13342/j.cnki.cjhp.2014.03.054

Tang, J. X., Ren, H. L., Zhou, J. H., & Chen, S. S. (2017). The relationship between mental health and life events of electric power enterprises employees. *Journal of Zhangzhou Teachers College(Natural Science Edition)*, *30*(4), 127–132. https://doi.org/10.16007/j.cnki.issn2095-7122.2017.04.019

Urry, J. (2005). The complexity turn. *Theory Culture & Society*, *22*(5), 1–14. https://doi.org/10.1177/0263276405057188

Vieira dos Santos, J., Gonçalves, S. P., Silva, I. S., Veloso, A., Moura, R., & Brandão, C. (2022). Organizational and job resources on employees' job insecurity during the first wave of COVID-19: The mediating effect of work engagement. *Frontiers in Psychology*, *12*, 733050. https://doi.org/10.3389/fpsyg.2021.733050

Vis, B., & Dul, J. (2018). Analyzing relationships of necessity not just in kind but also in degree: Complementing fsQCA with NCA. *Sociological Methods and Research*, *47*(4), 872–899. https://doi.org/10.1177/0049124115626179

Wang, H., & He, S. L. (2017). Urban security: A survey of the public's sense of security and satisfaction. *National Governance Weekly*, *38*, 16–25. https://doi.org/10.16619/j.cnki.cn10-1264/d.2017.38.002

Wang, J., Long, R., Chen, H., & Li, Q. (2019). Measuring the psychological security of urban residents: Construction and validation of a new scale. *Frontiers in Psychology*, *10*, 2423. https://doi.org/10.3389/fpsyg.2019.02423

Woodside, A. G. (2013). Moving beyond multiple regression analysis to algorithms: Calling for adoption of a paradigm shift from symmetric to asymmetric thinking in data analysis and crafting theory. *Journal of Business Research*, *66*(4), 463–472. https://doi.org/10.1016/j.jbusres.2012.12.021

Woodside, A. G. (2015). Constructing business-to-business marketing models that overcome the limitations in variable-based and case-based research paradigms. *Journal of Business-to-Business Marketing*, *22*(1–2), 95–110. https://doi.org/10.1080/1051712X.2015.1021589

World Health Organization (2022). Coronavirus disease 2019 (COVID-19): Situation reports. *World Health Organization.* Retrieved from https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports on 24 August 2022

Wu, W. T., & Chen, L. (2021). Relationship between progress of COVID-19 and psychological security in residents during the epidemic of COVID-19. *Chinese Mental Health Journal*, *35*(4), 350–352. https://doi.org/10.3969/j.issn.1000-6729.2021.04.015

Yang, Z. Y. (2016). *Research on Psychological Security Ratio*. China University of Geosciences (Beijing).

Yang, Y., Xie, G. Q., Zou, M. Y., Li, Z. Q., & Su, Y. Y. (2020). Psychological fears and resilience mechanism of enterprise employees in COVID-19. *Journal of Management Science*, *33*(4), 107–118. https://doi.org/10.3969/j.issn.1672-0334.2020.04.008

Yin, X. C. (2020). Experience summary and improvement suggestions of three-dimensional social security prevention and control system: Taking Chaoyang district of Beijing as an example. Journal of Beijing Police College, 1–16.

Yu, F. F., & Qiao, X. J. (2022). Effect of rehabilitation measures based on positive psychology theory on bad psychology and health recovery of patients with acute pancreatitis. *China Journal of Health Psychology*, *6*, 867–871.

Yu, X. (2020). Strategies for overcoming panic during the COVID-19 epidemic. *Chinese Mental Health Journal*, *34*(3), 278–279.

Yu, Y. N. (2021). Family atmosphere,cultivation mode and children's marriage view. *Journal of Shanxi University of Finance and Economics*, *43*(S1), 73–77.

Zhang, J. F., & Zhu, X. M. (2019). Research on the problem of brain drain in small and medium-sized enterprises from the perspective of psychological security. *Industrial & Science Tribune*, *18*(5), 287–288. https://doi.org/10.3969/j.issn.1673-5641.2019.05.159

Zhang, L. X., Zhang, L. T., Mao, M. Y., & Wang, L. L. (2021). The impact of LMX on knowledge worker's innovative behavior: Using the perspective of work-family relationship. *Shanghai Management Science*, *43*(6), 81–90. https://doi.org/10.3969/j.issn.1005-9679.2021.06.015

Zhang, M., & Du, Y. Z. (2019). Qualitative comparative analysis(QCA) in management and organization research: Position, tactics, and directions. *Chinese Journal of Management*, *16*(9), 1312–1323. https://doi.org/10.3969/j.issn.1672-884x.2019.09.005

Zhang, Q. W. (2021). The scientific connotation and the practical path of sense of fulfillment, happiness and security. *Social Scences in Chinese Higher Education Institutions*, *(3)*, 51–58. https://doi.org/10.3969/j.issn.2095-5804.2021.03.006

Zhao, S., & Wu, X. (2021). From information exposure to protective behaviors: Investigating the underlying mechanism in COVID-19 outbreak using social amplification theory and extended parallel

process model. *Frontiers in Psychology*, *12*, 631116. https://doi.org/10.3389/fpsyg.2021.631116